Tableau Cloud Help

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Get Started

Tableau Cloud is a secure, cloud-based solution for authoring, sharing, distributing, and collaborating on content created in Tableau.

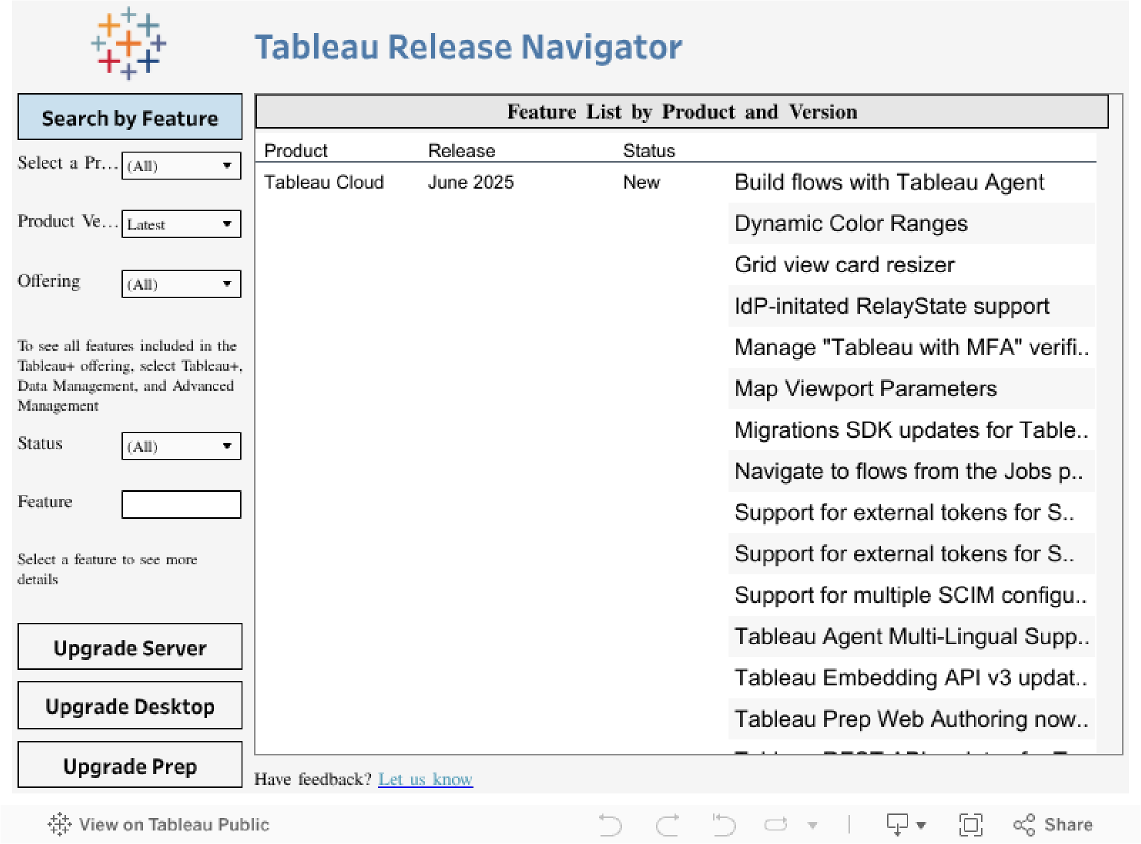
Tableau Cloud Release Notes

Tableau Online is now Tableau Cloud.

This topic describes what’s new in the latest release.

Use the visualization below to explore new features in Tableau Cloud. Click on a feature to bring up the tooltip with a link to detailed documentation for that feature. Explore the filters to refine your search. Download the data to create a customized list.

You can also use the **Search by Feature** dashboard to see a list of new features for a product or version, or explore when a feature was released. The dashboard currently defaults to Tableau Cloud for the latest version of Tableau Cloud.



Select a Pr… (All)

Product Ve… Latest

Offering (All)

To see all features included in the Tableau+ offering, select Tableau+, Data Management, and Advanced Management

Status (All)

Feature

Select a feature to see more details

Feature List by Product and Version

Product	Release	Status	
Tableau Cloud	June 2025	New	Build flows with Tableau Agent
			Dynamic Color Ranges
			Grid view card resizer
			IdP-initated RelayState support
			Manage "Tableau with MFA" verifi..
			Map Viewport Parameters
			Migrations SDK updates for Table..
			Navigate to flows from the Jobs p..
			Support for external tokens for S..
			Support for external tokens for S..
			Support for multiple SCIM configu..
			Tableau Agent Multi-Lingual Supp..
			Tableau Embedding API v3 updat..
			Tableau Prep Web Authoring now..

Have feedback? Let us know

Web authoring and interacting with views

For new features and enhancements related to web authoring and interacting with views, see Tableau Desktop and Web Authoring Release Notes. For more topics related to those tasks, see Using Tableau on the Web.

Features Introduced in Previous Versions of Tableau Cloud

To see the latest Tableau Cloud additions since June 2022, use the Tableau Release Navigator in Tableau Cloud Release Notes.

Browse summaries of features for previously released versions.

All Tableau Cloud Release Notes | All Known Issues

Added in previous versions

Added in June 2022

Provision users and groups with Azure Active Directory

Site administrators can now automate user management, provision groups, and assign Tableau Cloud site roles through Azure Active Directory. For more information, see Configure SCIM with Microsoft Entra ID.

Authorize access to Tableau REST API using Tableau connected apps

Using connected apps, you can programmatically authorize access to the REST API on users' behalf using JSON web tokens (JWTs).

For more information, see Access Scopes for Connected Apps.

Enable Explain Data by default per site

Site admins can enable Explain Data by default using site settings and the Explain Data permission. Authors no longer need to set the workbook option **Allow Explain Data to be used in this workbook when viewed online** in the Explain Data Settings dialog box (the workbook setting has been removed). Access to Explain Data in viewing mode is based on site setting, site role, and the Explain Data permission.

For more information, see Control Access to Explain Data.

Adjust the comparison and date range for metrics

You can now edit a metric's configuration to change the comparison, date range, and status indicator. Previously, you could only configure these options when you created a metric. For more information, see Edit a metric's configuration.

Add a Tableau Data Story to your dashboard

You can now create a Data Story in Tableau Cloud and in English only. Data Stories automatically generates narrative insights within your dashboard, saving time and surfacing relevant insights. As you interact with your dashboard, the stories written by Data Stories adjust allowing you to dive deeper into data and identify key insights faster. For more information, see Create a Tableau Data Story (English Only).

Edit published data sources

As of June, you can now edit more types of connections, including Amazon Athena, OData, Databricks, and SharePoint lists. For more information, see Edit a Published Data Source.

Suspend accelerated views automatically

You can now automatically suspend acceleration for views that are consuming unnecessary resources. Set a threshold for the number of times an acceleration task can fail per day, week, or month before the acceleration is automatically suspended. For more information, see View Acceleration.

Understand the ICU 68.2 upgrade

For improved security and better language support, we're upgrading to the current International Components for Unicode (ICU) library, 68.2. This update resolves issues with ordering and better handles new Unicode characters. This update can impact dashboard sorting, filtering, and calculations. If you use string comparisons in calculated fields, confirm that your calculations are still working as expected. For more information, see String Functions.

Tableau Catalog - part of Data Management

Ask Data Lenses appear in lineage - The lineage pane now contains lens information. For more information, see Use Lineage for Impact Analysis.

Virtual connections - part of Data Management

Virtual connections support revision history - Revision history lets you view the changes to the connection, delete a revision, or restore the connection to a previous version.

Enhanced filter features for data policy testing - In the virtual connection editor, when you preview the data with your data policy applied, you can now see the values that are allowed by the policy and the values that are filtered out.

Tableau Bridge support for OAuth

Tableau Bridge now supports OAuth as an authentication method for connections to: Snowflake, Google BigQuery, Google Drive, Salesforce, and OneDrive. Using OAuth provides better security than basic username and password authentication and is easier to manage. For more information, see Publish OAuth enabled private cloud-based data sources.

Added in May 2022

Admin Insights Job Performance data source

Get more visibility into your site with Admin Insights. You can now connect to the Job Performance data source to see events and runtime information for background jobs on the site. Jobs include extracts refreshes, Bridge refreshes, and flow runs. For more information, see Use Admin Insights to Create Custom Views.

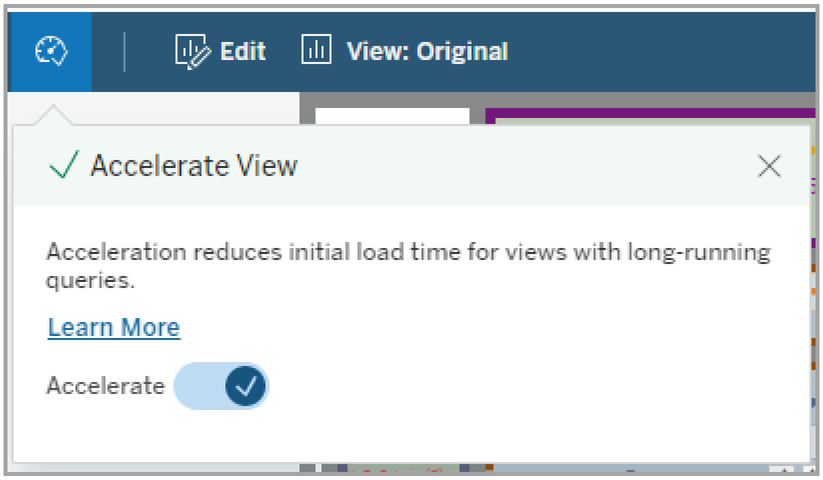
Added in March 2022

IPv4 address support for Bridge pools

When mapping domains to Bridge pools, site admins can specify IPv4 addresses in the Private Network allowlist to refresh data sources and virtual connections that use IPv4 addresses in their connections. For more information, see IP addresses.

Accelerate load time for your view

Workbook owners, site administrators, and server administrators can now accelerate load time for their views. View Acceleration precomputes long-running queries, so accelerated workbooks load faster. For more information, see View Acceleration.



Acceleration reduces initial load time for views with long-running queries.

Accelerate ✓

Customize the View Data window

In a worksheet, you can customize the tabular display of your data in the View Data window. Remove columns from the default view, change the column order, sort columns, or add columns to provide deeper context. You can then download the customized view of the underlying data as a CSV file to share with your team.

Note: When you customize the View Data window, the changes remain only while the View Data window is open.

The new View Data window and customization options are available in Tableau Cloud, Tableau Server, and Tableau Desktop. For more information, see View Underlying Data.

The View Data window and its options are accessible for keyboard navigation and screen readers in Tableau Cloud, Tableau Server, and Tableau Desktop. For more information, see View Data Window in "Keyboard Accessibility for Tableau".

Open the Sheet Description for a workbook on the web

Sheet Description is now available in Tableau Cloud and Tableau Server. While editing a workbook on the web, in the **Worksheet** menu, select **Sheet Description**. Field descriptions are also available on the web. For more information, see Get Details About Fields and Sheets in a Workbook.

Change to Search behavior in Tableau

Beginning with the 2022 Spring release, the Search functionality on the Search Results page in Tableau has changed. Prior to this release, content was indexed to allow “partial token matching.” This meant that you could search for a partial string. For example, if you searched for “super” the results could include content that contained the word “Superstore” in the title, description or columns, even if the word “super” was not present by itself.

As of Spring 2022, indexing is done in a new way that supports both “full token matching” and “fuzzy token matching.” This means that the results you see will be based on complete strings, and will not do partial matches. Fuzzy matching provides partial matching on complete strings. To find "Superstore", you need to search for “superstore” or some variation of that entire string, for example “supertor”, “sperstore”, or “superstores”. Searching on just “super” will not return that match. The goal and benefit of this approach is to reduce noise, limiting the results to content that more closely matches your search string.

Recommendations for taking advantage of this change:

- Use complete words in your query
- Search for words that are present in the title or description of the content

Quick Search

The behavior of Quick Search has not changed, so partial token matching is still supported, but this means that the results in Quick Search will likely not be the same as the results in the Search Results page.

Tableau Catalog - part of Data Management

Certifications and data quality warnings for virtual connections - You can now certify and set data quality warnings on virtual connections.

Virtual connections appear in lineage - The lineage pane now contains both virtual connection and virtual connection table information. For more information, see Use Lineage for Impact Analysis.

Developer Resources

Virtual connections in the Metadata API - Virtual connections and virtual connection tables are now addressable using the Metadata API, and can appear in output when using it. For more information, see Understand the Metadata Model in the Tableau Metadata API Reference.

Virtual connections - part of Data Management

Salesforce connector supports virtual connections - You can connect Tableau to your Salesforce data and create virtual connections and data policies that implement row-level security. See About Virtual Connections and Data Policies for details about virtual connections.

Virtual connections added to space usage view - Virtual connections are added as an Object Type in the Stats for Space Usage view so administrators can see how much disk space virtual connections use.

Added in January 2022

Set up OAuth for Salesforce CDP

As a Tableau Cloud site admin, you can set up OAuth for Salesforce CDP. For more information, see Connect Tableau Cloud Web Authoring to Salesforce Data Cloud.

Update Admin Insights data sources

As a Tableau Cloud site admin, you can now specify how often Admin Insights data sources are updated on your site. For more information, see Manage Admin Insights.

Tableau Cloud sign-in updates

For users added to multiple Tableau Cloud sites, the sign-in process will now prompt users to enter the site URI of the site they are attempting to access. For more information, see Sign In to Tableau Cloud.

Get view load times with Admin Insights

Get more visibility into your Tableau Cloud site with a new Admin Insights data source. You can now connect to Viz Load Times to see load time information for views published on your site. For more information, see Use Admin Insights to Create Custom Views.

Added in December 2021

Reset MFA verification methods

Site admins can now reset MFA for users who lose all their usual MFA verification methods and are locked out of the site. For more information, see Multi-Factor Authentication and Tableau Cloud.

Support for IdP-initiated SLO

In addition to supporting service provider (SP)-initiated single log out (SLO), Tableau Cloud supports identity provider (IdP)-initiated SLO. For more information about SAML configuration and requirements, see SAML Requirements for Tableau Cloud.

Use Tableau connected apps to enable SSO for embedded content

In early January 2022, as a site admin, you can use Tableau connected apps to create and manage explicit trust relationships between your Tableau Cloud site and custom applications where Tableau content is embedded. With connected apps, you can restrict which content can be embedded and where the content can be embedded, and provide users the ability to access embedded content using single sign on (SSO) without having to integrate with an identity provider (IdP). For more information, see Use Tableau Connected Apps for Application Integration.

Keep more data fresh across multiple private networks

Site admins can now configure multiple Bridge pools to load balance data freshness tasks. Pools can be mapped to domains, giving you the ability to dedicate pools to keeping specific data fresh and maintain security by restricting access to protected domains in your private network. For more information, see Configure Pools.

Schedule and manage refreshes for file-based data sources directly in Tableau Cloud

Beginning with Bridge version 2021.4.3, refreshes for file-based data sources using Bridge will be integrated with Online schedules. Publishers can schedule and manage refresh schedules for file-based data sources directly from Tableau Cloud. For more information, see Set Up a Private Network Refresh Schedule.

Note: Your site admin must have at least one Bridge 2021.4.3 client in a pool mapped to the domain where your file-based data sources are located.

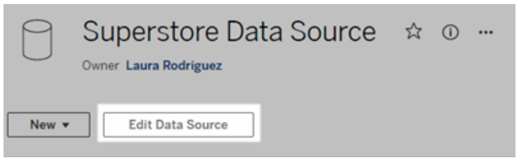
Data freshness support for virtual connections

Keep new virtual connections that connect to private network data fresh using Bridge. Data Management must be enabled for your site to create and use virtual connections. For more information about virtual connections, see About Virtual Connections and Data Policies.

Edit published data sources

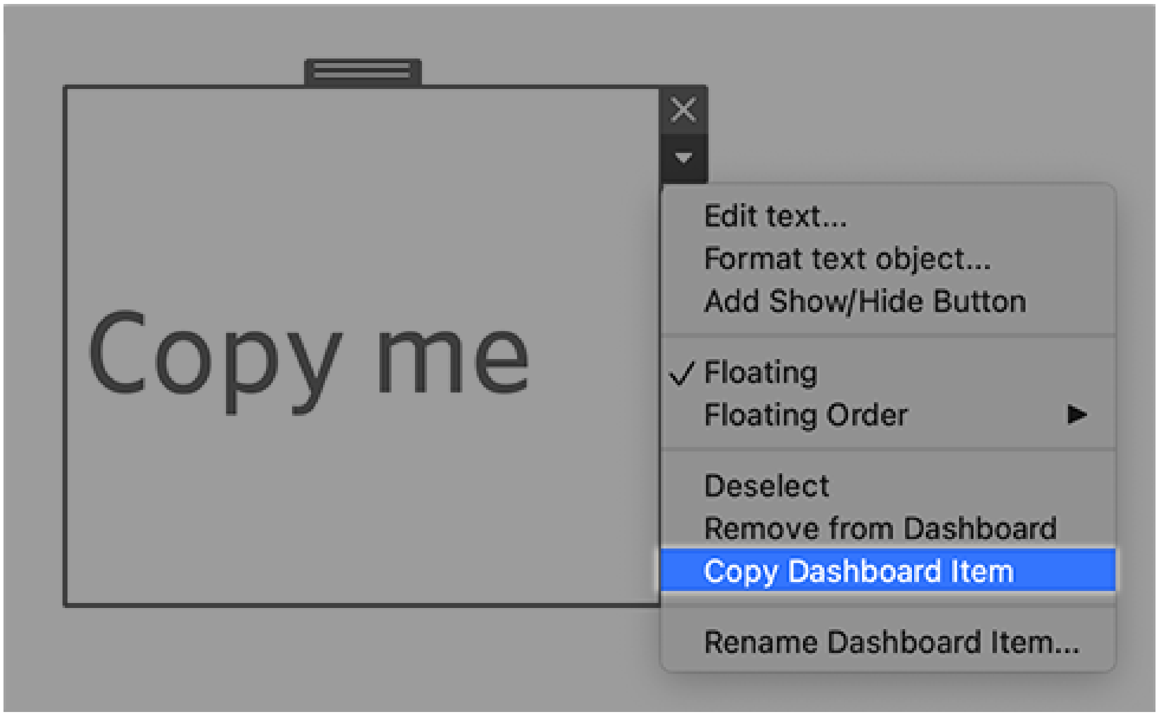
In Tableau Cloud, you can now edit published data sources. Previously, only data sources embedded in workbooks could be edited.

Whether you’re creating a new published data source or editing an existing published data source, you can create joins and edit the schema from the Data Source page. Then use the Scratchpad to test your changes, create folders, organize hierarchies, and rename fields and aliases before publishing your data source—all without ever leaving Tableau. For more information, see Edit a Published Data Source.


Superstore Data Source
Owner Laura Rodriguez
New ▾
Edit Data Source

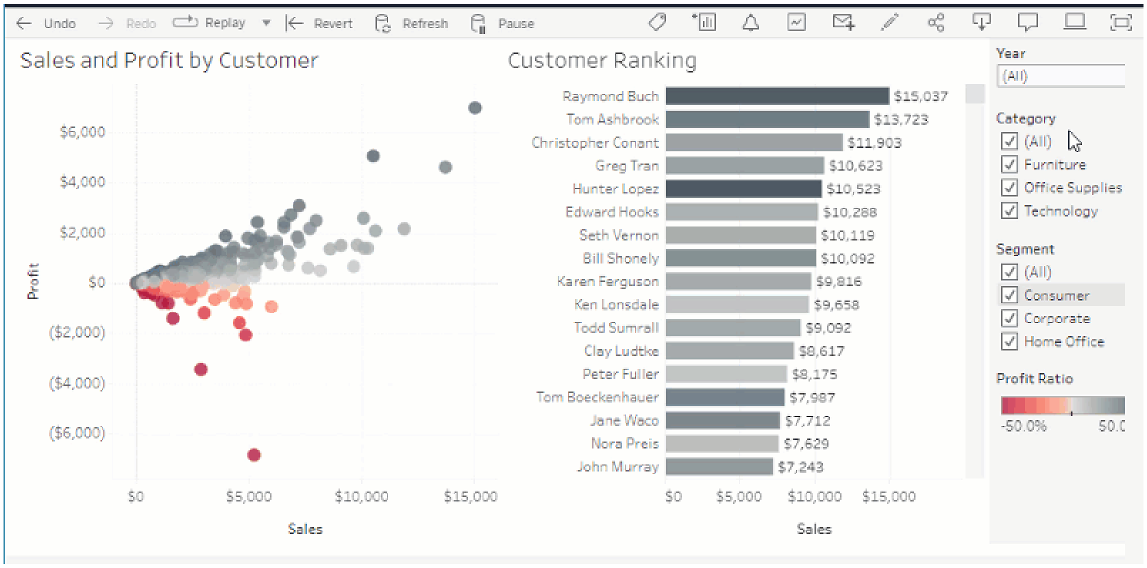
Copy and paste dashboard objects

You can now copy and paste objects either within the current dashboard, or from dashboards in other sheets and files. Note that you can't, however, copy sheets in a dashboard, items that rely on a specific sheet (such as filters), or objects on a device layout. For the complete list of unsupported items and detailed instructions, see Copy objects.


Copy me
Edit text...
Format text object...
Add Show/Hide Button
✓ Floating
Floating Order ▶
Deselect
Remove from Dashboard
Copy Dashboard Item
Rename Dashboard Item...

Replay animations in dashboards, stories, and worksheets

You can now replay animations in dashboards, stories, and worksheets wherever you use Tableau. Click the **Replay** button to rewind and replay the most recent animation. You can also choose the speed at which you want to replay the animation: actual speed, 2x speed, or 1/2 speed. Animations help you see how your data is changing in context, so you can make better conclusions about your data. For more information, see Format Animations.


Undo
Redo
Replay
Revert
Refresh
Pause
Sales and Profit by Customer
$6,000
$4,000
$2,000
$0
($2,000)
($4,000)
($6,000)
Profit
$0
$5,000
$10,000
$15,000
Sales
Customer Ranking
Raymond Buch $15,037
Tom Ashbrook $13,723
Christopher Conant $11,903
Greg Tran $10,623
Hunter Lopez $10,523
Edward Hooks $10,288
Seth Vernon $10,119
Bill Shonely $10,092
Karen Ferguson $9,816
Ken Lonsdale $9,658
Todd Sumrall $9,092
Clay Ludtke $8,617
Peter Fuller $8,175
Tom Boeckenhauer $7,987
Jane Waco $7,712
Nora Preis $7,629
John Murray $7,243
$0
$5,000
$10,000
$15,000
Sales
Profit Ratio
-50.0%
50.0

Year
(All)

Category
☑ (All)
☑ Furniture
☑ Office Supplies
☑ Technology

Segment
☑ (All)
☑ Consumer
☑ Corporate
☑ Home Office

Share Ask Data vizzes with Slack

If your Tableau administrator has configured Slack integration, you can quickly share Ask Data vizzes with anyone who has access to a lens. In the upper right corner of the browser, click the Share icon, then enter specific user names in the text box.

For more information, see Share Ask Data vizzes via email, Slack, or a link.

Use terms previously reserved for analytical functions in Ask Data

Previously, analytical terms found in data source field names and values were ignored by Ask Data. But now it treats terms like "average," "group," "filter," "limit," "sort," and "date" just like any other form of data, letting you analyze data sources without needing to revise their contents.

Query fields with table calculations in Ask Data

Ask Data now lets you query fields with table calculations. Be aware that you cannot include filters, limits, or "year over year difference" comparisons in your query expressions for these calculations.

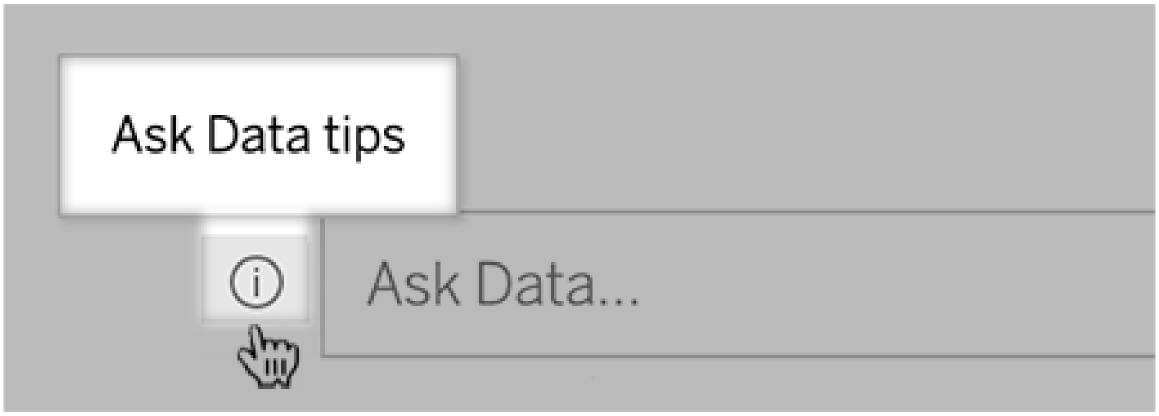
Add Ask Data lenses to Favorites

You can now add Ask Data lenses to your Favorites list for a site, helping you easily return to them.

Provide feedback to Ask Data lens authors

If you have questions about the structure of a lens or how best to use it with Ask Data, you can send feedback directly to the author.

To the left of the query box for Ask Data, click the "i" icon.



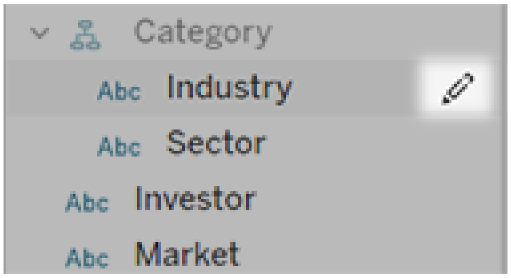
Then, at the bottom of the tips dialog, click **Contact the Lens Author**.

This option is enabled by default, but lens authors can hide it by following the steps in Let users email you questions about a lens.

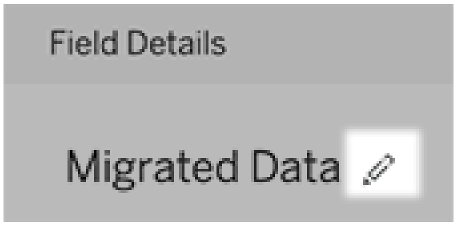
Rename fields and tables when authoring Ask Data lenses

If field and table names in a data source don't reflect terms your users would recognize, lens authors can now rename these items for each lens.

At left, hover over individual tables or fields, and click the pencil icon:



Then provide a more representative name by clicking the pencil icon to the right.



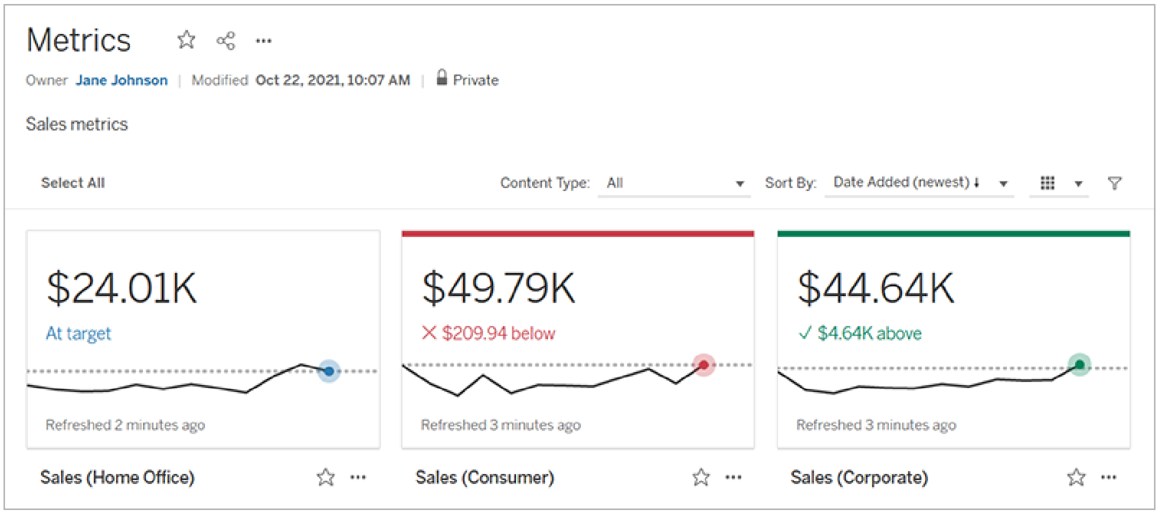
For more information, see Create or configure a lens page on your Tableau site.

Embed metrics into webpages

Include metrics on the webpages and apps where they are relevant by embedding them. To embed a metric, copy the embed code provided on your Tableau site or write your own embed code. An embedded metric follows the same sign in and permission restrictions as the site the metric is embedded from on Tableau Cloud or Tableau Server, so your metric's data is secure. For more information, see Embed Metrics into Webpages.

Configure new comparisons and statuses for metrics

When you create a metric, you can now adjust the date range, configure the historical comparison, and set status indicators. The comparison and status you set are displayed on the metric card, giving users an easy to understand indicator of how the metric is performing compared to a prior point in time or a specific value you’ve defined. For more information see, Create and Troubleshoot Metrics (Retired).



Metrics

Owner Jane Johnson | Modified Oct 22, 2021, 10:07 AM | Private

Sales metrics

Content Type: All

Sort By: Date Added (newest)

Select All
$24.01K
At target
Refreshed 2 minutes ago
Sales (Home Office)
$49.79K
✕ $209.94 below
Refreshed 3 minutes ago
Sales (Consumer)
$44.64K
✓ $4.64K above
Refreshed 3 minutes ago
Sales (Corporate)

Salesforce Admin Insights and Nonprofit Cloud

After connecting to Salesforce, you can now publish additional workbooks and data sources for Salesforce Admin Insights and Nonprofit Cloud. The content is customized for your organization and allows you to explore your Salesforce data in Tableau Cloud. For more information, see Create Workbooks with Salesforce Data.

Data Management

Virtual connections and data policies - part of Data Management

Virtual connections and data policies are included in the separately licensed Data Management capabilities for Tableau Cloud. These new data management features enable you to provide a single, centralized connection to a database for your users, as well as define row-level security on the tables in the connection using a data policy. For more information, see About Virtual Connections and Data Policies.

With virtual connections you get Quick Help

As you create and test your new virtual connection, help is just a click away. Delivered in the product, Quick Help shows relevant just-in-time help content based on where you are or what you're doing in the virtual connection editor. Simply click the ? icon on the top right of your screen to open the movable help window.

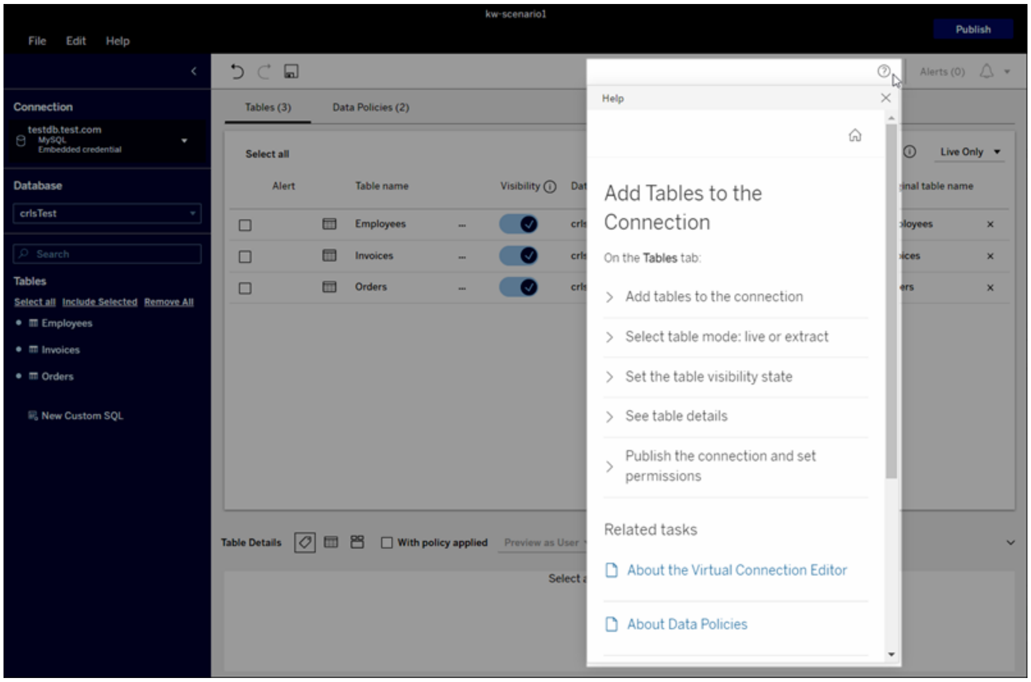

kw-scenario1
File
Edit
Help
Publish
Connection
testdb.test.com
MySQL
Embedded credential
Database
crlsTest
Search
Tables
Select all
Include Selected
Remove All
Employees
Invoices
Orders
New Custom SQL
Tables (3)
Data Policies (2)
Select all
Alert
Table name
Visibility
Employees
Invoices
Orders
Live Only
Alerts (0)
Table Details
With policy applied
Preview as User
Help
Add Tables to the Connection
On the Tables tab:
Add tables to the connection
Select table mode: live or extract
Set the table visibility state
See table details
Publish the connection and set permissions
Related tasks
About the Virtual Connection Editor
About Data Policies

Tableau Catalog - part of Data Management

Custom SQL information on content lineage pages - Catalog lineage pages show information that helps users understand more about custom SQL in their content.

- A banner on lineage pages identifies content that uses custom SQL.
- You can review the custom SQL query.
- A warning is shown for custom SQL queries that could result in incomplete lineage.

For more information, see Supported lineage in the Tableau Desktop and Web Authoring Help.

Tableau Catalog supports the T-SQL dialect in custom SQL queries - Support for the T-SQL dialect means Tableau Catalog can provide more complete lineage when custom SQL is used. For more information, see Supported queries in the Tableau Desktop and Web Authoring Help.

Data quality warnings links in email automatically open the Data Details pane - When you click a data quality warning in a subscription email, the view opens with the **Data Details** pane shown. Also, a new embed parameter, showDataDetails, is available to open the view with the **Data Details** pane shown. For more information, see Parameters for Embed Code in the Tableau Desktop and Web Authoring Help.

Inherited descriptions appear in the fields list on lineage pages - When a description for a field exists upstream from the field, it now appears in the fields list on lineage pages with information about where the description is inherited from. For more information, see How field descriptions are inherited in the Tableau Desktop and Web Authoring Help.

Easily create Prep flows based on external assets - Now you can use databases and tables as starting points for new flows in Prep web authoring. For more information, see Start a new flow in the Tableau Prep Help.

Added in September 2021

Share, collaborate, and keep up with your data in Slack

You can now see Tableau notifications in Slack with the Tableau for Slack app, which lets Tableau Cloud site administrators connect with a Slack workspace. Once connected, licensed Tableau users can receive notifications in Slack when they’re mentioned in a comment, when teammates share content with them, or when data meets a specified threshold in a data-driven alert. For more information, see Integrate Tableau with a Slack Workspace.

Save workbooks in Personal Space

Creators and Explorers can now edit and save content to Personal Space, a private location for each web author on a Tableau site. Content saved to Personal Space is private to the user and controlled by added resource governance. In Settings, you can enable Personal Space and set user storage limits. Administrators can continue to access and manage all content, including Personal Space content. For more information, see Create and Edit Private Content in Personal Space.

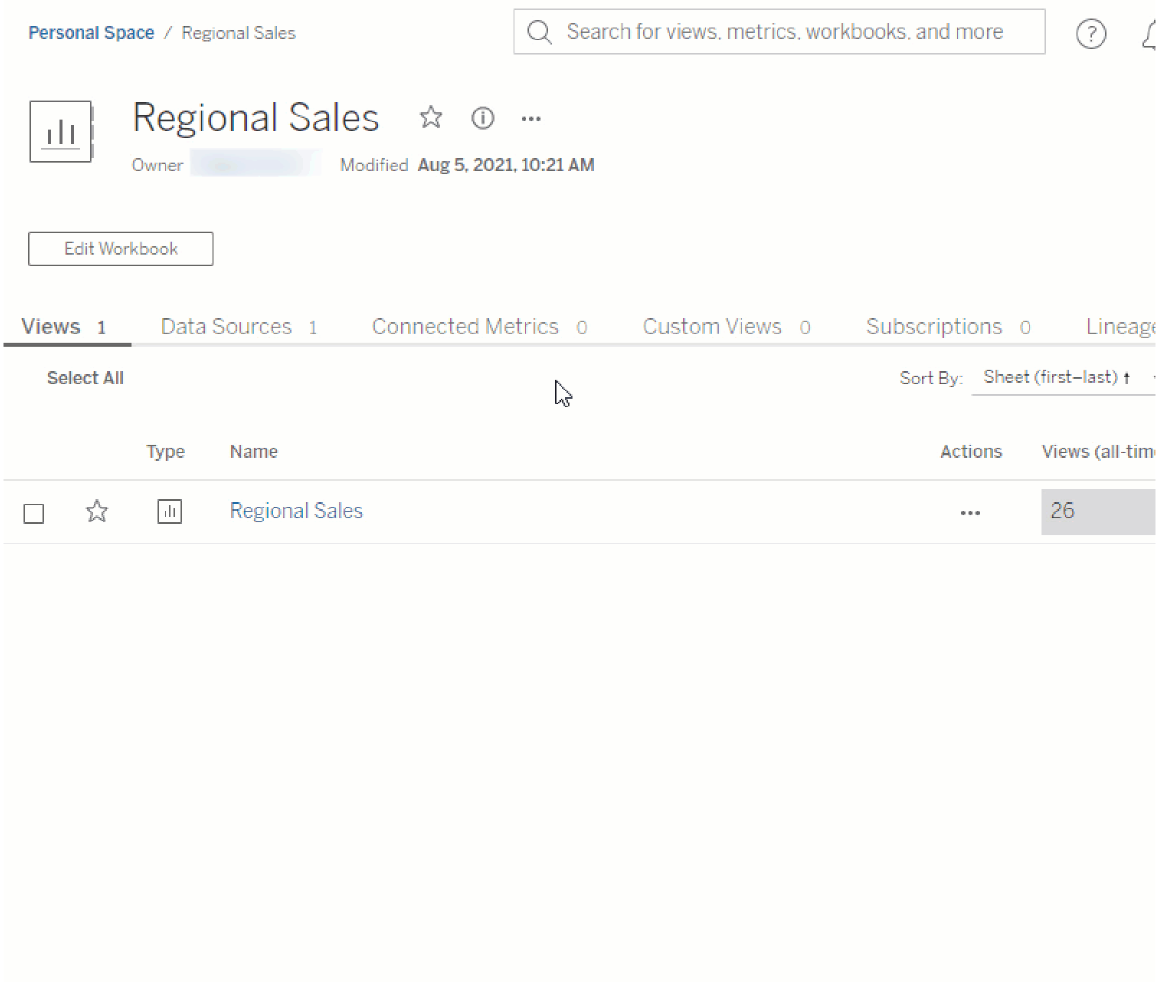
Set your workbook data freshness policy

Strike a balance between performance and data freshness by using workbook data freshness policies. While cached data is great for the performance of live-connection workbooks, seeing stale cached data in a viz can cause confusion and frustration for workbook users. Now with data freshness policies, workbook owners or administrators can choose granular data freshness policies, so the freshest data appears when your business needs it.

From the Workbook Details dialog in Tableau Cloud or Tableau Server, choose **Edit Data Freshness Policy**. Then, choose one of the following:

- **Site default** (12 hours in Tableau Cloud)
- **Always live** (Tableau will always get the latest data.)
- **Ensure data is fresh every**...then, set your interval, such as every 12 hours.
- **Ensure data is fresh at**...then set your days and times, such as Monday, Wednesday, and Friday. at 09:00 AM Pacific time.

Data freshness policies allow you to optimize workbook performance on a schedule that meets the needs of your business. For more information, see Set a Data Freshness Policy for Query Caches and View Acceleration.


Personal Space / Regional Sales
Search for views, metrics, workbooks, and more
Edit Workbook
Views 1
Data Sources 1
Connected Metrics 0
Custom Views 0
Subscriptions 0
Lineage
Select All
Sort By:
Sheet (first–last)

Regional Sales

Owner [redacted] Modified **Aug 5, 2021, 10:21 AM**

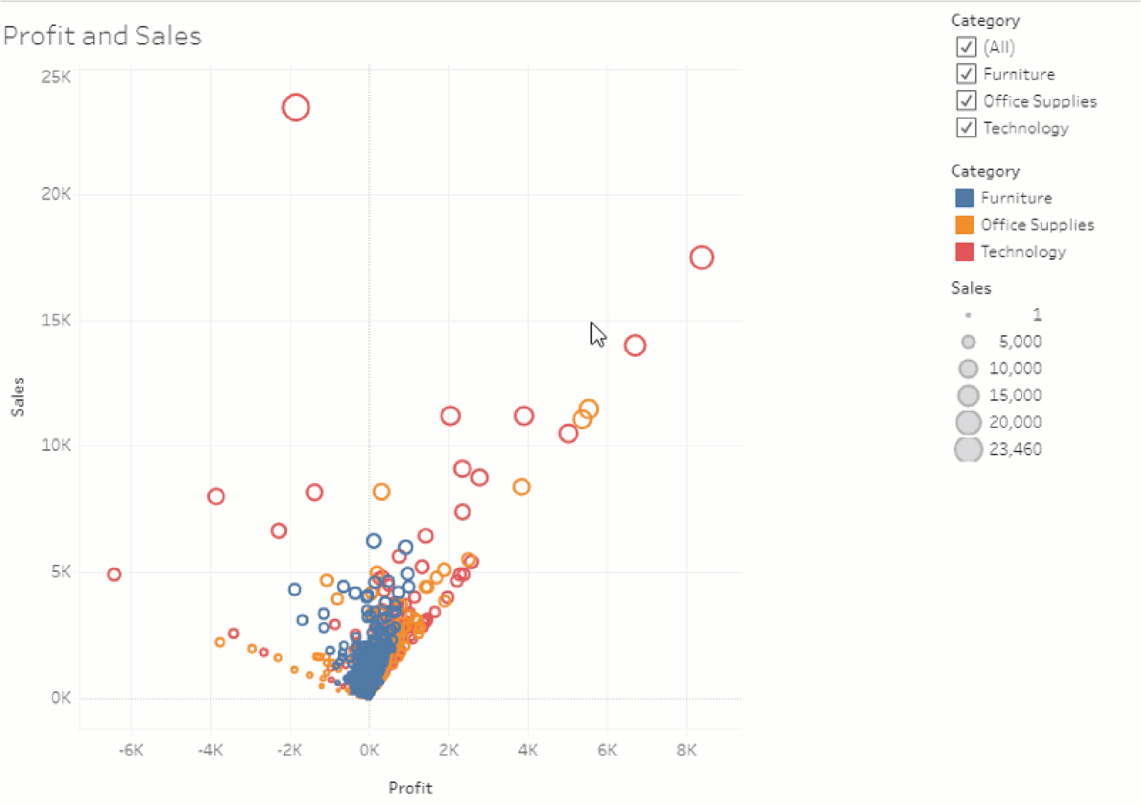
		Type	Name	Actions	Views (all-tim
☐	☆	ılı	Regional Sales	•••	26

Rename published data sources

In Tableau Cloud and Tableau Server, you can now rename a published data source for which you have **Save** permissions. To rename a published data source, click the **More actions** menu, and choose **Rename**—just like renaming workbooks. You can also rename a published data source using the Update Data Source REST API. When a published data source is renamed, all workbooks that use that data source will use the new name after the next data source refresh is complete. For more information, see Best Practices for Published Data Sources.

Use axes animations to see and understand changes in scale

Axes animations are now available in Tableau Desktop, Tableau Cloud, and Tableau Server. For example, when you filter your viz to include a new data group, you’ll see that the scale of the axis changes because a new value was added. Axes animations allow you to see changes of scale in context so you can make better conclusions about your data. For more information, see Format Animations.



Use advanced filtering

From wherever you use Tableau, you can now use advanced filtering that was previously available only in Tableau Desktop. Use Wildcard filtering to filter for strings that match your filter criteria. Or, author Formulas that work with Conditions or Top N filters. For more information, see Filter categorical data (dimensions).

Set new permission capability for metrics

The Create/Refresh Metrics permission capability has been added for workbooks. For more information, see Permission Capabilities and Templates in the Permissions topic.

Prior to 2021.3, the Create/Refresh Metrics capability was controlled by the Download Full Data capability. On workbooks created prior to 2021.3, users who had the Download Full Data capability will have the Create/Refresh Metrics capability.

This new capability provides finer-grained control over your data, allowing you to grant users the ability to create metrics while denying the ability to view or download the full data for the view.

Control access to Explain Data with new site setting and Run Explain Data permission capability

Tableau administrators can now control the availability of Explain Data in site settings. Prior to 2021.3, the ability to enable or disable Explain Data was controlled at the server level only using the tsm configuration set option ExplainDataEnabled.

Authors can now control the availability of Explain Data at the workbook level using the Run Explain Data permission capability. For more information, see Explain Data in the Permissions topic.

> **Note**: To make Explain Data available in viewing mode, a workbook author must also select the option **Allow Explain Data to be used in this workbook when viewed online** in the Explain Data Settings dialog box. For more information, see Control Access to Explain Data.

Limit the number of tags per item

A new setting allows you to limit the number of tags that users can add to Tableau content, such as workbooks and metrics, and external assets, such as databases and tables. This setting ensures that tags don’t pose resource consumption problems. When you lower the tag limit, it prevents new tags from being added above the limit, but it doesn't remove existing tags on items in excess of the limit. For more information, see Site Settings Reference.

Ensure JDBC or ODBC connection customizations are used by Bridge

If a Tableau Datasource Customization (TDC) file is used to customize your generic JDBC or ODBC connections, you can use the steps described in Use .tdc files for generic JDBC or ODBC connections to ensure those customizations are used by Bridge as well.

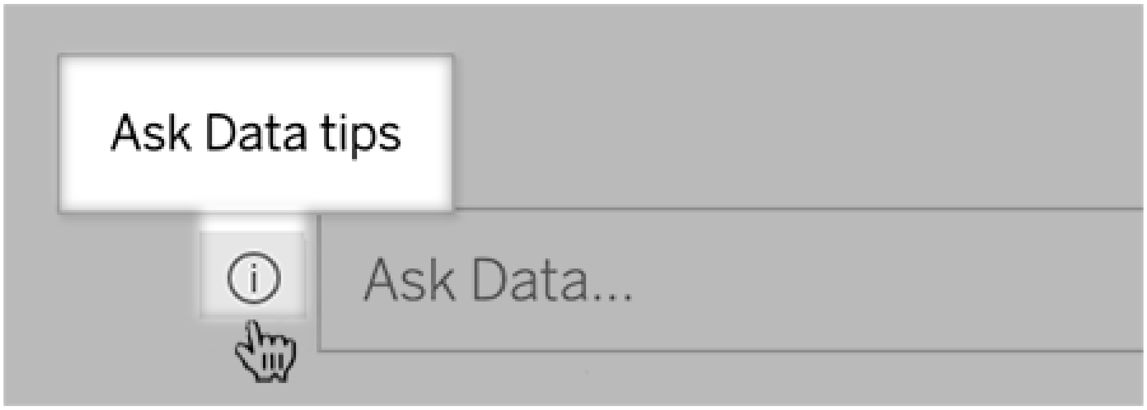
Monitor Bridge refreshes using JSON logs

Create data sources and views to monitor refresh jobs by connecting to a Bridge client's JSON log files. For more information, see Configure Pools.

Provide feedback to Ask Data lens authors

If you have questions about the structure of a lens or how best to use it with Ask Data, you can send feedback directly to the author.

1. To the left of the query box for Ask Data, click the "i" icon.



3. At the bottom of the tips dialog, click **Contact the Lens Author**.

This option is enabled by default, but lens authors can hide it by following the steps in Let users email you questions about a lens.

Use terms previously reserved for analytical functions in Ask Data

Previously, analytical terms found in data source field names and values were ignored by Ask Data. But now it treats terms like "average," "group," "filter," "limit," "sort," and "date" just like any other form of data, letting you analyze data sources without needing to revise their contents.

Access table calculations in Ask Data

If a published data source contains calculated fields with table calculations that aggregate or sort, Ask Data now indexes and analyzes those just like other fields. (Table calculations that filter or limit data are not supported.)

Use longer field values in Ask Data

Ask Data now indexes field values with lengths of up to 200,000 characters, far above the previous limit of 10,000.

Set up custom OAuth for Dremio

Beginning with version 2021.3, you can set up custom OAuth for Dremio. For more information, see OAuth Connections.

Data Management

Tableau Catalog - part of Data Management

Inherited descriptions appear in web authoring - When a description for a field exists upstream from the field, it now appears in web authoring with information about where the description is inherited from. For more information, see Describe fields in a published data source in the Tableau Desktop and Web Authoring Help.

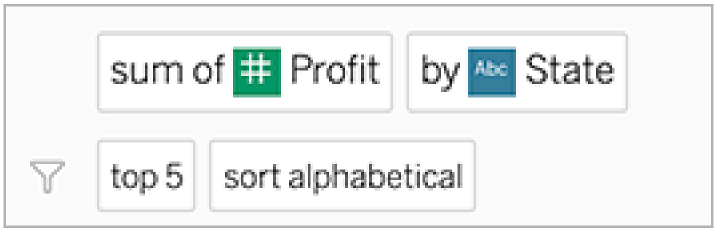
Assets in personal spaces are indexed - Tableau Catalog indexes assets in personal spaces, but users who browse through the lineage tool see **Permissions required** instead of information about workbooks in personal spaces.

Data quality warnings appear in subscription emails - Subscription emails can include data quality warnings for workbooks or views if their upstream assets have warnings. For more information, see Data quality warnings in subscriptions.

Added in August 2021

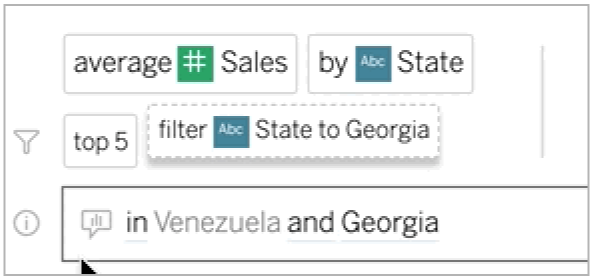
See color-coded data types and simplified phrasing for limiting and sorting in Ask Data

As you create queries in Ask Data, you'll see helpful color-coded icons that identify data types such as numbers, text strings, tables, and so on. Phrasing for limiting filters and sorting has been simplified too, making Ask Data's interpretations of your queries more clear.


sum of # Profit
by Abc State
top 5
sort alphabetical

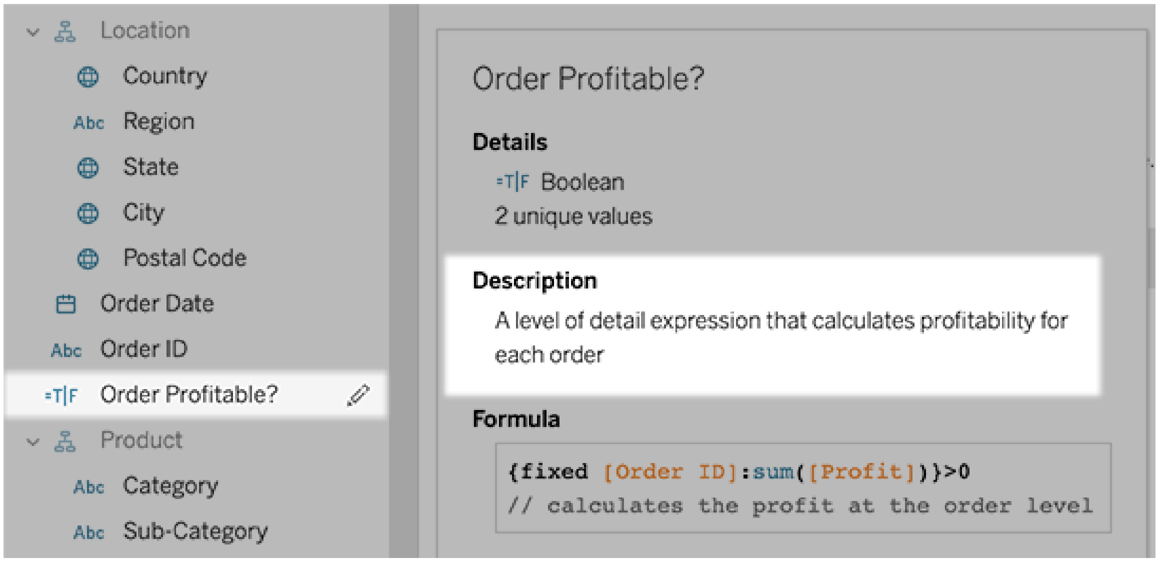
Identify elements used in interpretations for Ask Data

Ask Data has added visual feedback on how your inputs are used in interpretations. Ignored words are grayed out; hovering over remaining words highlights how they're incorporated in the interpretation above.


average # Sales
by Abc State
top 5
filter Abc State to Georgia
in Venezuela and Georgia

Edit field descriptions for Ask Data lenses

Lens authors can now customize the description that appears when users hover over a field, better explaining its purpose to the audience of lens users. To change a Description entry, click the pencil icon to the right of a field name.



Order Profitable?

Details

=T|F Boolean

2 unique values

Description

A level of detail expression that calculates profitability for each order

Formula

```
{fixed [Order ID]:sum([Profit])}>0
// calculates the profit at the order level
```

Added in June 2021

Tableau with MFA

As the security landscape evolves and threats that can compromise user credentials grow more common, it's important to implement strong security measures to protect your organization and users. If your organization doesn’t work directly with an single sign-on (SSO) identity provider (IdP), you can enable multi-factor authentication (MFA) with Tableau authentication to better secure your user sign-in process.

For more information, see one of the following:

- If you’re a site admin, see About multi-factor authentication and Tableau Cloud.
- If you’re a user, see Register for multi-factor authentication.

Streamlined site settings for Ask Data

Streamlined site settings for Ask Data now disable or enable the feature site-wide for all data sources. If it's enabled site-wide, indexing frequency remains customizable for each data source. For more information, see Disable or Enable Ask Data for a Site.

Organize items in a collection

Collections are like playlists that let users organize content in a way that is meaningful to them. Viewers, Explorers, and Creators can all create and share collections. For more information, see Organize Items in a Collection.

Note that if you participated in the limited preview for collections, the site setting to control public collections no longer exists. Now, permissions for collections are controlled the same way as other types of content. For more information, see Permissions for Collections.

Create workbooks with Salesforce data

You can now integrate Salesforce data into Tableau Cloud to create starter content for users on your site. Once you connect to Salesforce, Tableau publishes ready-to-use workbooks and data sources to help jumpstart analysis into your Sales and Service Clouds. For more information, see Create Workbooks with Salesforce Data.

Configure settings for extracts in web authoring

You can now configure settings for extracts that you create in Web Authoring. Optionally, configure options to tell Tableau how to store, define filters for, and limit the amount of data in your extract. For more information, see Create Extracts on the Web .

Bring Einstein Discovery predictions into your Prep flows on the web

Beginning with version 2021.2, you can bring prediction models built in Einstein Discovery directly into your Prep flows on the web.

> **Note**: You must have a Salesforce license and user account that is configured to access Einstein Discovery to use this feature.

With the power of machine learning and artificial intelligence, you can bulk score your flow data and generate new fields for predicted outcomes at the row level, as well as add top predictors and recommended improvement fields to include data about which fields contributed to the predicted outcome. Add a Prediction step to your flow, sign into Einstein Discovery and choose from deployed models, and apply them to your flow data. Then generate your flow output and use the new data source to analyze the predicted outcomes in Tableau. This feature was first introduced in Tableau Prep Builder in version 2021.1.3. For more information, see Add Einstein Discovery Predictions to your flow in the Tableau Prep help and Create and Interact with Flows on the Web.

Multiple analytics extensions in a site

Beginning with version 2021.2, you can now create multiple analytics extensions connections for each site. This means that organizations with different language or connection requirements can use analytics extensions on the same Tableau Server site, with different workbooks using different connections. For more information on configuring analytics extensions for your site, see Configure Connections with Analytics Extensions. For details on using analytics extensions, see Pass Expressions with Analytics Extensions (Tableau Desktop and Web Authoring Help).

Note: As of 2021.2, Einstein Discovery analytics extensions are still limited to one per site.

Share explanations from Explain Data in published dashboards

Explain Data has a reimagined user interface optimized for a broader audience of business users. Authors (Creators or Explorers with editing permissions) can now enable Explain Data for viewers of dashboards and sheets in published workbooks. Viewers can select a mark of interest in the view and run Explain Data to explore their data more deeply than before.

Access to Explain Data in viewing mode is not enabled by default, so authors will need to enable this option. For information on how to enable Explain Data in viewing mode, see Control Access to Explain Data.

For more information on Explain Data, see Discover Insights Faster with Explain Data, Get Started with Explain Data, and Requirements and Considerations for Using Explain Data.

Configure custom OAuth

As a site admin, you can now configure custom OAuth clients for your site to override default OAuth clients. For more information, see Configure custom OAuth.

Keep more data fresh using Bridge

Bridge adds support for the following connectors:

- Alibaba AnalyticsDB for MySQL
- Alibaba Data Lake Analytics
- Databricks
- Denodo
- Impala
- Kyvos

For more information about Bridge connectivity, see Connectivity with Bridge.

Explore new Admin Insights data sources

Get more visibility into your Tableau Cloud site with new Admin Insights data sources. You can now connect to the Groups data source to identify the group membership of users or the Site Content data source for governance information about content items on your site. For more information, see Use Admin Insights to Create Custom Views.

Tableau Catalog - part of Data Management

Add Field Descriptions - You can add descriptions for fields in a published data source that then display in the Description column on the data source page Lineage tab. You can also see the description on the Data tab when you build a visualization. For more information, see Describe fields in a published data source in the Tableau Desktop and Web Authoring Help.

Data Quality Warning Updates

- **Formatted text support for warning messages** - When you create or edit a data quality warning message, you can format the text with bold, underline, and italics, and include a link or an image. For more information, see Set a Data Quality Warning.
- **Message required for warnings** - When you create a data quality warning, you're now required to enter a message to display to users. (This doesn't apply to warnings

generated when you set Tableau to monitor for extract refresh or flow failures.) For more information, see Set a Data Quality Warning.

Inherited descriptions appear in Tableau Desktop - When a description for a field exists upstream from the field, it now appears in Tableau Desktop with information about where the description is inherited from. For more information, see Describe fields in a published data source in the Tableau Desktop and Web Authoring Help.

Full table name appears - The table's full name has been added to the table page.

Filter by tags - You can now filter databases, files, and tables by tags in the Connect To dialog box.

Filter by embedded or non-embedded - On the External Assets page, you can filter databases, files, and tables by asset category: embedded or non-embedded.

Create parameter actions on the web

You can now create parameter actions in both Tableau Cloud and Tableau Server. When you create a parameter action, you customize how data is displayed in your viz. And users can change a parameter value by interacting directly with your viz. For more information, see Parameter Actions.

Create set actions on the web

You can now create set actions in both Tableau Cloud and Tableau Server. Use sets to define a subset of data, and then use set actions to control how members in a set compare to other data in the view. For more information, see Set Actions.

Added in April 2021

Salesforce Authentication

If your organization uses Salesforce, you can enable Tableau Cloud to use Salesforce accounts for single sign-on with OpenID Connect. When you enable Salesforce authentication, users are directed to the Salesforce sign-in page to enter their credentials, which are stored and managed in Salesforce. Minimal configuration may be required. See Salesforce Authentication.

Added in March 2021

See new comment and share notifications in redesigned notification center

Users can now see notifications for new comments and shares by selecting the bell icon in the top right corner of their Tableau site. The redesigned notification center also displays updates for flows and extract jobs. With this update, old notifications will continue to be sent by email, but will not appear in the notification center. To continue receiving older notifications via email, navigate to site settings. Under Manage Notifications, select Email for each notification type. For more information, see Tour Your Tableau Site. For settings information, see Site Settings Reference.

Tableau Catalog - part of Data Management

Automated data quality warning - You can set Tableau to monitor for extract refresh failures and for flow run failures. When a failure occurs, Tableau generates a data quality warning that displays to users. For more information, see Set a Data Quality Warning.

Quick search results expanded - Quick search results now include tags on external assets.

Add Einstein Discovery predictions to Tableau dashboards

With the new Einstein Discovery dashboard extension, as users select marks in a view, they see dynamic updates to predictions and suggestions to improve predicted outcomes. Authors can drag the Extension object onto the dashboard canvas, select Einstein Discovery from the extensions gallery, and then configure the extension in Tableau Cloud. For more information, see Explore Predictions in Tableau with the Einstein Discovery dashboard extension.

For information on required licenses, access, and permissions in Salesforce and Tableau, see Requirements for access.

For an introduction to Einstein Discovery in Tableau, see the Einstein Discovery in Tableau page and demo on tableau.com.

For details on configuration steps required in order to enable the Einstein Discovery dashboard extension, see Configure Einstein Discovery Integration.

Added in December 2020

Create extracts on the web

Now you can create extracts directly in web authoring, without using Tableau Desktop. For more information, see Create Extracts on the Web . You can extract new workbooks in addition to existing workbooks. Optionally, the extract creation can run in the background and you can be notified when it's completed. This will let you close your authoring session while the extract is being created, which can be helpful with large extracts that might take a long time.

Create and interact with flows on the web

You can now create flows to clean and prepare your data using either Tableau Prep Builder, Tableau Server, or Tableau Cloud. Connect to your data, build a new flow, or edit an existing flow and your work is automatically saved every few seconds as you go. Create draft flows that are only available to you or publish your flow to make it available for others. Run your individual flows right from the web or run your flows automatically on a schedule using Tableau Prep Conductor if you have Data Management capabilities. For more information, see Create and Interact with Flows on the Web.

Organize items in a collection (limited preview)

Collections are like playlists that let you organize your Tableau content. Create a private collection for personal reference, or make a public collection that can be viewed by other users on your site. For more information, see Organize Items in a Collection.

As a Tableau administrator, you can control whether users can set collections to public by changing the site setting **Allow public collections**.

Collections are available as a limited preview for Tableau Cloud. You won't see collections unless your site is part of the preview. If you're a Tableau administrator who would like to join the preview, sign up here.

Tableau Catalog updates - part of Data Management

Tableau Catalog is included in the separately licensed Data Management capabilities for Tableau Server and Tableau Cloud. For more information, see About Tableau Catalog.

The following features are included in this release:

Data Quality Warning History admin view - Site administrators can see how data quality warnings are being used on the site using the pre-built admin view, Data Quality Warning History. For more information see Data Quality Warning History.

See quality warning details in Tableau Desktop - Tableau Desktop users can hover over the warning icon on the Data tab to see details about the data quality warnings affecting the data in their workbook. For more information, see Set a Data Quality Warning.

Metrics appear in lineage and show data quality warnings - Data quality warnings now appear on metrics affected by a warning. Metrics also appear in the Lineage tool, enabling you to see how a metric might be affected by data changes when performing impact analysis. For more information, see Create and Troubleshoot Metrics (Retired).

Tableau Prep Conductor updates - part of Data Management

Now, Data Management is only needed to schedule and monitor flows with Tableau Prep Conductor. Other flow-related tasks no longer require you to have Data Management. For more information, see Tableau Prep Conductor.

Analytics extensions

Analytics extensions allow you to extend Tableau dynamic calculations in a workbook with languages like R and python, and with other tools and platforms. These settings endpoints enable you to configure analytics extensions on your site in Tableau Cloud. See Configure Connections with Analytics Extensions.

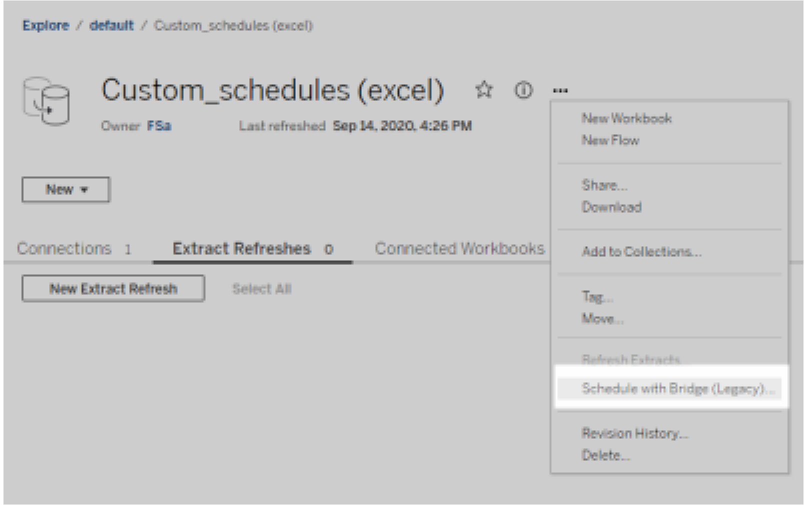
Ask Data Usage and Adoption admin view

You can now see how users engage with Ask Data on a site, using the new Ask Data Usage admin view. The dashboard highlights the top Ask Data users, data sources, and data source owners, along with headline value metrics. For more information, see Ask Data Usage.

Added in September and October 2020

Bridge (legacy) schedules have moved to a new location

For an extract data source that needs to use a Bridge (legacy) schedule to keep data fresh, you can find and configure a Bridge (legacy) schedule from its new location in the actions menu on the data source page. For more information, see Set Up a Private Network Refresh Schedule.


Explore / default / Custom_schedules (excel)
Custom_schedules (excel)
Owner FSa
Last refreshed Sep 14, 2020, 4:26 PM
New
Connections 1
Extract Refreshes 0
Connected Workbooks
New Extract Refresh
Select All
New Workbook
New Flow
Share...
Download
Add to Collections...
Tag...
Move...
Refresh Extracts
Schedule with Bridge (Legacy)...
Revision History...
Delete...

Note: Recommended schedules have not changed location and continue to be integrated with Online refresh schedules. However, Recommended schedules is no longer labeled as "Recommended" to better reflect the integration. All the Bridge-related updates described here have been made to support the new Online scheduling experience.

Custom Extract Refresh schedules

Extract refresh scheduling is now fully customizable and no longer need to be selected from an pre-populated list of schedules. You now have the ability to create and manage customized hourly, daily, weekly, and monthly schedules for the extract refreshes.

For more information, see Schedule Refreshes on Tableau Cloud.

Turn off Web Page objects

To prevent Web Page objects in dashboards from displaying target URLs, deselect **Enable Web Page Objects** in the site settings.

Added in August 2020

Set the Site Time Zone for Extracts

The default time zone for extract-based data sources in a site is Coordinated Universal Time (UTC). Site administrators can now choose to set a different time zone.

For more information, see Change Time Settings.

Automatically Suspend Extract Refreshes for Inactive Workbooks

To save resources, Tableau can automatically suspend extract refresh tasks for inactive workbooks. This feature applies to full extract refreshes only, not to incremental extract refreshes. This feature only applies to refresh schedules that run weekly or more often.

For more information, see Automatically Suspend Extract Refreshes for Inactive Workbooks and Data Sources.

Manage Licenses for User Groups with Grant Role on Sign In

Administrators can set a minimum site role for user groups and choose **Grant role on sign in** when creating or modifying that user group. Enabling Grant role on sign in reduces manual work to manage licenses, since administrators can designate site role capabilities by group, and provision licenses when a user actually needs it. By waiting to grant licenses until users sign in, administrators can streamline license provisioning, without granting licenses to inactive users. For more information, see Grant License on Sign In.

Tag Stale Content for Archiving

The Stale Content Admin view that was introduced in 2020.2, now has an added functionality that allows you to tag content as stale. You can then choose to archive the tagged content. For more information, see Stale Content.

Tableau Catalog updates - part of Data Management

Tableau Catalog is included in the separately licensed Data Management for Tableau Server and Tableau Cloud. For more information about Tableau Catalog, see About Tableau Catalog.

The following features are included in this release:

See data quality warnings in Tableau Desktop - When you open a workbook in Tableau Desktop that has a data quality warning, the warning icon (either a blue circle or a yellow triangle with an exclamation point) appears on the Data tab on the sheet page of the workbook. For more information, see Set a Data Quality Warning

'Sensitive data' warning type added - You can use this new warning type to set a data quality warning for sensitive data in your organization. For more information, see Set a Data Quality Warning

Embedded assets are listed in External Assets - You can now see embedded assets listed in the External Assets page. For more information, see Use Lineage for Impact Analysis.

Tag external assets - Add tags to databases, tables, and columns, which enables you to, among other things, tag tables and columns with personally identifiable information (PII). For more information, see Tag Items in Tableau Desktop and Web Authoring Help.

Web authoring and interaction with views

New features and enhancements related to web authoring and interacting with views on the web are listed in What's New in Tableau for Users and Web Authoring and Tableau Desktop

Feature Comparison. For topics related to web authoring and interacting with views, see Using Tableau on the Web.

Added in June 2020

Tableau Bridge

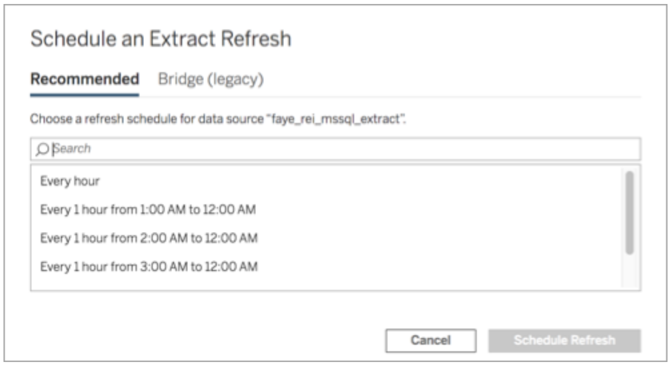
No Bridge upgrade or installation required – for publishers

For publishers working exclusively with data sources that connect to on-premises relational data, you no longer need to maintain your current client or upgrade to the latest. As long as you migrate your refresh schedules using Recommended schedules (next bullet), and your admin has installed and set up at least one Bridge 2020.2 client, you’re all set. For more information, see Set Up a Private Network Refresh Schedule.

Integrated refresh schedules

Refresh schedules for Bridge are now integrated with Tableau Cloud refresh schedules. For publishers, integrated refresh schedules, called **Recommended** schedules, mean:

- You have more control and flexibility to manage your own data sources.
- Your dependence on site admins is reduced for certain data source management tasks like updating connections credentials.



Choose a refresh schedule for data source "faye_rei_mssql_extract".

Every hour
Every 1 hour from 1:00 AM to 12:00 AM
Every 1 hour from 2:00 AM to 12:00 AM
Every 1 hour from 3:00 AM to 12:00 AM

For more information, see Bridge refresh schedules versus Bridge legacy schedules.

Keep private cloud data fresh

Use Bridge to keep cloud data, accessible only from inside a private network, fresh. For more information, see Connect to Private Cloud Data.

Pooling enabled for extract refreshes

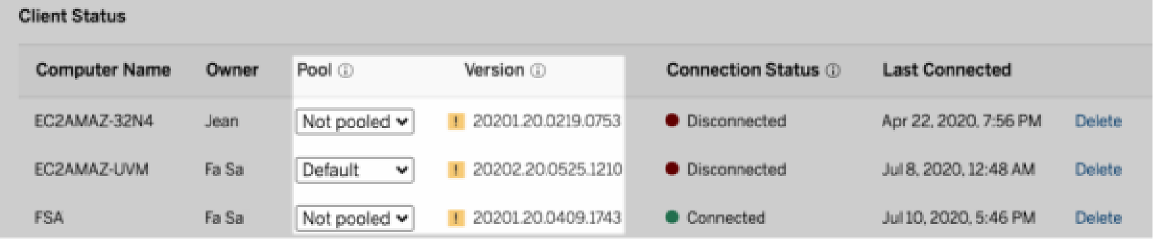
Clients can pool extract refreshes, in addition to live queries, across all 2020.2 clients in the network. For site admins, pooling of extract refreshes means:

- You can focus on providing availability, throughput, and latency.
- You can optimize the composition of your client pool to match the characteristics of your live query and extract refresh workloads.

For more information, see Configure Pools.

Updated Settings page

For site admins, the simplified Bridge Settings page allows you to configure which clients to include or exclude from the pool and displays a warning icon to make it easier to know which clients need to be upgraded to the latest version. For more information, see Configure Pools.



Client Status

Computer Name	Owner	Pool	Version	Connection Status	Last Connected	
EC2AMAZ-32N4	Jean	Not pooled	! 20201.20.0219.0753	● Disconnected	Apr 22, 2020, 7:56 PM	Delete
EC2AMAZ-UVM	Fa Sa	Default	! 20202.20.0525.1210	● Disconnected	Jul 8, 2020, 12:48 AM	Delete
FSA	Fa Sa	Not pooled	! 20201.20.0409.1743	● Connected	Jul 10, 2020, 5:46 PM	Delete

Note: The warning icon shows only when there is a newer client available for download. The warning icon is not an indication that there are issues with the client or related Bridge data sources.

Added in May 2020

Site Capacity Updates for Extract Refreshes

To improve site performance and ensure a consistent scheduling experience, sites are allocated daily and concurrent extract refresh capacity. For more information, see Tableau Cloud Site Capacity.

Use relationships to combine data for multi-table analysis

Relationships are a new, flexible way to combine data for multi-table analysis in Tableau. Data sources now support multi-table data models in a new logical layer. Tableau recognizes the separate tables in your data source and performs aggregations at the native level of detail for each table.

Creators can combine tables using relationships. Using relationships between logical tables makes it easier to explore and analyze multi-table data at the right level of detail, without having to write specialized calculations to control aggregations like averages and totals.

You do not need to specify join types for relationships; during analysis Tableau automatically selects the appropriate join types based on the fields and context of analysis in the worksheet.

Note: Your workbook must use an embedded data source for you to be able to edit relationships in the Data Source page in web authoring in Tableau Server or Tableau Cloud. You cannot edit the data model of a published data source.

In support of multi-table analysis, several parts of the Tableau interface have changed. The Data Source page (canvas, data grid), View Data window, and the Data pane in the worksheet have all been updated to support a multi-table analysis experience. For more information, see Changes to different parts of the interface.

Note: View Data column order has changed in Tableau 2020.2 and later. This change is required to support relationships and logical tables. For details, see View Data column order changes in Tableau 2020.2 and later.

For more information about relationships and changes to data sources, see these topics:

- What's Changed with Data Sources and Analysis in 2020.2
- Questions about Relationships, the Data Model, and Data Sources in 2020.2
- The Tableau Data Model
- Relate Your Data and Optimize Relationships Using Performance Options
- How Analysis Works for Multi-table Data Sources that Use Relationships
- Troubleshoot Multi-table Analysis
- Walkthrough: Don't Be Scared of Relationships

Also see this Tableau blog post: Relationships, part 1: Introducing new data modeling in Tableau

Create metrics to track data

Metrics help users track changes to their data. Users can create metrics from a view and use them to monitor key numbers like daily sales. For information on how users create metrics, see Create and Troubleshoot Metrics (Retired).

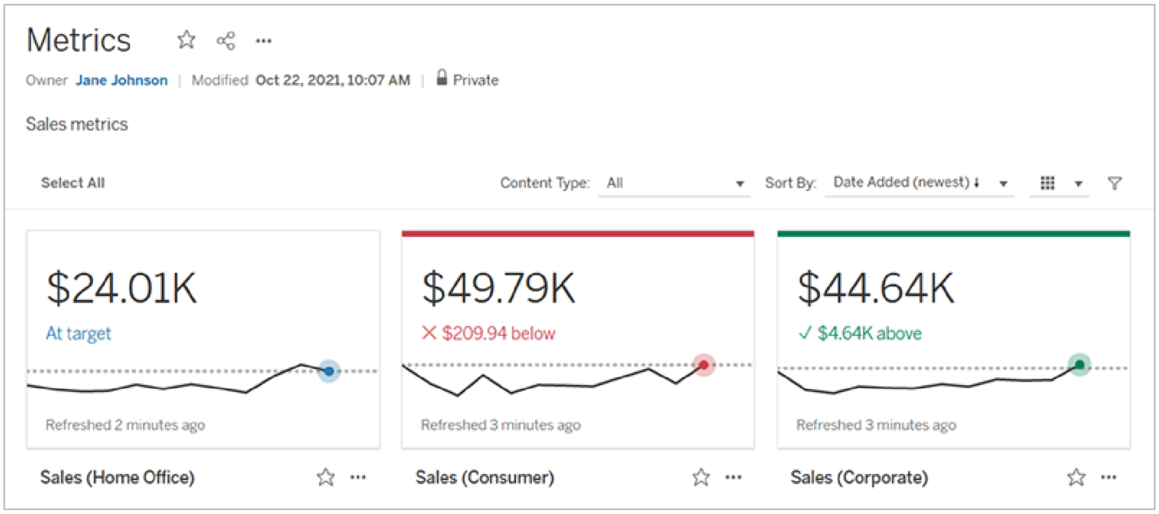
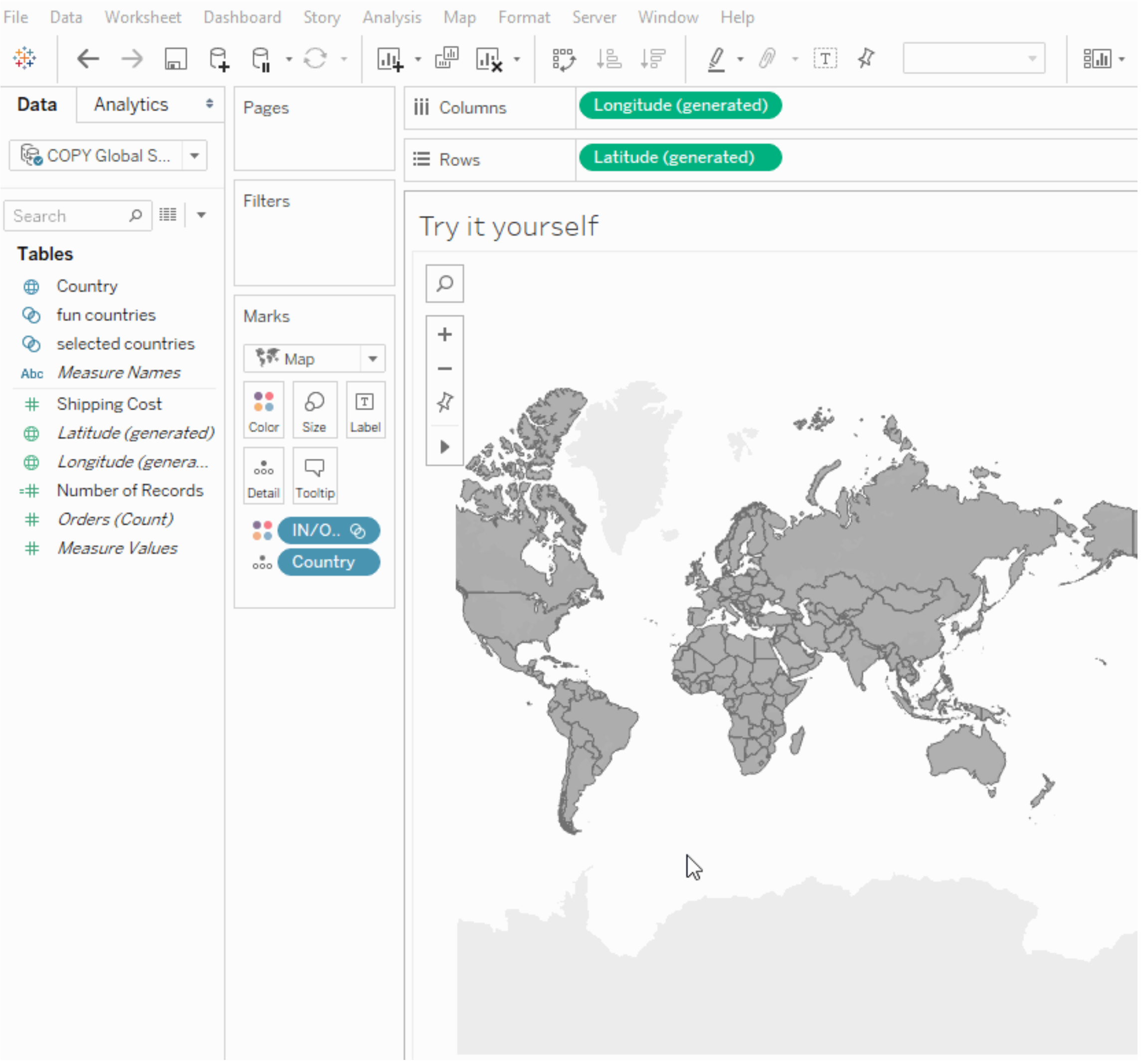

Metrics
Owner Jane Johnson | Modified Oct 22, 2021, 10:07 AM | Private
Sales metrics
Select All
Content Type: All
Sort By: Date Added (newest)
$24.01K
At target
Refreshed 2 minutes ago
Sales (Home Office)
$49.79K
✕ $209.94 below
Refreshed 3 minutes ago
Sales (Consumer)
$44.64K
✓ $4.64K above
Refreshed 3 minutes ago
Sales (Corporate)

Tableau Cloud administrators can ensure that users are able to create metrics or disable metrics for the site. For more information, see Set Up for Metrics.

Add a Set Control to let users quickly modify the members of a set

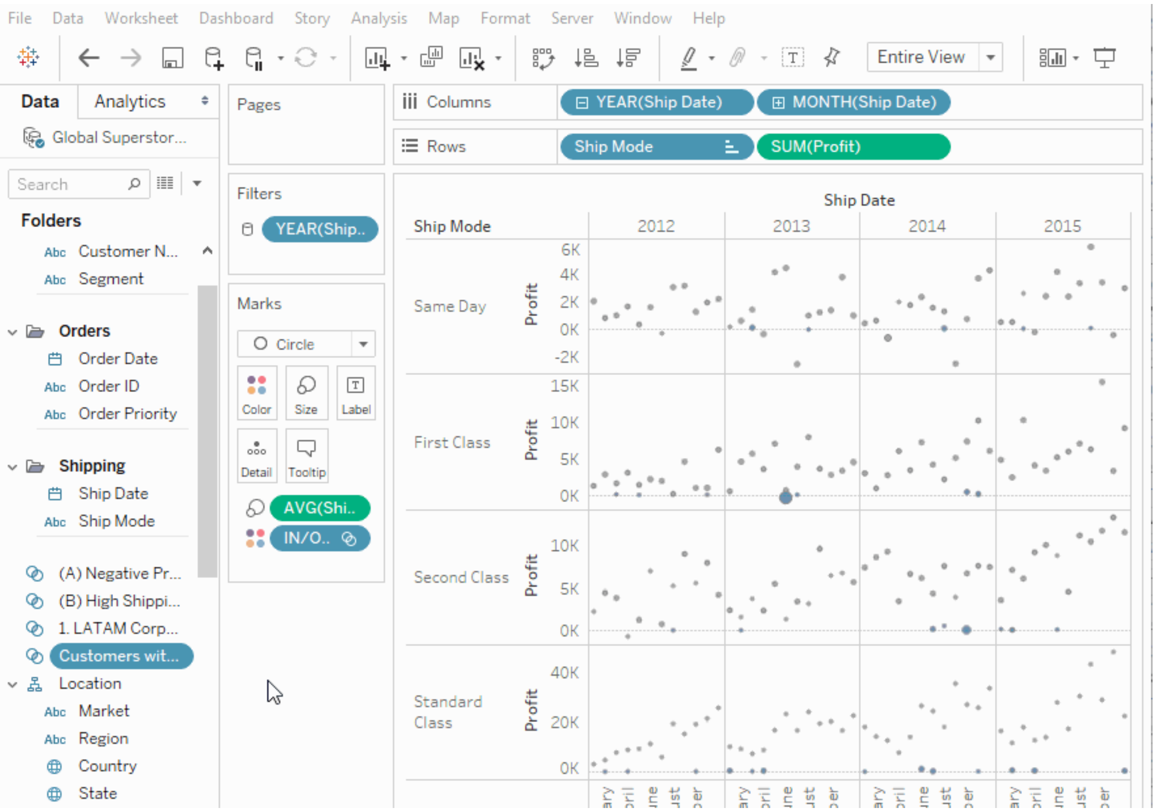
With a Set Control, your audience can select the members of a set without necessitating edit mode. Users can simply add or remove set members by interacting directly with the card in the view. Coupled with Set Actions, you have two powerful, complementary features that make it easy to visualize the set you’re interested in.


File
Data
Worksheet
Dashboard
Story
Analysis
Map
Format
Server
Window
Help
Data
Analytics
COPY Global S...
Search
Tables
Country
fun countries
selected countries
Measure Names
Shipping Cost
Latitude (generated)
Longitude (genera...
Number of Records
Orders (Count)
Measure Values
Pages
Filters
Marks
Map
Color
Size
Label
Detail
Tooltip
IN/O..
Country
Columns
Longitude (generated)
Rows
Latitude (generated)
Try it yourself

For more information, see Create Sets, or check out this blog post, Powerful analytics in a user-friendly package with the set control.

Add or remove values from a set by interacting directly with the viz

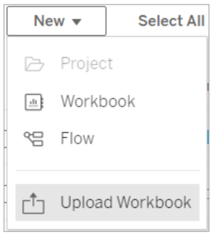
Now, using Set Actions, you and your audience can use the viz itself to incrementally add values to or remove values from a set. Simply interact with the viz and choose which marks to include or exclude. Coupled with the new Set Control feature, you have two powerful ways to gain deeper insights into your data.


File
Data
Worksheet
Dashboard
Story
Analysis
Map
Format
Server
Window
Help
Entire View
Data
Analytics
Global Superstor...
Search
Folders
Customer N...
Segment
Orders
Order Date
Order ID
Order Priority
Shipping
Ship Date
Ship Mode
(A) Negative Pr...
(B) High Shippi...
1. LATAM Corp...
Customers wit...
Location
Market
Region
Country
State
Pages
Filters
YEAR(Ship..
Marks
Circle
Color
Size
Label
Detail
Tooltip
AVG(Shi..
IN/O..
Columns
YEAR(Ship Date)
MONTH(Ship Date)
Rows
Ship Mode
SUM(Profit)
Ship Date
Ship Mode
2012
2013
2014
2015
Same Day
First Class
Second Class
Standard Class
Profit
6K
4K
2K
0K
-2K
15K
10K
5K
0K
10K
5K
0K
40K
20K
0K

For more information, see Set Actions.

Upload and open workbooks with a browser

Users can now upload a Tableau workbook to your Tableau site without publishing through Tableau Desktop, the REST API, or TabCmd. In a Tableau site, users with a Creator or Explorer (can publish) site role can select **New** > **Workbook Upload** to upload a .twb or .twbx file (up to 50 MB) to a project. For more information, see Upload Workbooks to a Tableau Site.



Access Dashboard Starters from Home in Tableau Cloud

Site Administrator Creators can now access Dashboard Starters from the Home page in Tableau Cloud. Use these pre-designed dashboards to quickly visualize data from common business applications like Salesforce or ServiceNow ITSM. For more information, see Use Accelerators to Quickly Visualize Data.

Tableau Catalog updates - part of Data Management

Tableau Catalog is included in separately licensed Data Management capabilities for Tableau Server and Tableau Cloud. For more information about Tableau Catalog, see About Tableau Catalog.

The following features are included in this release:

Raise the visibility of important warnings - You can set a data quality warning to be highly visible, so that users of a visualization that's affected by the warning see a notification, and the warning displays in a more prominent yellow color elsewhere in Tableau. For more information, see Set a Data Quality Warning and "Use Data Details to see visualization information" in Explore and Analyze Data in a View in the Tableau Desktop and Web Authoring Help..

Dashboards appear in the Lineage pane - When you select the Dashboards item in the lineage, you can see a list of downstream dashboards. For more information, see Use Lineage for Impact Analysis.

Filter external assets on Certified and data quality warnings - In addition to using search to narrow down your choices on External Assets, you can now filter databases, files, and tables by Certified and by data quality warnings.

More filters when connecting - When you connect to data, you can filter databases and table on connection type.

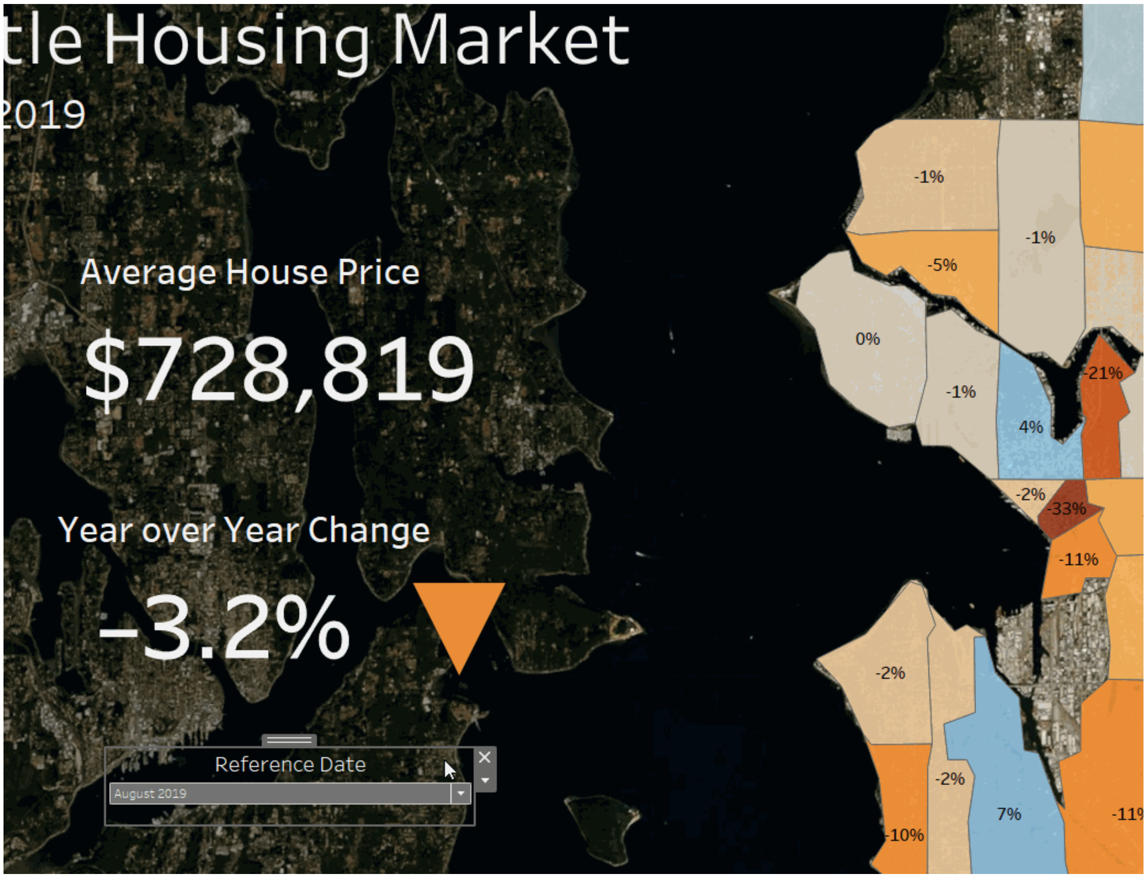
More information on what's new

Other new features and enhancements related to web authoring and interacting with views on the web are listed in What's New in Tableau for Users and Web Authoring and Tableau Desktop Feature Comparison. For topics related to web authoring and interacting with views, see Using Tableau on the Web.

Added in February 2020

Refresh parameters automatically with dynamic parameters

Now you can set a parameter’s current value to be the result of a single-value, view-independent calculation. In addition, you can refresh a parameter's list of values (or domain) based on a data source column. This means that each time the workbook is opened and Tableau connects to the data source referenced by the parameter, every place in the workbook that references the parameter will use the latest value or domain.


tle Housing Market
2019
Average House Price
$728,819
Year over Year Change
-3.2%
Reference Date
August 2019
-1%
-1%
-5%
0%
-1%
-21%
4%
-2%
-33%
-11%
-2%
-2%
7%
-10%
-11

For more information, see Create Parameters.

Automate user provisioning and group synchronization through an external identity provider

You can automate adding or removing users from Tableau Cloud or adding or removing members from groups using your identity provider (IdP). Tableau Cloud IdP user management uses the System for Cross-domain Identity Management (SCIM) standard, which is an open standard for automating the exchange of user identity information. Currently we support SCIM with the following IdPs:

- Okta
- OneLogin

SCIM is used to provision users in cloud applications such as Tableau Cloud. Cloud IdPs centrally manage user identities, including assigning users to applications and groups. The IdP uses the SCIM standard to ensure that “downstream” applications are kept in sync with the provisioning assignments set up with the IdP. Managing users in this way improves security, and can greatly reduce the amount of manual work that Tableau Cloud site administrators need to do to manage site users and group membership.

For more information, see SCIM.

Support for login-based license management

Login-based license management, helps you manage licensing for users with Creator roles on Tableau Server and Tableau Cloud. Users with Explorer or Viewer roles cannot use this feature. If you're using Role Based Subscriptions with Tableau Server or Tableau Cloud, you can simplify your license management using login-based license management to eliminate separate Tableau Desktop and Tableau Prep Builder product keys. You only need to manage one or more product keys for on-premises Tableau Server, or in the case of Tableau Cloud, you don't need to manage any product keys at all.

For more information, see Activate Tableau using Login-based license management.

Updates for Permission Dialog

Set permissions faster with the new permissions dialog. New permission templates and capability groupings match common user scenarios. Editing permission rules is easier than ever with direct editing—double click to enter edit mode. Search for groups and users simultaneously without preselecting your choice. Copy a custom permission rule and paste it for another group or user. And hand off project management to Project Leaders more intuitively with the new setting. For more information on permissions, see Permissions.

Lock nested projects

Regulating permissions is now more flexible. Project permissions can be locked independently for nested projects. Top-level projects can act as organizational containers for projects with different permission models. Non-admins can create new locked projects. For more information, see Lock content permissions.

Run Now Setting

This new setting allows Administrators to configure whether to allow or block users from manually running extract refreshes, flows runs, and subscriptions. The Run Now settings are on the General settings page, and by default, is selected to allow users to run jobs manually.

Tableau Catalog updates - part of Data Management

Tableau Catalog is included in the separately licensed Data Management capabilities for Tableau Server and Tableau Cloud. For more information about Tableau Catalog, see About Tableau Catalog.

The following features are included in this release:

Added connectors - Connect to more data from external assets. We've added support for the following connectors: Google Big Query, Google Drive, Google Sheets, Box, Dropbox, and OneDrive.

Create workbooks - Create a workbook from the External Assets page or from a database or table page for Catalog-supported connections. For more information, see "Tableau Catalog users create workbooks from external assets" in Creators: Get Started with Web Authoring in the Tableau Desktop and Web Authoring Help.

Filter on Certified and data quality warnings - Filter data sources, databases, files, and tables by Certified, filter data sources by connections, and filter databases and tables by data quality warnings. For more information, see "Open the Connect to Data page" in Creators: Connect to Data on the Web, or "Connect from Tableau Desktop" in Connect to Data by Using Tableau Server or Tableau Cloud in the Tableau Desktop and Web Authoring Help.

Enhanced Data Details pane -

- See a sparkline with the number of times a sheet or dashboard was viewed over the last 12 weeks.
- Easily see that there are Warnings on a view.
- Expand a field to see its metadata, such as a description or calculation.
- When a field in a workbook inherits its description, see where the description comes from.

For more information, see "Use Data Details to see visualization information" in Explore and Analyze Data in a View in the Tableau Desktop and Web Authoring Help.

Added in October 2019

Web authoring and interaction with views

For a comprehensive list of new features and enhancements related to web authoring and interacting with views on the web, see the features listed under "Prepare, Author, and View Data on the Web" in What's New in Tableau for Users and Web Authoring and Tableau Desktop Feature Comparison. For topics related to web authoring and interacting with views, see Using Tableau on the Web.

Recommendations for views

Tableau Cloud now provides recommendations for views to help users discover relevant content. To learn more about these recommendations, see Discover Recommended Views.

You can control whether recommendations appear on your site, or whether user names appear on recommendation tooltips, by adjusting the options under **Recommendations for Views** on the Settings page.

Table visualization enhancements

Authors can now create wide tables with up to 50 columns. Wide tables with discrete fields can also now be scrolled horizontally. For more details, see Define Table Structure. Also, see this post on 50-column tables from Tableau Public Ambassador Marc Reid on the datavis.blog.

Create extracts on the web

Now you can create extracts in the browser, without using Tableau Desktop. For more information, see Create Extracts on the Web . You can also use the new `createextracts` and `deleteextracts` commands in tabcmd to create or delete extracts for a published workbook or data source. For more information, see tabcmd Commands.

Get view load times with Admin Insights (beta)

Included with the latest version of Admin Insights, is the **Viz Load Time Drilldown** dashboard and the **TS Web Requests** data source. You can use both resources to help users who are authoring views better understand the experience of the users who are consuming those views. For more information, see Explore the pre-built workbook and Use Admin Insights to Create Custom Views.

The dashboard and data source are available to you as in-release beta features *by request*. To join the beta or provide thoughts and ideas about the new Admin Insights content, sign in to the Early Feedback site.

Disable email notifications when Tableau Bridge clients aren't running

If scheduled refreshes appear to be running outside of schedule or if you want to stop notifications you receive about clients not running, you can disable email notifications. For more information, see Change the Bridge Client Settings.

Request access

Users can now request access to see a project, workbook, or view when they don’t have viewing permission. When someone requests access to content, Tableau routes an email to the person who controls permissions for that content with information about the request and instructions on making access changes. For information on managing permissions, see Permissions.

Limit visibility of user information

The User Visibility site setting lets administrators manage if users with Viewer and Explorer site roles see other users and groups on the site, which can be important for sites used by multiple clients. When User Visibility is set to **Limited**, Explorers and Viewers cannot see information about other users, including aliases, project ownership, comments, and more. Creators and administrators (including Site Administrator Explorers) can still view user information. By default, User Visibility is set to Full. For more information, see Manage Site User Visibility.

Enable or disable Ask Data for a site

As a site administrator, you can control the availability of Ask Data in the **General** area of site settings. For more information, see Disable or Enable Ask Data for a Site.

Manage Sandboxed Extensions

Tableau now supports Sandboxed extensions, which are a new type of dashboard extension that run in a protected environment hosted by Tableau. Like Network-enabled extensions, Sandboxed extensions are web applications that run in custom dashboard zones and can interact with the rest of the dashboard using the Tableau Extensions API. While Network-enabled extensions have full access to the web, Sandboxed extensions can't share data or make network calls outside of Tableau. Sandboxed extensions provide a new level of security for Tableau users and administrators.

To learn more about controlling extensions, see Manage Dashboard and Viz Extensions in Tableau Cloud. To learn more about extension security and strategies for deployment, see Extension Security in Tableau Server Help.

Added in September 2019

Support for Italian added

Tableau has added support for Italian. You can now set Tableau to display the user interface in one of eleven languages:

- Chinese (Simplified)
- Chinese (Traditional)
- English (United Kingdom)
- English (United States)
- French
- German
- Italian
- Japanese
- Korean

- Portuguese
- Spanish

For more information, see Change language and locale in the Tableau User Help.

In addition to supporting Italian in all Tableau products, the Help is also available in these languages. To read the help in your preferred language, navigate to the bottom of the Tableau Help page on the Tableau website, and select the language from the footer.

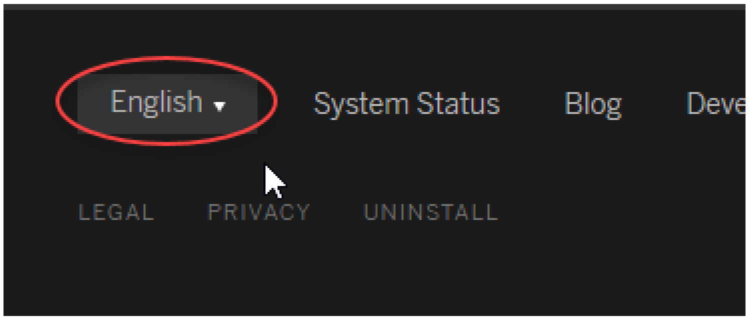


Tableau Data Management

Data Management capabilities are available through a new license that helps customers manage Tableau content and data assets in their Tableau Server or Tableau Cloud environment. Tableau Prep Conductor and Tableau Catalog are included with Data Management. For more information, see About Data Management.

Tableau Prep Conductor—part of the Data Management

Tableau Prep Conductor is included in the separately licensed Data Management capabilities for Tableau Server and Tableau Cloud. Tableau Prep Conductor leverages the scheduling and tracking functionality of Tableau Cloud so you can automate running flows to update the flow output instead of logging into Tableau Prep to manually run individual flows as your data changes. For more information, see Tableau Prep Conductor.

Tableau Catalog features—part of the Data Management

Tableau Catalog is included in the separately licensed Data Management capabilities for Tableau Server and Tableau Cloud, making a variety of features available to you in the data management space. You can use Tableau Catalog to discover data, curate data assets, communicate data quality, perform impact analysis, and trace the lineage of data used in Tableau content. For more information, see About Tableau Catalog.

Tableau Metadata API

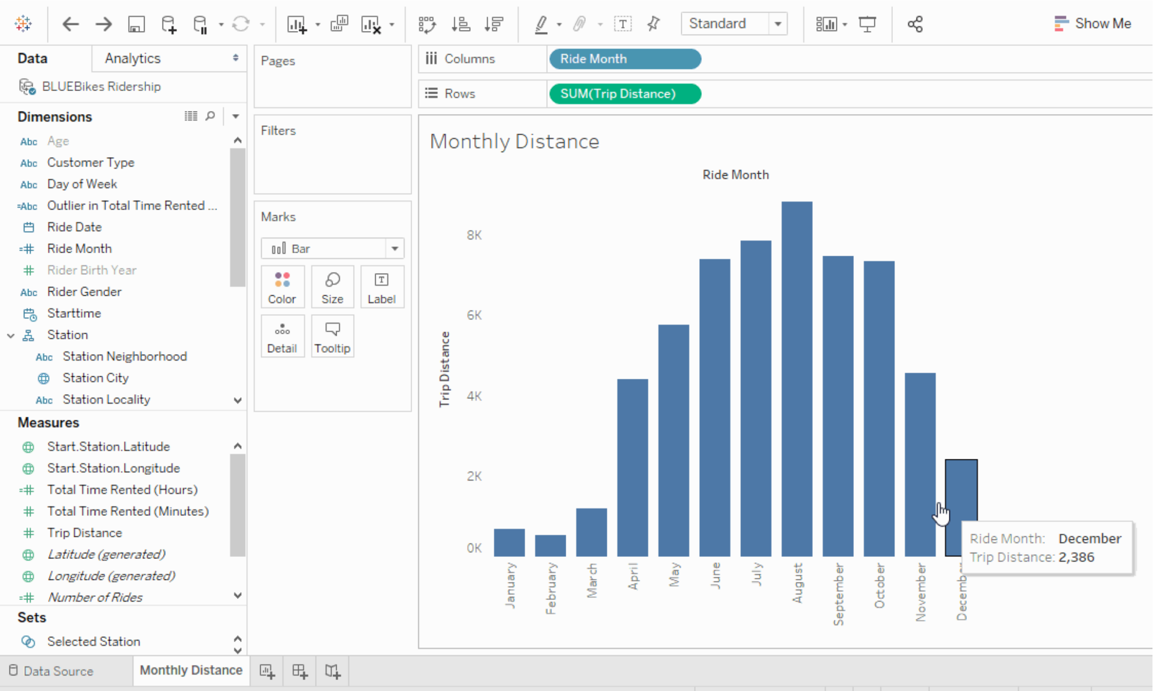
If you're a developer and interested in accessing metadata indexed by or surfaced through Tableau Catalog, see the Tableau Metadata API Help.

Explore and inspect views with Explain Data

Inspect, uncover, and dig deeper into marks in a viz using Explain Data. Explain Data gives you a new window into your data by proposing statistical explanations for a selected mark, including potentially related data from the data source that isn't in the current view.

Creators and Explorers with editing permissions can use Explain Data when editing a view in Desktop, or editing a view on the web in Tableau Cloud or Tableau Server.

Explanations give you information and visualizations on the data points might be affecting the mark value. You can then open visualizations for further exploration. For more information, see Inspect a View using Explain Data in Tableau User help.


Standard
Show Me
Data
Analytics
BLUEBikes Ridership
Dimensions
Age
Customer Type
Day of Week
Outlier in Total Time Rented ...
Ride Date
Ride Month
Rider Birth Year
Rider Gender
Starttime
Station
Station Neighborhood
Station City
Station Locality
Measures
Start.Station.Latitude
Start.Station.Longitude
Total Time Rented (Hours)
Total Time Rented (Minutes)
Trip Distance
Latitude (generated)
Longitude (generated)
Number of Rides
Sets
Selected Station
Pages
Filters
Marks
Bar
Color
Size
Label
Detail
Tooltip
Data Source
Monthly Distance
Monthly Distance
Ride Month
Trip Distance
8K
6K
4K
2K
0K
January
February
March
April
May
June
July
August
September
October
November
Decemb

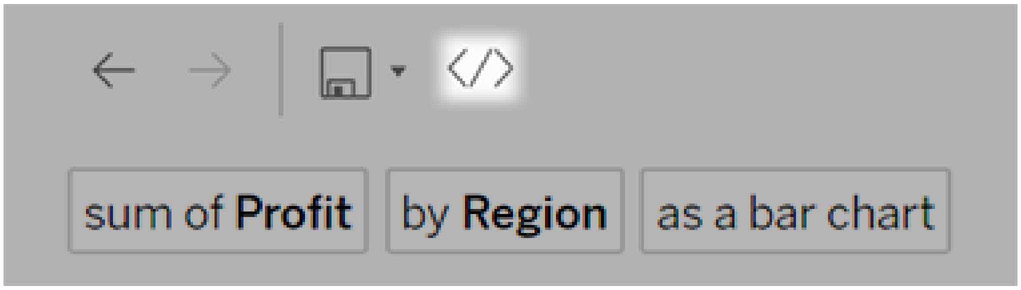
Columns: Ride Month

Rows: SUM(Trip Distance)

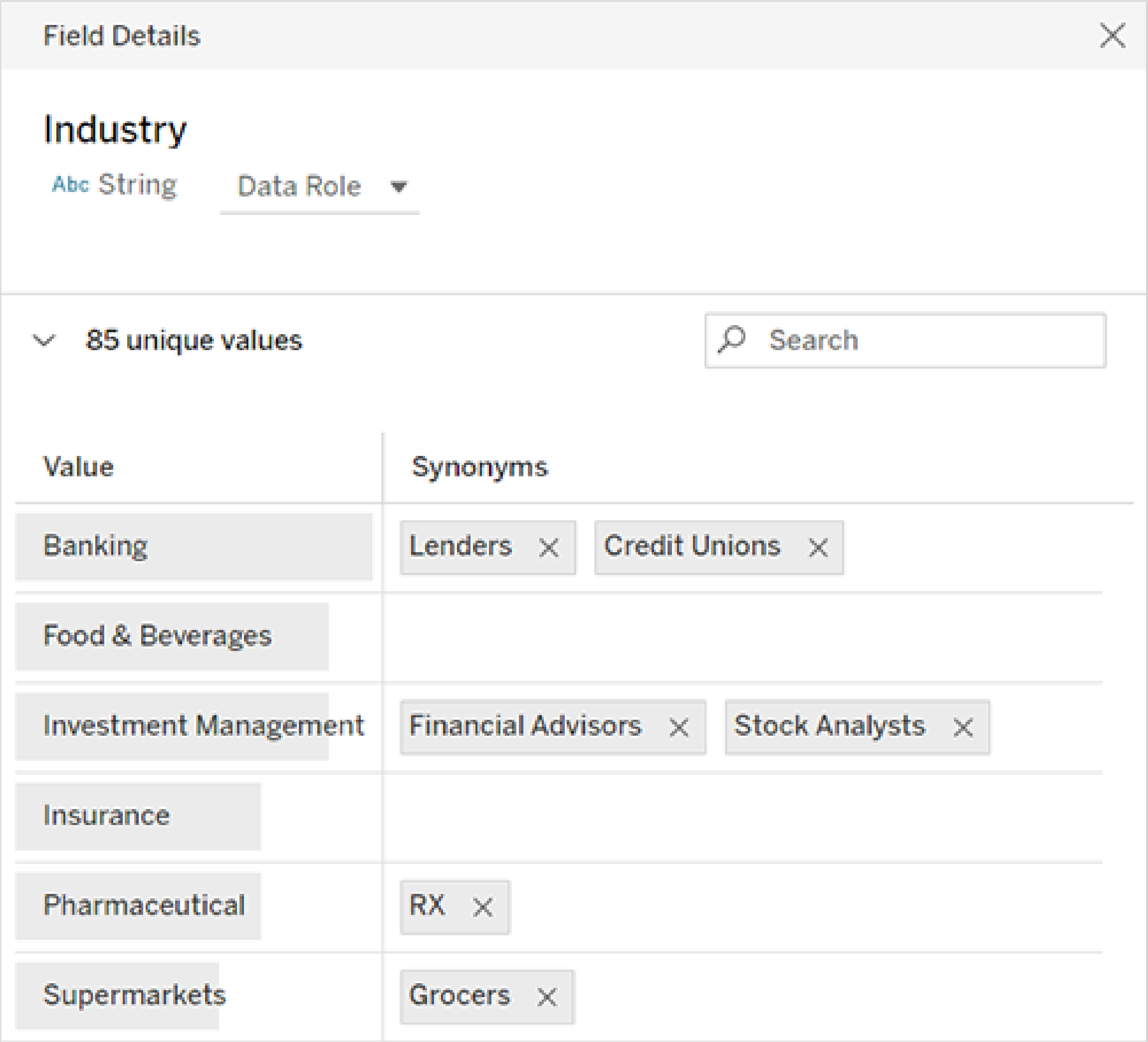
Ride Month: December
Trip Distance: 2,386

Ask Data improvements

Users can now embed Ask Data into HTML pages, adjust relative date filters, and see top and bottom outliers in context. For more information, see Automatically Build Views with Ask Data in the Tableau User Help.



Data source owners and Tableau administrators can now add synonyms for field values, in addition to field names. For more information, see Optimize Data for Ask Data in the Tableau User Help.



Industry

Abc String

85 unique values

Value	Synonyms
Banking	Lenders Credit Unions
Food & Beverages	
Investment Management	Financial Advisors Stock Analysts
Insurance	
Pharmaceutical	RX
Supermarkets	Grocers

Job Management

Site administrators can now view, monitor, and manage jobs. For more information, see Managing Background Jobs in Tableau Cloud.

Added in May 2019

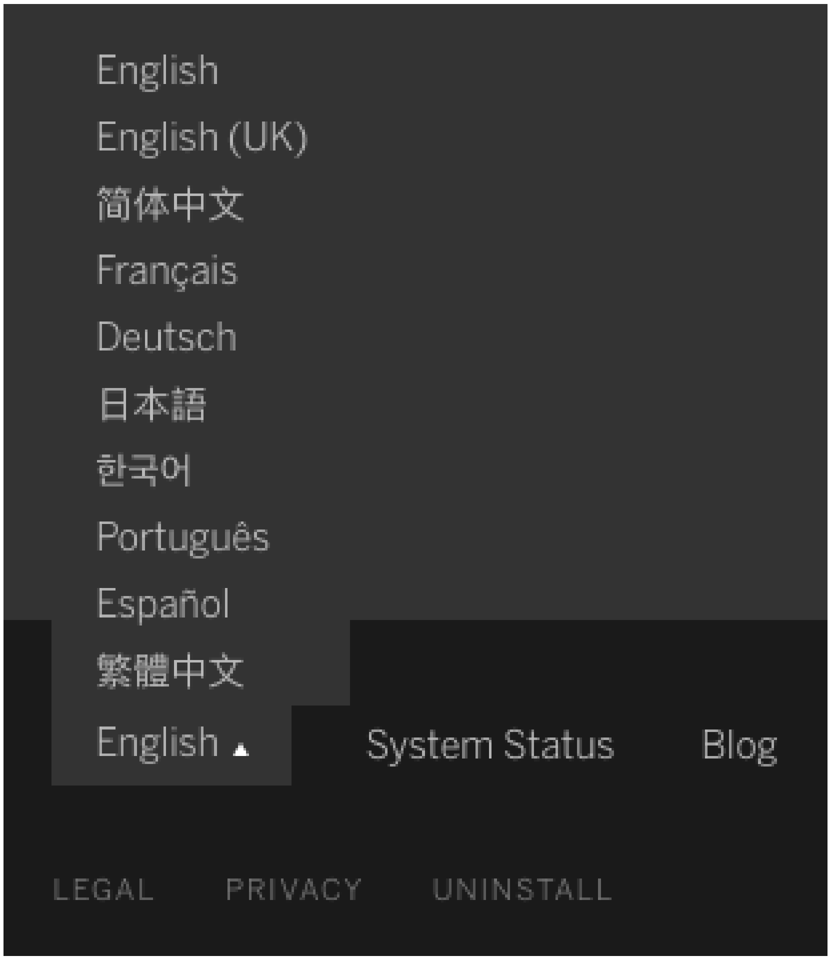
Select from ten different languages for Tableau

Tableau has added support for two new languages, Chinese (Traditional) and English (United Kingdom). You can now set Tableau to display the user interface in one of ten languages:

- Chinese (Simplified)
- Chinese (Traditional)
- English (United Kingdom)
- English (United States)
- French
- German
- Japanese
- Korean
- Portuguese
- Spanish

For more information, see Change language and locale in the Tableau User Help.

In addition to supporting two new languages in all Tableau products, the Help is also available in these languages. To read the help in your preferred language, navigate to the bottom of the Tableau Help page on the Tableau website, and select the language from the footer.


English
English (UK)
简体中文
Français
Deutsch
日本語
한국어
Português
Español
繁體中文
English ▲
System Status
Blog
LEGAL
PRIVACY
UNINSTALL

Help Design

A blue **Send feedback** icon is displayed in the bottom right corner of every Help page to make it easier for you to send feedback about the content in a topic. Click the icon to let us know if a topic is helpful to you, and also to comment on what needs improvement.

Use Admin Insights to create custom admin views

Enable the Admin Insights project for your site to create custom admin views about Tableau Cloud adoption, site traffic, license allocation, and more. For more information, see Use Admin Insights to Create Custom Views.

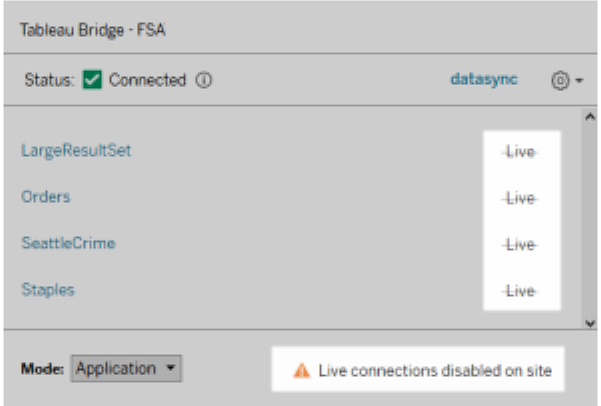
Configure email alerts for incomplete extract refreshes

As an extract data source owner whose scheduled refreshes are performed by Tableau Bridge, you can configure Tableau Cloud to send you email alerts for incomplete refreshes. For more information, see Change the Bridge Client Settings.

Tableau Bridge improvements

Here are some additional improvements made to the Tableau Bridge client and workflow.

- Access Tableau Bridge-related admin views from the client menu.
- Quickly identify whether live queries are supported directly from the client.



Status: ☑ Connected

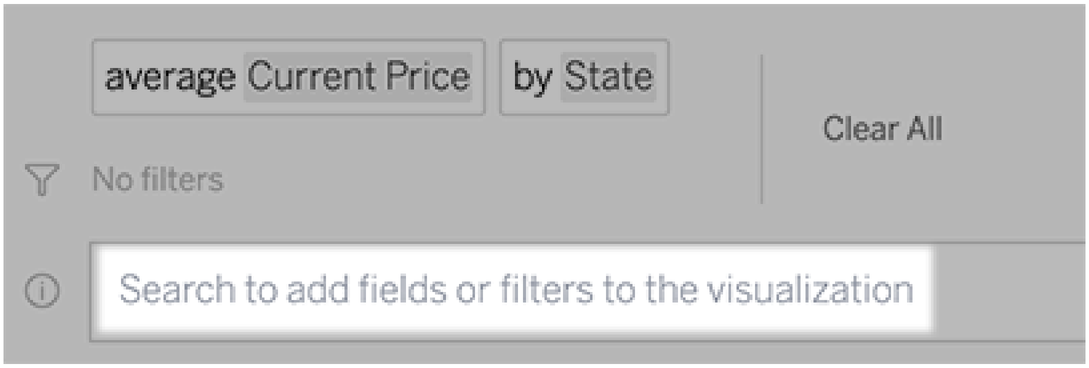
Mode: Application

Live connections disabled on site

- Receive email alerts when a scheduled refresh cannot start because the client is not running.
  Note: After Tableau Cloud's upgrade to 2019.2, some data source owners might see an influx of notifications about Tableau Bridge clients not running. For more information, see Scheduled refreshes appear to be running outside of schedule:.

Ask Data improvements

For users, Ask Data now lets you ask questions in a conversational style, apply simple calculations, and create multiple sheets. For more information, see Automatically Build Views with Ask Data in the Tableau User Help.

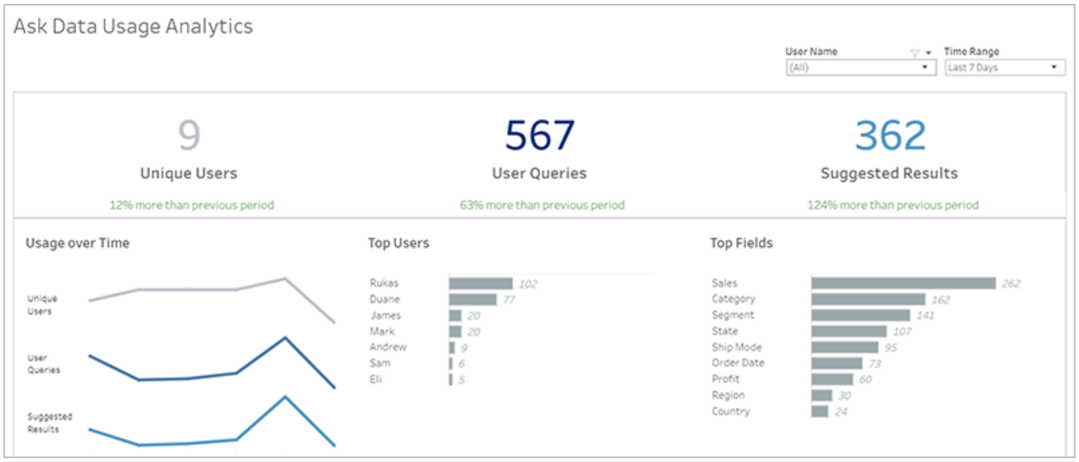


average Current Price by State

Clear All
No filters
Search to add fields or filters to the visualization

For data managers and site administrators:

- Words like "year" and "date" are reserved for analytical functions and should be avoided in field names.
- The ability to add synonyms for field names is now limited to data source owners and Tableau administrators, providing a more consistent experience for users.
- A Usage Analytics dashboard reveals the most popular queries, top users, and other helpful information.



User Name (All)
Time Range Last 7 Days

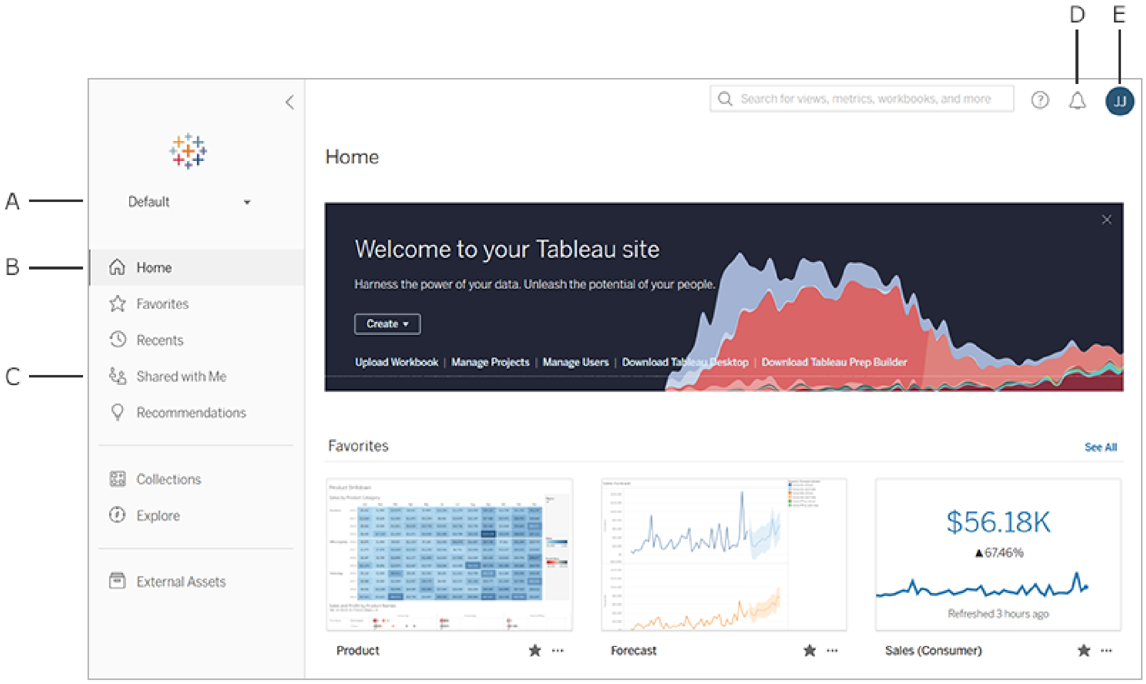
Ask Data Usage Analytics
9
Unique Users
12% more than previous period
567
User Queries
63% more than previous period
362
Suggested Results
124% more than previous period
Usage over Time
Unique Users
User Queries
Suggested Results
Top Users
Rukas 102
Duane 77
James 20
Mark 20
Andrew 9
Sam 6
Eli 5
Top Fields
Sales 262
Category 162
Segment 141
State 107
Ship Mode 95
Order Date 73
Profit 60
Region 30
Country 24

For more information, see Optimize Data for Ask Data in the Tableau User Help.

Home page and navigation improvements

For users and administrators, new navigation changes and pages make it easier to get started and locate relevant content:

- Use the new Home page to access recent views, find favorite content, and see what's popular on the site. The welcome banner and actions are tailored by site role to help users get started.



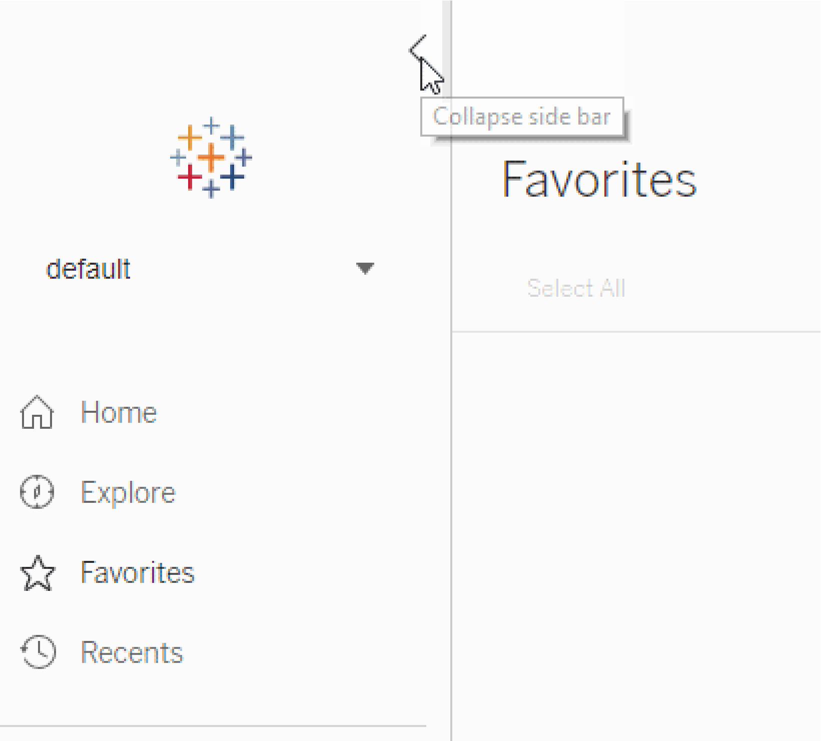
D
E
A
B
C
Search for views, metrics, workbooks, and more
JJ
Default
Home
Favorites
Recents
Shared with Me
Recommendations
Collections
Explore
External Assets
Create
Upload Workbook | Manage Projects | Manage Users | Download Tableau Desktop | Download Tableau Prep Builder
Favorites
See All
$56.18K
▲67.46%
Refreshed 3 hours ago
Product
Forecast
Sales (Consumer)

Home

Welcome to your Tableau site

Harness the power of your data. Unleash the potential of your people.

- Dedicated **Favorites** and **Recents** pages give users access to all of their most-important content. Use the sort and filter options on the right side of each page to find relevant content.
- New left navigation panel lets users quickly jump between important pages on the site, including the **Explore** page, where they can see all site content in one place. The panel is responsive to screen sizes and can be collapsed.



- When users are viewing or creating a visualization, the left navigation panel disappears to make more room for analysis. The compact header makes it easy to navigate through project hierarchy, search the site, and access favorites as needed.

To learn more, see Tour Your Tableau Site in the Tableau User Help.

Alert side panel

When users select **Alerts** in any view, a new panel shows alerts that already exist for the viz. To create an alert that is visible for others, select **Make visible to others** when creating the alert. Alerts created prior to 2019.2 are not visible to others, but can be updated to be. To learn more, see Send Data-Driven Alerts from Tableau Cloud or Tableau Server in the Tableau User Help.

Custom views supported for Viewer role

Previously, creating custom views required a Creator or Explorer license, but now Viewers can create them too. For more information, see Use Custom Views in the Tableau User Help.

Set a default site start page

Administrators can set a default start page for everyone on a site. When a site user signs into Tableau Cloud, they will land on the start page set by an administrator. For more information, see Set the Default Start Page for All Users.

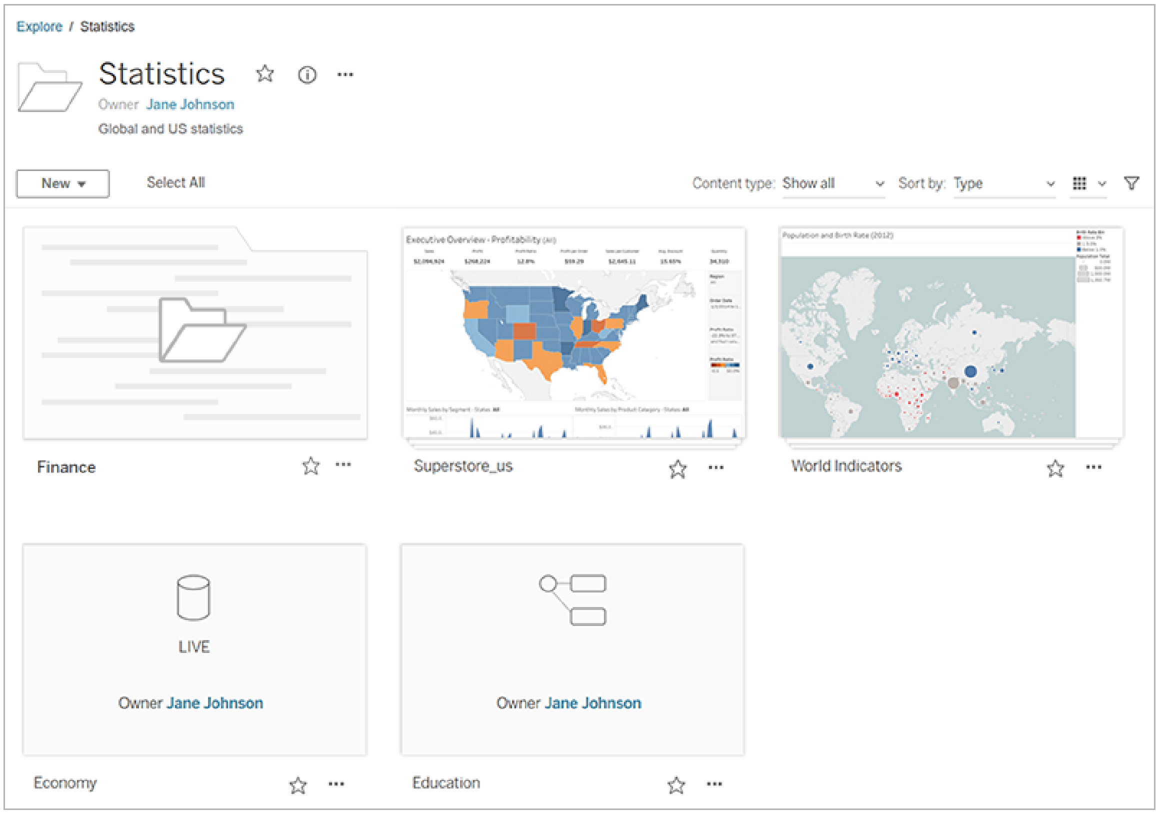
Web authoring improvements

- Add a stored procedure with parameters when creating a data source.
- See the status bar in web authoring to find information about your view, including selected marks compared to total marks, rows and columns, and aggregations. For more information on the status bar, see Status Bar Information in the Tableau User Help.
- Change aggregation of a field using the drop field menu. Right-click+drag (on macOS, left-click+Option+drag) a field on any card or shelf and select an aggregation type. This drops the field onto the card or shelf with the aggregation selected.
- Create, edit, and remove parameters.

Added in February 2019

Improved content browsing

You have a new way to browse shared content. When you open a project, you will be able to see all the content that project contains—workbooks, views, data sources, flows, and nested projects—in a single grid or list. Locating content is easier, because you no longer need to navigate separate pages for different content types. For more information, see Tour Your Tableau Site.


Explore / Statistics
Statistics
Owner Jane Johnson
Global and US statistics
New
Select All
Finance
Superstore_us
World Indicators
LIVE
Owner Jane Johnson
Economy
Owner Jane Johnson
Education

Content type: Show all

Sort by: Type

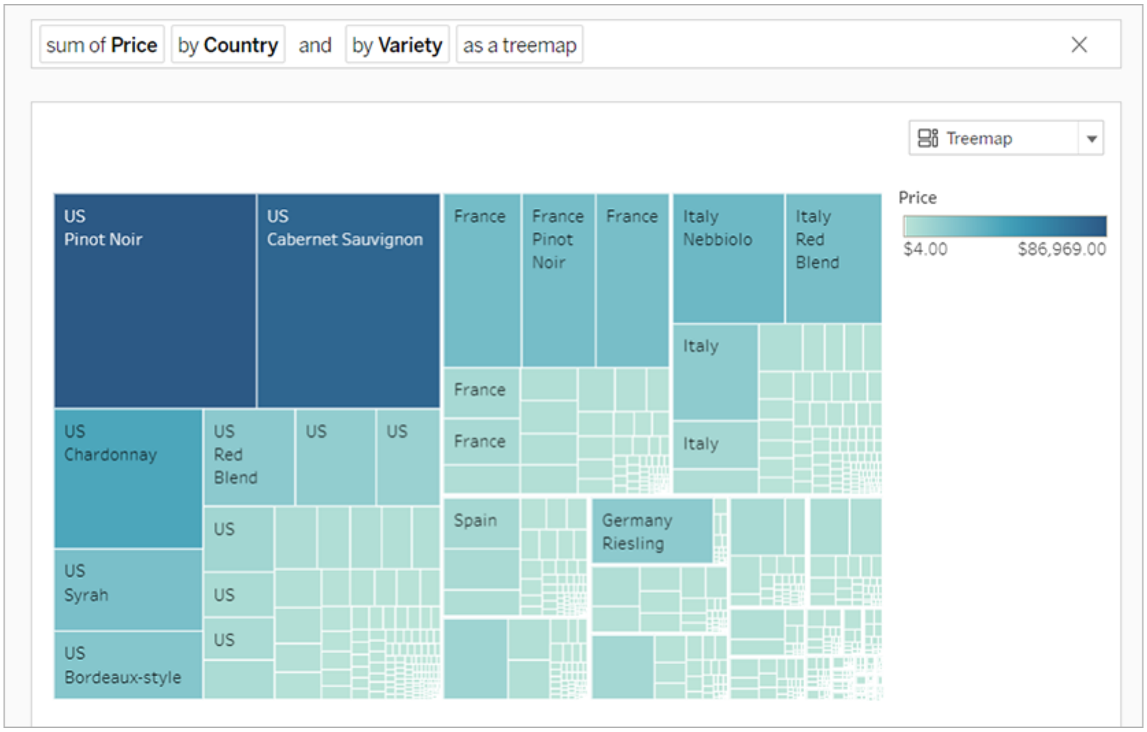
Ask Data to automatically create a viz

Ask Data introduces an entirely new way to interact with your data, letting you type a question and instantly get a response right in Tableau. Answers come in the form of automatic data visualizations, with no need to manually drag-and-drop fields or understand the nuances of your data's structure.

Ask Data lets you ask sophisticated questions naturally, with support for key analytical concepts like time series and spatial analysis, and an understanding of conversational phrases like “last year”, “earliest”, and “most popular”.

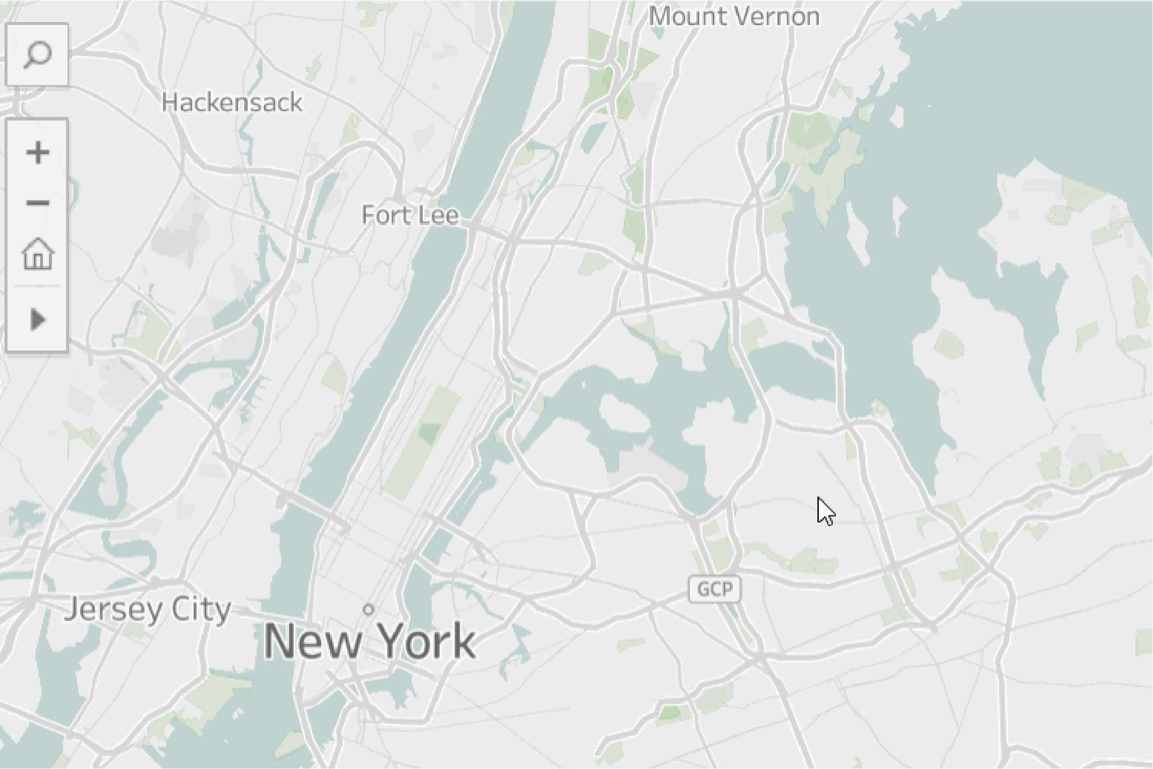
Ask Data is available for all user roles with direct access to data sources: Creators, Explorers, and Interactors.

For more information, see Automatically Build Views with Ask Data in Tableau User Help.


sum of Price
by Country
and
by Variety
as a treemap
Treemap
Price
$4.00
$86,969.00
US Pinot Noir
US Cabernet Sauvignon
France
France Pinot Noir
France
Italy Nebbiolo
Italy Red Blend
Italy
Italy
France
France
US Chardonnay
US Red Blend
US
US
US
US
US
US Syrah
US Bordeaux-style
Spain
Germany Riesling

Vector tile background maps

Maps created on or published to Tableau Cloud or Tableau Public now use vector tiles for quicker geographic data exploring. Maps now appear sharper and smoother when you pan and zoom, and labels and icons dynamically resize or reshape to fit your view. The new vector tile maps replace the underlying technology that powers Tableau background maps for a smoother and crisper experience. The background cartography for Tableau maps has also been updated.



New cloud connectors for web authoring

Use the Box, Dropbox, Google Drive, Google BigQuery, and OneDrive connectors to connect Tableau Cloud or Tableau Server to your data. For more information, see Creators: Connect to Data on the Web.

Project card images

Project card images will no longer appear on the project card unless they are added as the last item in the project description and encapsulated with **!** (exclamation marks). For more information, see Add a Project Image.

Suspended subscription notifications

When you subscribe to a view or a workbook, you receive an email snapshot of that content at regular intervals. Now, you'll receive an email notification if something caused your subscription to fail, with links to resume or delete the failing alert. For more information, see Create a Subscription to a View or Workbook.

See new demographic data in Tableau Cloud and Tableau Public

Tableau Cloud and Tableau Public have a new, different source of demographic data than Tableau Desktop. If your map uses a demographic data layer in Tableau Desktop, you may notice some slight differences when that map is published to Tableau Cloud or Tableau Public, including the time period and value breaks in a legend. In addition, maps that use the “Block Group” Data Layer option in Tableau Desktop will be automatically updated to “Census Tract” when published to Tableau Cloud or Tableau Public. Six demographic data layers that appear in Tableau Desktop will be absent when maps are published to Tableau Cloud or Tableau Public:

- Population growth projections
- Household growth projections
- Housing units growth projections
- Effective Buying Income (median)
- Year structure built (median)
- Length of Residence (average in years)

Publishing maps from Tableau Desktop to Tableau Server will not result in any discrepancies.

Filter improvements

Use Ctrl-click (control-click on a Mac) to select multiple values in a multi-value filter in the view. The selected values can be non-contiguous and are indicated with a gray highlight. When the values are selected, you can then click any one of their check boxes to clear or choose the values at the same time.

Web authoring enhancements

- New cloud connectors for web authoring: Use the Box, Dropbox, Google Drive, Google BigQuery, and OneDrive connectors to connect Tableau Cloud or Tableau Server to your data.

- Data improvements: Authors connecting to a new data source in Tableau Cloud or Tableau Server can now Run Initial SQL, connect to a custom SQL query, and add a join calculation to resolve mismatches between fields in a join.

- To better distinguish between dashboard items, you can now rename them using the **Item hierarchy** area of the Layout pane or the drop-down menu for each object on the canvas.
- After publishing to the web, click **Preview device layouts** in the browser to see how your designs look on desktop computers, tablets, and phones.

> For related information on new features, also see What's New in Tableau Desktop and Web Authoring Help.

Review and monitor Tableau Bridge extract refresh tasks using admin views

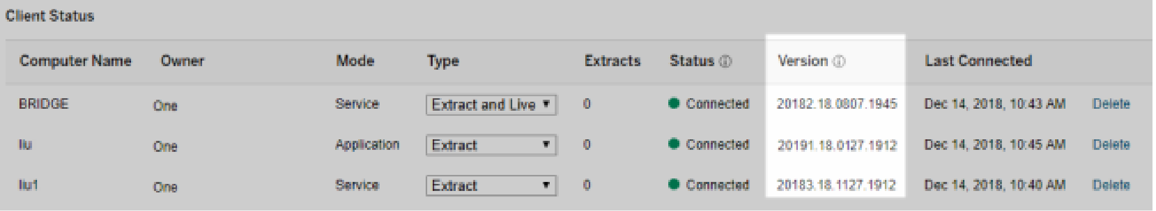
Review and monitor extract refresh tasks performed by Tableau Bridge using admin views. For more information, see Bridge Extracts.

Configure a timeout limit for extract refreshes in Tableau Bridge

To ensure that long running refresh tasks don't prevent other extracts from refreshing, you can enforce a timeout limit for refresh tasks performed by a Tableau Bridge client. For more information, see Change the Bridge Client Settings.

Find the Tableau Bridge client version number on Tableau Cloud

As a site admin, you can check Tableau Cloud for the version numbers of the Tableau Bridge clients associated with your site.



Client Status

Computer Name	Owner	Mode	Type	Extracts	Status	Version	Last Connected	
BRIDGE	One	Service	Extract and Live ▾	0	● Connected	20182.18.0807.1945	Dec 14, 2018, 10:43 AM	Delete
liu	One	Application	Extract ▾	0	● Connected	20191.18.0127.1912	Dec 14, 2018, 10:45 AM	Delete
liu1	One	Service	Extract ▾	0	● Connected	20183.18.1127.1912	Dec 14, 2018, 10:40 AM	Delete

Note: If the version number for a client is missing, log on to the computer where the client is installed and sign in to Tableau Cloud from the client. If the version number doesn't display after that, consider upgrading to the latest client.

Help Design

Updates have been made to help you navigate our content, including a new right-hand menu to quickly scan and select different topics on a page.

Added in October 2018

Web authoring enhancements

- Build density maps and charts. Use the density mark to create maps and charts that can help you identify "hot spots" in your data.
- Add image objects to your dashboards. Easily adjust your image, add a target URL, and add alt-text to improve the accessibility of your dashboard.
- Add navigation buttons to dashboards. Buttons can help users navigate to another dashboard, a sheet, or a story. Optionally customize the button with an image of your own, or add guiding tooltip text.
- Make worksheets transparent by setting the worksheet background color to **None**.
- Select **Duplicate as Crosstab** to insert a new worksheet into your workbook and populate the sheet with a cross-tab view of the data from the original worksheet.
- Create, move, and resize point, mark, and area annotations.

For related information on new features, also see What's New in Tableau Desktop and Web Authoring Help.

Product help search, navigation, and layout improvements

Search results within the product help have been expanded to include results for all Tableau products and help articles. Help layout and navigation, such as table of contents placement and breadcrumbs, have been updated to create a more consistent cross-product help experience.

Secure extract data at the row level

Secure your extract data at the row level using existing approaches for implementing row-level security in Tableau. For more information, see Restrict Access at the Data Row Level in the Tableau User Help.

Added in July 2018

Tableau Cloud migrated to Linux servers. For more information, see Tableau Cloud Pod Migrations on the Tableau website.

Changes to Tableau Help

Search results within the product help have been expanded to include results for all Tableau products and help articles. Help layout and navigation, such as table of contents placement and breadcrumbs, have been updated to create a more consistent cross-product help experience.

Install Tableau Bridge separately from Tableau Desktop

Beginning with the 2018.2 release, you can install Tableau Bridge separately from Tableau Desktop. For more information about Tableau Bridge requirements, compatibility with previous version of Tableau Desktop, and Tableau Bridge client installation, see Install Tableau Bridge.

No auto-restart for Tableau Bridge

The standalone Tableau Bridge client does not use an auto-restart interval to restart itself automatically. For more information about the auto-restart interval required by previous versions of Tableau Bridge, see Tableau Bridge Frequently Asked Questions in the Tableau Knowledge Base.

Note: If you upgrade from Tableau Bridge 2018.1 and earlier to Tableau Bridge 2018.2, the auto-restart interval that remains in the configuration file is ignored.

Font support in Tableau Cloud

Tableau Cloud includes the following "web safe" fonts: Arial, Courier New, Georgia, Tableau, Times New Roman, Trebuchet MS, and Verdana.

If a visualization uses a font that is not available on Tableau Cloud, Tableau Cloud displays the visualization using a default system font instead. For more information, see Fonts Not Displaying as Expected After Publishing knowledge base article on the Tableau website.

Validate live connections in Tableau Bridge using Application mode

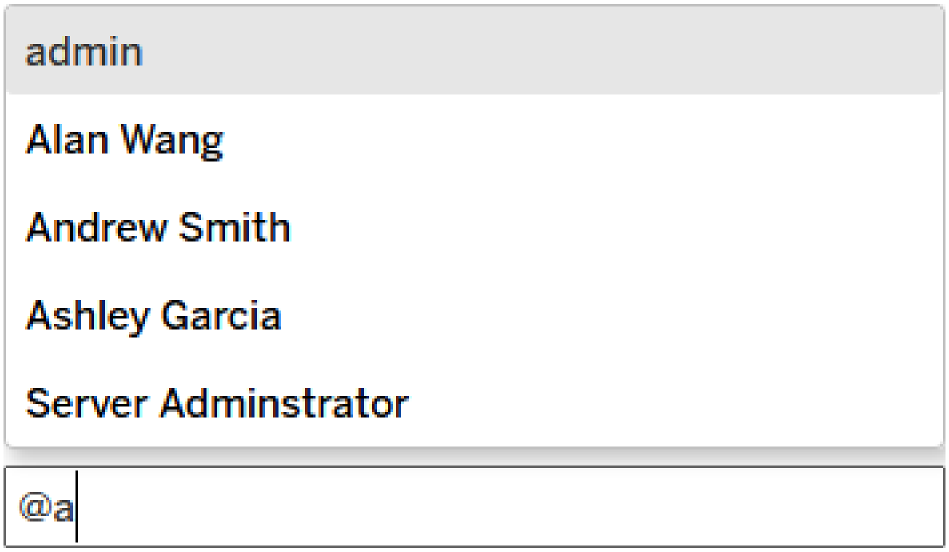
You can now quickly validate live connections in Tableau Bridge using **Application** mode. This means you can also choose to run live queries only when you are logged on to Windows if the site administrator has enabled the option. For more information, see How Tableau Bridge Works.

Manage dashboard extensions in Tableau Cloud

Dashboard extensions are web applications that provide users new ways to interact with data from other applications directly in Tableau. You can control the dashboard extensions that you allow to run in Tableau and can manage the extension's access to data. To learn more about controlling extensions, see Manage Dashboard and Viz Extensions in Tableau Cloud.

Include colleagues on data conversations with @mentions

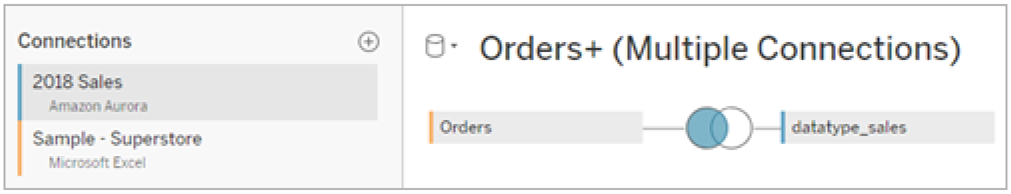
To engage people in a conversation about compelling data you find in a view, @mention them in comments. As you begin to type a name, matching people with Tableau accounts at your organization appear in a list you can choose from. For more information, see Comment on Views in Tableau User Help.


admin
Alan Wang
Andrew Smith
Ashley Garcia
Server Adminstrator
@a

Site administrators can disable @mentions in the General section of site settings.

Web authoring enhancements

- Enhance dashboard functionality by connecting to external applications with dashboard extensions. See Use Dashboard Extensions in Tableau User Help.
- Align dashboard items with a visual grid. See Size and Lay Out Your Dashboard in Tableau User Help.
- Use keyboard shortcuts to quickly create and edit views on the web. See Keyboard Shortcuts in Tableau User Help.
- Create multi-connection data sources and join data from different databases (cross-database joins). See Join Your Data in Tableau User Help.

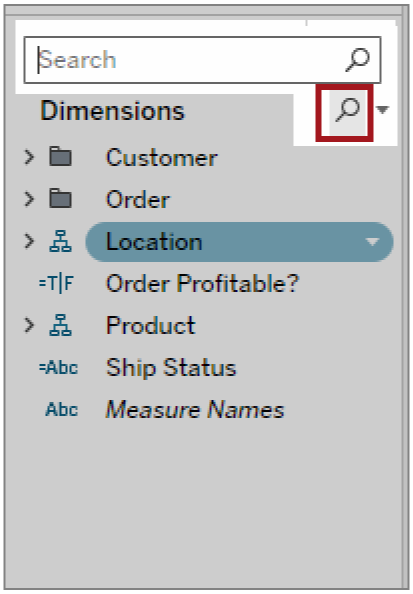

Connections
2018 Sales
Amazon Aurora
Sample - Superstore
Microsoft Excel
Orders+ (Multiple Connections)
Orders
datatype_sales

- Union data from the same data connection on the web. See Union Your Data in Tableau User Help.

- When working with file-based data sources, you can pivot data from crosstab format into columnar format. See Pivot Data from Columns to Rows in Tableau User Help.

- Copy selected values in your data grid by pressing Ctrl+C (Windows) or (Command+C) (macOS). Alternatively, to copy selected values in the metadata grid, right-click, and select **Copy**.

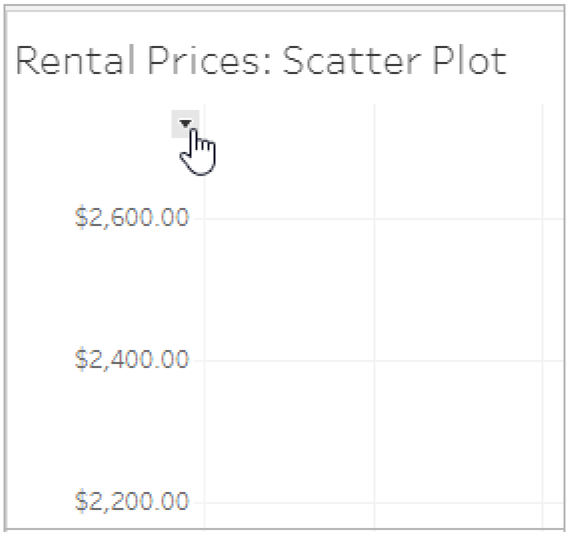
- Find fields in the **Data** pane using schema search.

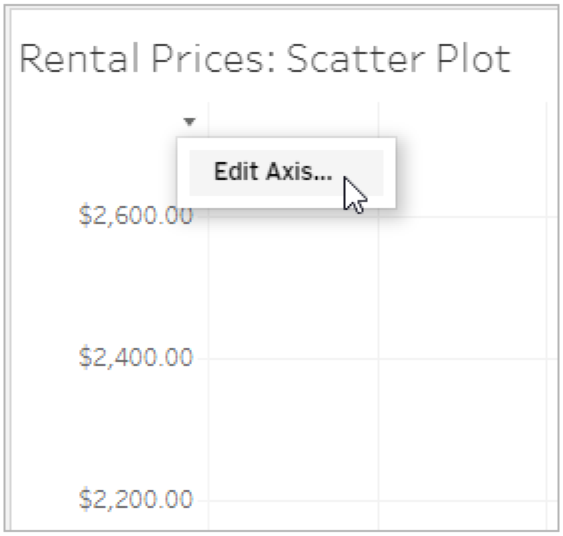

Search
Dimensions
Customer
Order
Location
Order Profitable?
Product
Ship Status
Measure Names

- Better control over sorting. Use nested sort to sort dimension values within the context of each pane. You no longer need to create calculated fields or combine dimensions. For more information, see Sort Data in a Visualization in Tableau User Help.

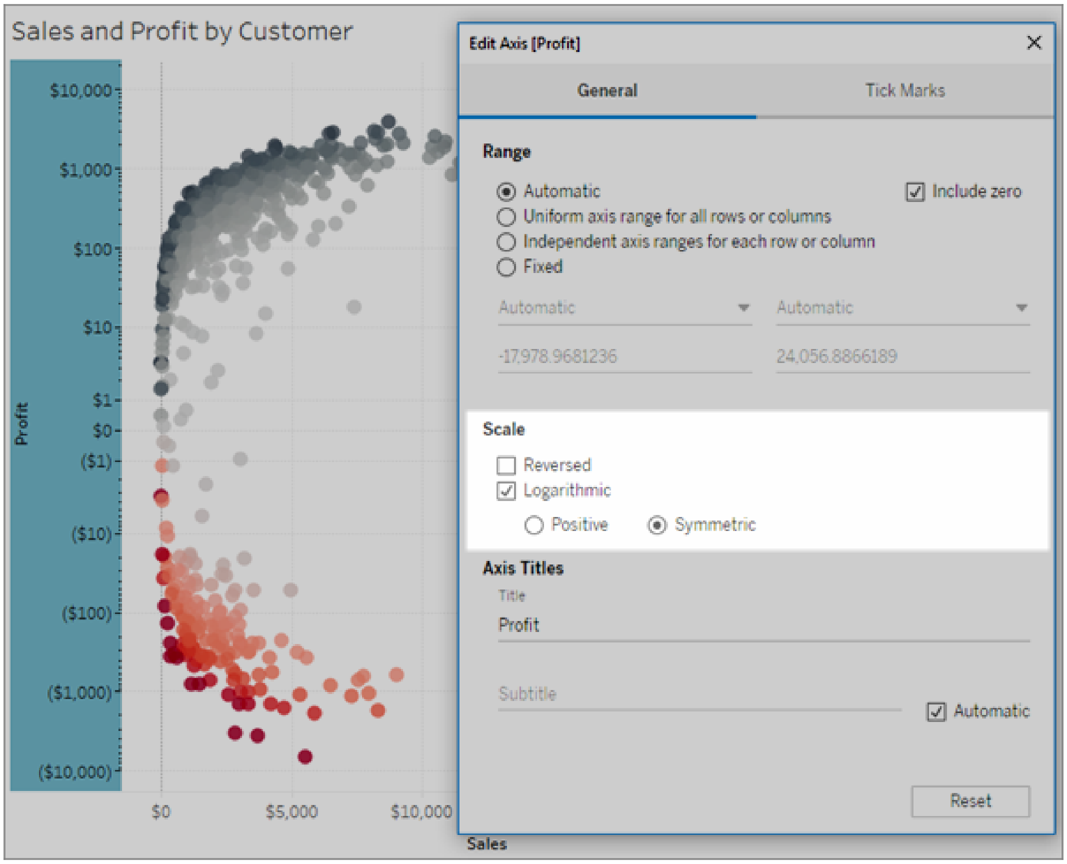
  Also, you can now access the **Sort** dialog box by right-clicking a dimension field on the Rows or Columns shelves in a view.

- If you've changed a view (for example, by adjusting filters), you can now create data alerts without first saving a custom view.
- You now have two ways to open the **Edit Axis** dialog box. Hover near the top of the axis (vertical axis) or to the right (horizontal axis) and click the drop-down arrow that appears. Or, double-click the axis.


Rental Prices: Scatter Plot
$2,600.00
$2,400.00
$2,200.00


Rental Prices: Scatter Plot
Edit Axis...
$2,600.00
$2,400.00
$2,200.00

- When you select **Logarithmic** scale for an axis, you now have the option to specify **Symmetric** to display data that contains 0 or negative values on a log scale axis. For details, see Edit Axes in Tableau User Help.


Sales and Profit by Customer
$10,000
$1,000
$100
$10
$1
$0
($1)
($10)
($100)
($1,000)
($10,000)
Profit
$0
$5,000
$10,000
Sales

Edit Axis [Profit]

General | Tick Marks

Range

● Automatic ☑ Include zero
○ Uniform axis range for all rows or columns
○ Independent axis ranges for each row or column
○ Fixed

Automatic | Automatic
-17,978.9681236 | 24,056.8866189

Scale

☐ Reversed
☑ Logarithmic
○ Positive ● Symmetric

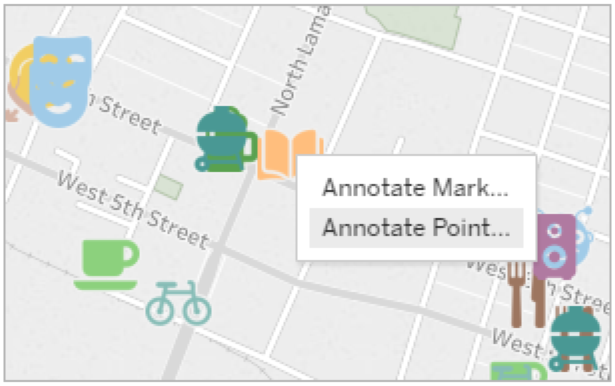
Axis Titles

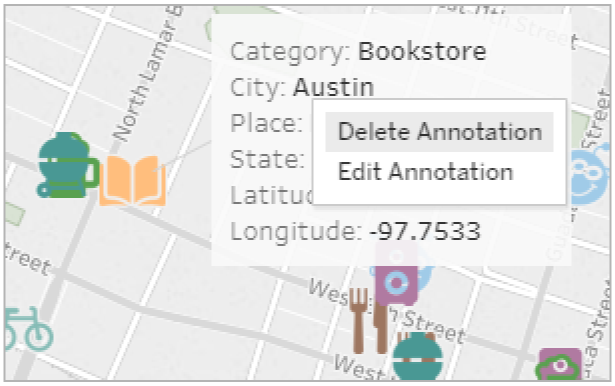
Title: Profit

Subtitle ☑ Automatic

Reset

- Create and delete annotations by right-clicking the view (in a worksheet or dashboard), and then selecting point or mark annotation. Right-click the annotation again to edit or remove the annotation.


Annotate Mark...
Annotate Point...
Street
North Lama
West 5th Street
West
Stree


Category: Bookstore
City: Austin
Place:
State:
Latitud
Longitude: -97.7533

Delete Annotation
Edit Annotation
North Lamar B
treet
Street
West

Materialize calculations in extracts already published to Tableau Cloud

If you need to retroactively materialize calculations in extracts that have already been published to Tableau Cloud, you can use tabcmd to refresh the published extract with the `--addcalculations` option. For more information about materializing calculations in extracts, see Materialize Calculations in Your Extracts in the Tableau User Help. For more information about the tabcmd option, see refreshextracts workbook-name or datasource-name.

Added in April 2018

New user-based term licenses are now available

Tableau now offers different types of user-based term licenses that grant a range of web authoring and other capabilities at various price points. This gives organizations more flexibility to fit licenses to the data analysis and visualization needs of different users. To learn more, see User-based licenses, or to see the capabilities of each license, see Tableau Pricing.

Quickly analyze cloud-based data with Dashboard Starters

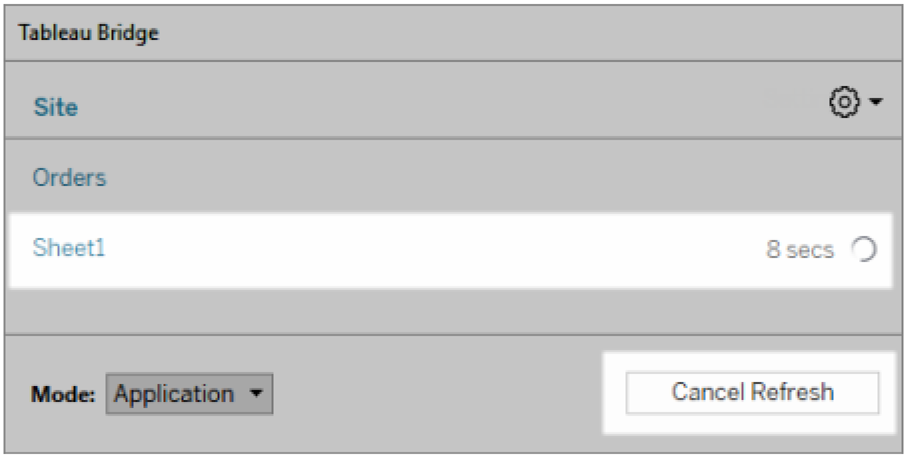
Dashboard Starters help you quickly author and analyze data from cloud-based systems like Salesforce, ServiceNow, Oracle Eloqua, and Marketo. Simply create a new workbook and choose from several beautiful, informative designs that are tailor-made for key business metrics. For more information, see Use Accelerators to Quickly Visualize Data

Configure additional Tableau Bridge clients to load balance live connections

Site administrators can configure additional Tableau Bridge clients on different computers to load balance live queries. For more information, see Allow Publishers to Maintain Live Connections to On-Premises Data.

Cancel a scheduled extract refresh that's in progress using Tableau Bridge

There may be situations where you need to cancel an in-progress extract refresh. You can cancel an in-progress extract refresh if you have configured the extract to refresh on a schedule using Tableau Bridge. For more information, see Create a Schedule for a Tableau Bridge Data Source.



Connect to data on the web

With a Creator user license, you can connect to data directly in your browser. Upload Excel or text-based data sources, connect to data housed in a cloud database or on a server in your enterprise, or connect to published data saved to your site. For more information, see Creators: Connect to data on the web.

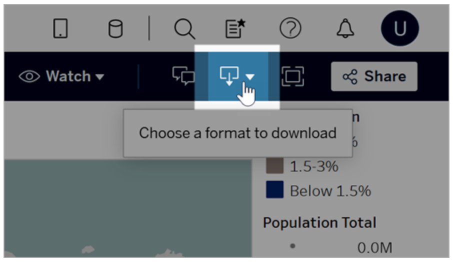
Prepare your data on the web

With a Creator user license, use the Data Sources tab to prepare your data for analysis. Create joins, add new data sources, clean your data using the Data Interpreter, and more. For more information, see Creators: Prepare Data on the Web.

Add an accessible toolbar to an embedded view

Authors can enable an accessible toolbar so that all users can add comments, download the view, or share it with others. For more information, see Publish and embed the view in Author Views for Accessibility.

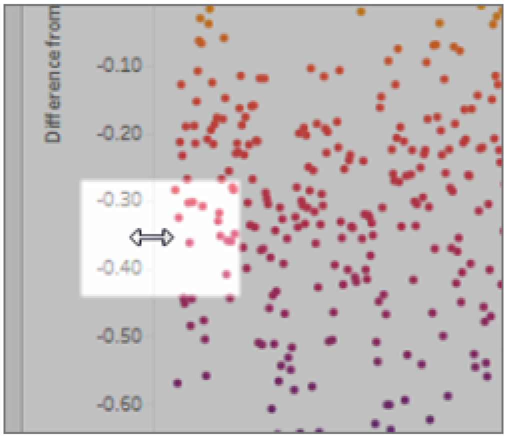
Download your workbook in an earlier version of Tableau

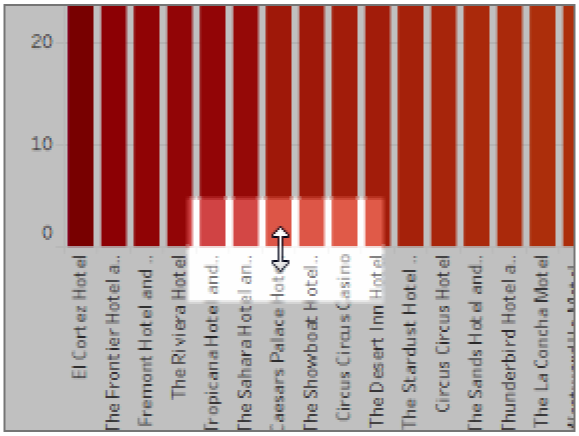


You may need to download your workbook to a different version of Tableau, for example, if the workbook needs to be opened in an earlier version of Tableau Desktop. You have the option of downloading your workbook in its current version, or downgrading it to an earlier version. For more information about version compatibility, see Make Workbooks Compatible Between Versions.

Web Authoring Enhancements

- When editing a view on the web, you can resize the width of row headers and the height of column headers.


Difference from
-0.10
-0.20
-0.30
-0.40
-0.50
-0.60


20
10
0
El Cortez Hotel
The Frontier Hotel a..
Fremont Hotel and ..
The Riviera Hotel
Tropicana Hotel and..
The Sahara Hotel an..
Caesars Palace Hotel
The Showboat Hotel..
Circus Circus Casino
The Desert Inn Hotel
The Stardust Hotel ..
Circus Circus Hotel
The Sands Hotel and..
Thunderbird Hotel a..
The La Concha Motel

- Show Me is now available for dashboards.
- Double-click an annotation to edit its text.
- Hide or show a Viz in Tooltip worksheet. In the target worksheet that is the Viz in Tooltip, click **Hide**. To show the Viz in Tooltip worksheet again, in the source worksheet, click **Unhide All Sheets**.
- Filter hierarchical data in views by using the **All Values in Hierarchy** filter option.

- Change the Line mark type to a step line or a jump line by clicking the Path property in the Marks card.
- Double-click an axis to edit axis settings.

Added in February 2018

Streamline discussion threads by deleting comments

If a comment is unnecessary or inaccurate, you can quickly delete it. Just click the **X** in the upper-right corner. For more information, see Comment on Views in Tableau User Help.

Added in January 2018

Tableau Cloud servers were upgraded to version 10.5.

Recommended data sources

Recommended data sources show Tableau Desktop users relevant data sources published to Tableau Server and Tableau Cloud. These recommendations are based on published data sources used by other users in your organization with similar usage behavior as the current user.

To keep the recommendations accurate and up to date, the server checks for the following each day:

- New content - for example, new or updated data sources.
- New usage information - for example, Laura Rodriquez used the Food Catering data source and Henry Wilson used the Monthly Sales data source.

For information on recommended data sources, see Use Certified and Recommended Data Sources and Tables in Tableau User Help.

Nested projects

You can now create project hierarchies when you want to segment content into sub-sections within a larger area. For example, you might create a project for each department. In each of those top-level projects, you can separate content based on how the audience uses it, such as connecting to certified data versus in-progress collaboration. For more information, see the following articles:

- Use Projects to Manage Content Access
- **Navigate projects** in the article Navigate Tableau on the Web

Extracts use the new .hyper format

When you create an extract, it uses the new .hyper format. Extracts in this new format take advantage of the improved data engine, which supports the same analytical and query performance as the data engine before it, but for even larger extracts. Similarly, when you perform an extract task on a .tde extract, the extract is upgraded to a .hyper extract. For more information, see Extract Upgrade to .hyper Format.

Changes to the way values are computed

To improve data source efficiency and scalability, and produce results that are consistent with commercial databases, values in your data source can be computed differently in version 10.5. In some cases, these changes can cause differences with the values and marks in your view between version 10.4 (and earlier) and version 10.5 (and later). This applies to extract data sources, and can apply to multi-connection data sources, data sources that use live connections to file-based data, data sources that connect to Google Sheets data, cloud-based data sources, extract-only data sources, and WDC data sources. For more information, see Changes to values and marks in the view in the Tableau User Help.

Desktop operating system requirements (64-bit replaces 32-bit)

Starting with version 10.5, Tableau Desktop, Tableau Reader, and Tableau Public (desktop) run only on 64-bit operating systems. Version 10.4 is the last version of Tableau Desktop, Tableau Reader, and Tableau Public to support 32-bit Windows operating systems.

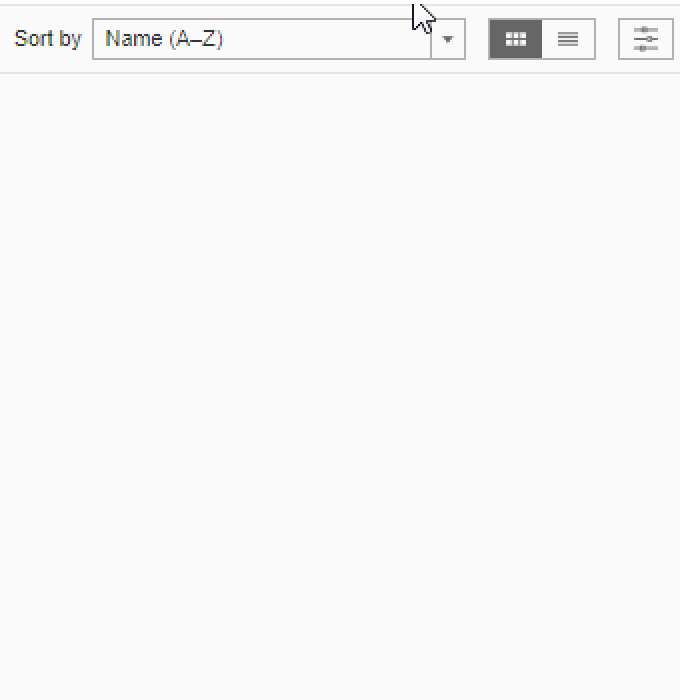
New in Web Authoring

- Add text objects to dashboards and edit them.
- Edit worksheet and dashboard titles. Double-click the title to open the **Edit Title** dialog box.
- Edit trend lines and view a description of the trend model. To view the trend model, hover over any part of the trend line. To edit a trend line on the web, click a trend line and hold the cursor in place, and then click the **Edit** menu.
- Trend lines now include a Power option.
- Create hierarchies by dragging one dimension onto another in the Data pane.
- Set the default color property for a field.
- For quantitative color legends, advanced settings are available (dates not included).
- Edit axes on the web. To open the Edit Axis dialog box on the web, double-click an axis in the view. Options available from the Edit Axis dialog box include **Synchronize dual axes**, clearing the axis range (**Reset**), and editing tick marks. You can also enable or disable **Dual axis** in a field context menu (right-click a measure field on Rows or Columns shelf).

Filtered search hidden by default

Filtered search options are now located on the right side of pages, and are hidden by default. The toggle is a dark icon (☰) when the Filters pane is open and a light icon (☰) when the Filters pane is closed. For details on searching, see Search Content.

To use filtered search, click ☰.



Added in 2017

Added in September 2017

Tableau Cloud servers were upgraded to version 10.4.

Data-driven alerts

When data reaches important thresholds for your business, data-driven alerts automatically send email notifications to key people users specify. For information on how to create and manage these alerts, see Send Data-Driven Alerts in Tableau User Help.

Data source certification

Certification offers a way to promote data sources through curation. Site administrators and project leaders can certify data sources that meet your organization’s security and compliance standards, or any other standards you define. For more information, see User Certification to Help Users Find Trusted Data.

Tableau Bridge support for live connections

Live query functionality in Tableau Bridge can now be enabled by site administrators without requesting access from Tableau. Use Tableau Bridge to maintain live connections to on-premises relational data, and to perform scheduled extract refreshes. For more information, see Use Tableau Bridge to Expand Data Freshness Options.

Enhanced commenting on views

Commenting has been completely redesigned to inspire conversations about data discoveries. The new Comments pane appears to the right of views, rather than at the bottom, so you can see the discussion and the data at the same time. Profile images automatically appear too, helping you quickly identify other users. To share filtered views with them, add interactive snapshots along with your comments to highlight the data you're describing.

Any comments you add in a desktop browser also appear in Tableau Mobile, and vice versa, so you can easily communicate with colleagues on the go. Comments remain with a view even if you revise the containing workbook (as long as the view name remains the same). For more information, see Comment on Views.

Learn who has seen a view

If you own a view, you can quickly find out who at your organization has seen it. At the top of a main site page, click **Views**. Then hover over the specific view you're interested in, and select **Who Has Seen This View?** from the menu at upper-right.

WCAG-conformant drop-down filters in embedded views

Single Value (drop-down) and Multiple Values (drop-down) filters are now WCAG-conformant when accessed in embedded views. For more information, see Build Data Views for Accessibility and Author Views for Accessibility.

New to Web Authoring

Precise dashboard spacing, with border and background color controls

If you previously used blank objects to refine dashboard layouts, you'll really appreciate the new spacing controls. Padding lets you precisely position items on dashboard, while borders and background colors let you visually highlight them. For more details, see Add padding, borders, and background colors around items.

Turn on the View Toolbar on the web

In prior releases, when authoring on the web, you could only see and use the View Toolbar when working with map views. Now you can turn on the View Toolbar for any view or dashboard in your workbook in web authoring. From the top menu, select **Worksheet** > **Show View Toolbar** and select an option.

Edit groups

Starting with Tableau version 10.4, you can edit groups. To edit a group, in the Data pane, right-click a group field and select **Edit Group**. In the Edit Group dialog box that opens, you can add or remove members from an existing group, as well as create new groups in the group field. You can also choose to Include an Other group. For more information, see Group Your Data.

Create aliases

Starting with Tableau version 10.4, you can create aliases for members in a dimension so that their labels appear differently in the view. To create aliases for a field, in the **Data** pane, right-click a dimension and select **Aliases**. In the Edit Aliases dialog box, under **Value (Alias)**, select a member and enter a new name. For more information, see Create Aliases to Rename Members in the View.

Format lines

When you are authoring on the web, you can quickly change all the lines in your workbook. Select **Format** > **Workbook**, then expand the **Lines** section on the **Format Workbook** and make your selections. For more information, see Format at the Workbook Level.

Added in July 2017

User-specific time zones for subscription schedules

Subscription schedules were previously limited to one time zone, but now users can choose any time zone. At the top of the browser window, click your name, and select **My Account Settings**. Then, under **Subscription time zone**, select the time zone for schedules you create.

Added in June 2017

Default task priority for all extract refreshes

To ensure fair distribution of processing for all Tableau Cloud customers, we're removing the ability for site administrators to set task priority for scheduled extract refreshes. All previously set priorities will return to the default value.

Added in May 2017

Tableau Cloud servers were upgraded to version 10.3.

Tableau Cloud sync client evolves into Tableau Bridge

Limited release, by request. The Tableau Online sync client has gained some new functionality and a new name to go with it. Use Tableau Bridge to maintain live connections to on-premises relational data. Bridge also takes on all of the functionality that was provided in the sync client for scheduling extract refreshes. Your existing schedules will continue to run as previously defined in the sync client.

Live query functionality is currently available to site administrators by request only. For more information, see Use Tableau Bridge to Expand Data Freshness Options.

Encrypted SAML assertions from Identity Providers

Tableau Cloud now supports encrypted SAML assertions from Identity Providers. To learn more about configuring SAML single-sign-on, see Enable SAML Authentication on a Site.

Site access for support users

Tableau Cloud administrators can allow approved Tableau support technicians to access their Tableau Cloud site to help troubleshoot a customer support case. To learn more, see Enable Support Access.

Help Redesign

Starting with version 10.3, Tableau Desktop Help is now known as Tableau Help. Tableau Help contains all help topics related to analyzing and consuming data in Tableau Desktop, Tableau Server, and Tableau Cloud. This help is for people who create workbooks or data sources and publish them, and for people who want to see, interact with, and share views in Tableau.

We welcome your feedback on this change, as well as any feedback or ideas you might have on how to make our content better. Please use the feedback bar on the top of any page ("Was this page helpful?") to open the comment field and submit your feedback.

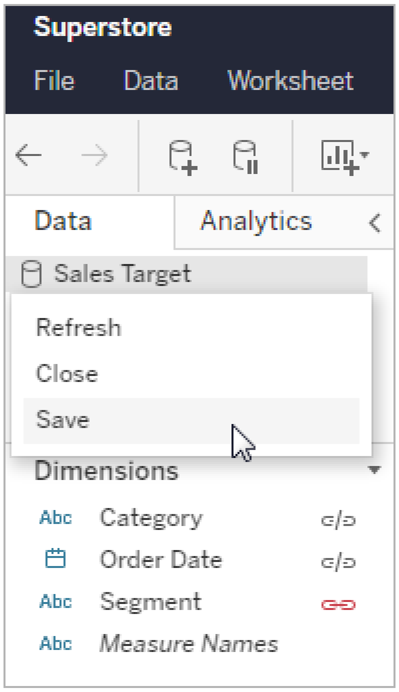
Using Tableau on the Web provides links to the topics that used to be located in Tableau Server and Tableau Cloud help.

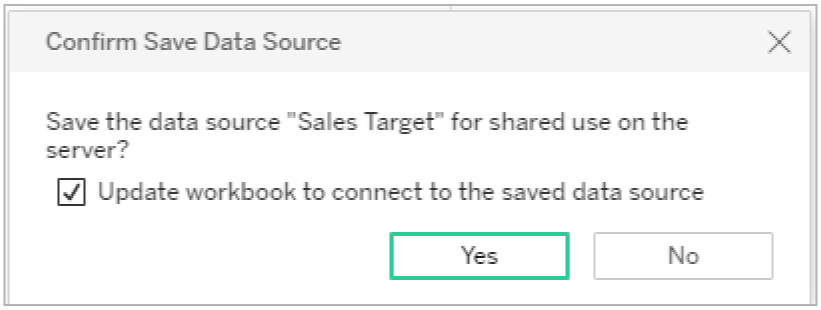
New to Web Authoring

Web authoring topics for Tableau Server and Tableau Cloud are now located in Tableau Help, starting with version 10.3.

Save data source

You now have the option to save a data source that is embedded with a published workbook, as a separate, published data source on Tableau Server and Tableau Cloud that other users can connect to. When you save the data source, you can choose to update the workbook to connect to the newly saved data source.


Superstore
File
Data
Worksheet
Data
Analytics
Sales Target
Refresh
Close
Save
Dimensions
Abc
Category
Order Date
Abc
Segment
Abc
Measure Names


Confirm Save Data Source

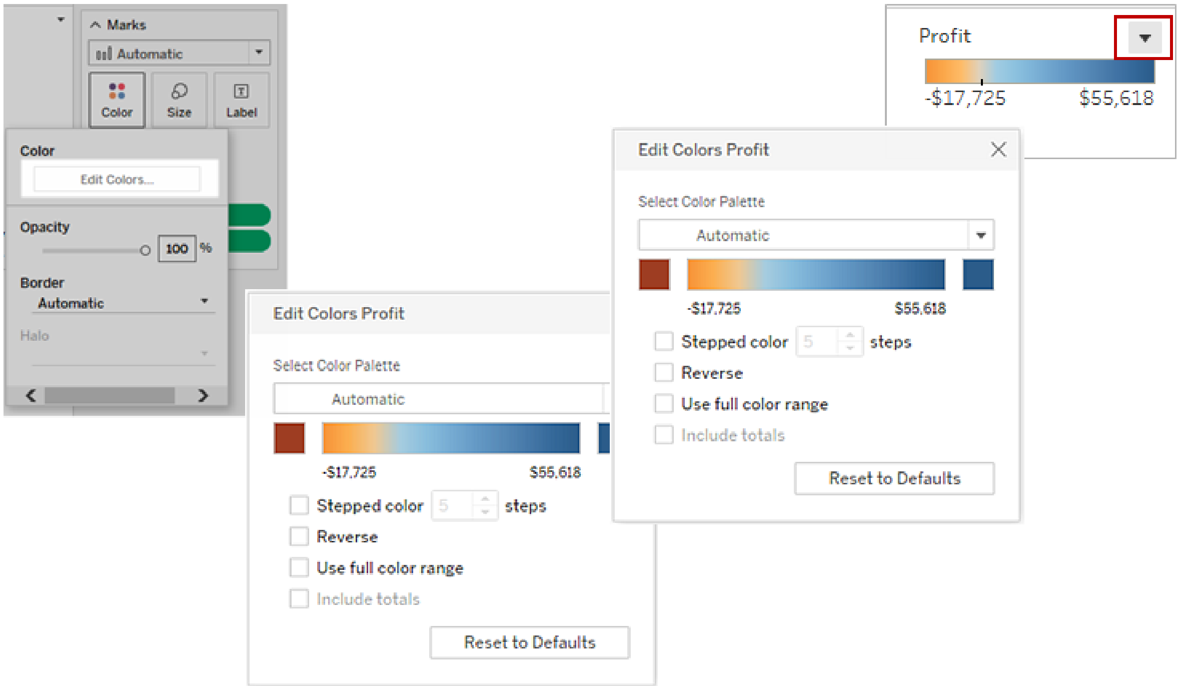
Save the data source "Sales Target" for shared use on the server?

☑ Update workbook to connect to the saved data source

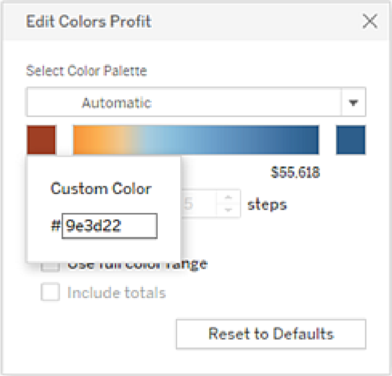
Edit quantitative color legends

You can now edit the color palette for continuous color legends in web authoring. You can open the Edit Colors dialog box from the Marks card or by clicking the drop-down arrow on the legend.

Marks card: **Legend:**


Marks
Automatic
Color
Size
Label
Color
Edit Colors...
Opacity
100 %
Border
Automatic
Halo
Profit
-$17,725
$55,618
Edit Colors Profit
Select Color Palette
Automatic
-$17,725
$55,618
Stepped color
5
steps
Reverse
Use full color range
Include totals
Reset to Defaults

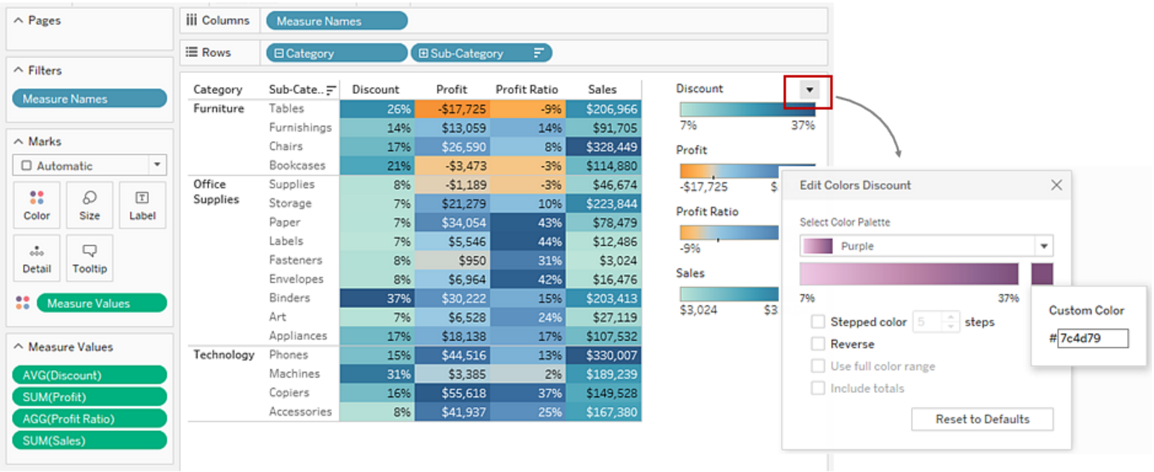
You can also set a custom color for the start and end colors by entering the Hex value.


Edit Colors Profit
Select Color Palette
Automatic
$55,618
Custom Color
#9e3d22
5
steps
Use full color range
Include totals
Reset to Defaults

Edit colors on separated legends

When you create separate color legends for measures in your view, you are no longer restricted to using only the default color palette or the color palette assigned to each color legend when the view was published from Tableau Desktop.

In web authoring mode, you can now select different color palettes for each legend. Click the drop-down arrow on the legend to open the Edit Colors dialog box and then select the color palette. You can also set custom start and end colors using Hex values.


Pages
Filters
Measure Names
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Measure Values
Measure Values
AVG(Discount)
SUM(Profit)
AGG(Profit Ratio)
SUM(Sales)
Columns
Measure Names
Rows
Category
Sub-Category
Discount
7%
37%
Profit
-$17,725
$
Profit Ratio
-9%
Sales
$3,024
$3

Category	Sub-Cate..	Discount	Profit	Profit Ratio	Sales
Furniture	Tables	26%	-$17,725	-9%	$206,966
	Furnishings	14%	$13,059	14%	$91,705
	Chairs	17%	$26,590	8%	$328,449
	Bookcases	21%	-$3,473	-3%	$114,880
Office Supplies	Supplies	8%	-$1,189	-3%	$46,674
	Storage	7%	$21,279	10%	$223,844
	Paper	7%	$34,054	43%	$78,479
	Labels	7%	$5,546	44%	$12,486
	Fasteners	8%	$950	31%	$3,024
	Envelopes	8%	$6,964	42%	$16,476
	Binders	37%	$30,222	15%	$203,413
	Art	7%	$6,528	24%	$27,119
	Appliances	17%	$18,138	17%	$107,532
Technology	Phones	15%	$44,516	13%	$330,007
	Machines	31%	$3,385	2%	$189,239
	Copiers	16%	$55,618	37%	$149,528
	Accessories	8%	$41,937	25%	$167,380

Edit Colors Discount

Select Color Palette: Purple

7% 37%

☐ Stepped color 5 steps
☐ Reverse
☐ Use full color range
☐ Include totals

Reset to Defaults

Custom Color

7c4d79

Customize how people interact with your map

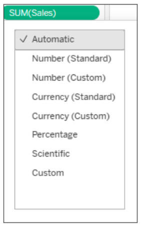
In web authoring mode, you can now customize how your audience interacts with your map view in the following ways using the **Map Options** dialog box:

- Show a map scale
- Hide map search
- Hide the view toolbar
- Turn off pan and zoom

For more information, see Customize How People Interact with your Map.

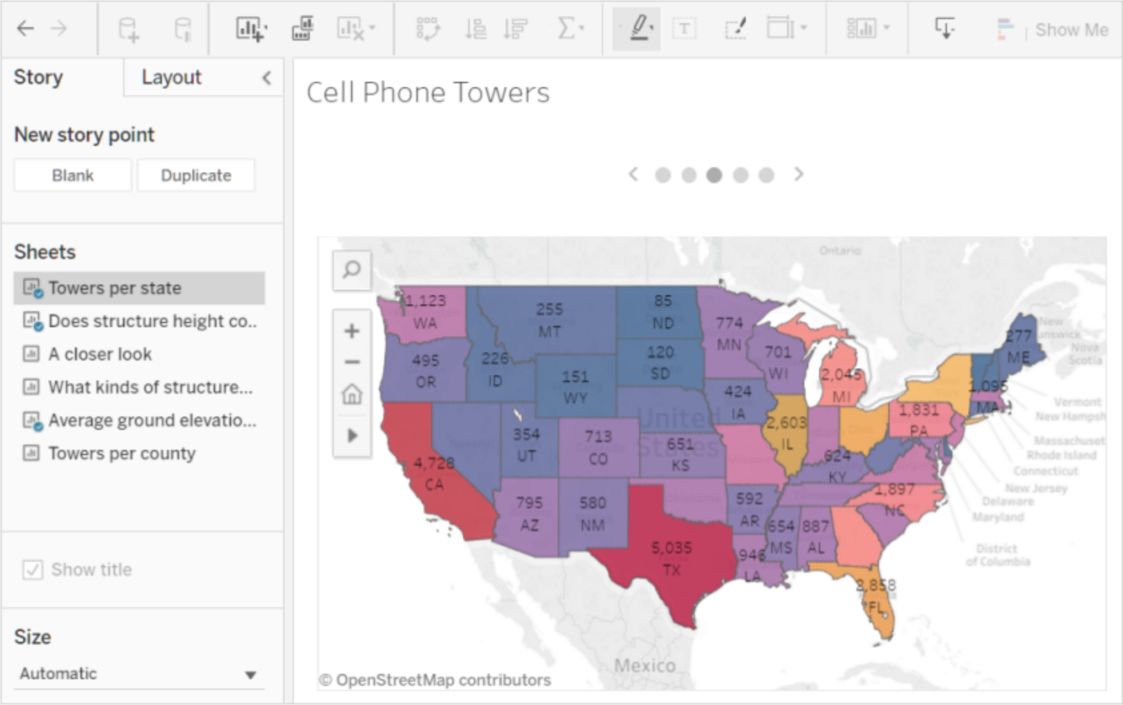
Format numbers on the web

You can now specify basic number formatting for measures in the view on Tableau Server and Tableau Cloud. For more information, see Format Numbers and Null Values on Tableau Server or Tableau Cloud.


SUM(Sales)
✓ Automatic
Number (Standard)
Number (Custom)
Currency (Standard)
Currency (Custom)
Percentage
Scientific
Custom

Create stories

In web authoring, you can now create a story to tell a data narrative, provide context, demonstrate how decisions relate to outcomes, or to simply make a compelling case. See Create a Story for details.

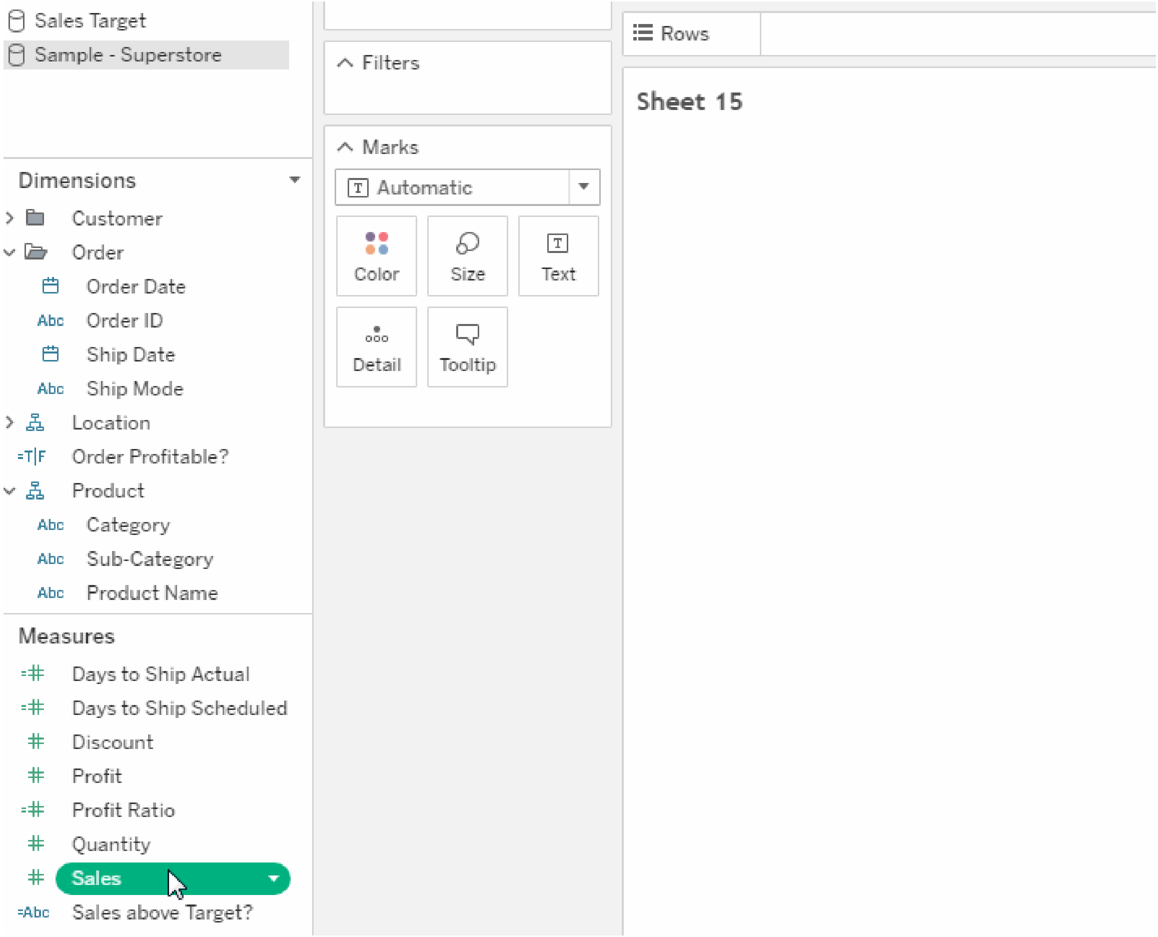

Show Me
Story
Layout
New story point
Blank
Duplicate
Sheets
Towers per state
Does structure height co..
A closer look
What kinds of structure...
Average ground elevatio...
Towers per county
☑ Show title
Size
Automatic
Cell Phone Towers
1,123 WA
255 MT
85 ND
774 MN
495 OR
226 ID
120 SD
701 WI
2,045 MI
277 ME
151 WY
424 IA
1,831 PA
1,095 MA
354 UT
713 CO
651 KS
2,603 IL
624 KY
4,728 CA
1,897 NC
795 AZ
580 NM
592 AR
654 MS
887 AL
5,035 TX
946 LA
3,858 FL
United States
Mexico
Ontario
© OpenStreetMap contributors

Create and edit bins

Create bins from continuous measures and edit them in Tableau Server and Tableau Cloud, similar to how you do it in Tableau Desktop. For details, see Create Bins from a Continuous Measure.

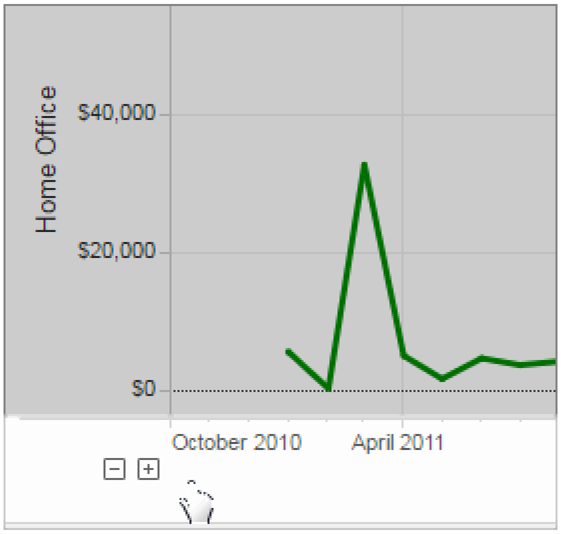
Drag fields to Show Me in the view

Select and drag dimensions and measures of interest to the view area. A "Show Me" view is automatically created. You can then click other Show Me options to try different view types.


Sales Target
Sample - Superstore
Dimensions
Customer
Order
Order Date
Order ID
Ship Date
Ship Mode
Location
Order Profitable?
Product
Category
Sub-Category
Product Name
Measures
Days to Ship Actual
Days to Ship Scheduled
Discount
Profit
Profit Ratio
Quantity
Sales
Sales above Target?
Filters
Marks
Automatic
Color
Size
Text
Detail
Tooltip
Rows
Sheet 15

Drill up and down a continuous hierarchy in the view

In a view with a continuous hierarchy, hover near the headers on a continuous axis to display the + and - controls. Click to drill down or up.



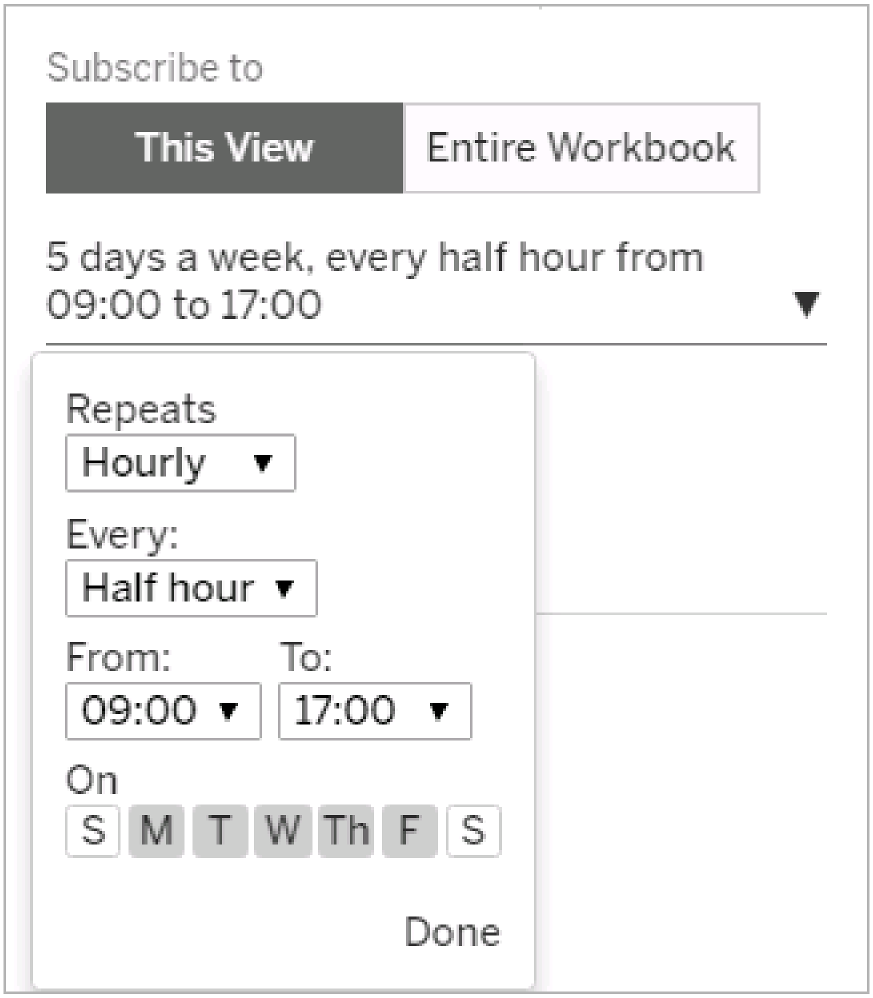
Added in March 2017

Google authentication

Google authentication gives you the convenience of using your Google ID and password with Tableau Cloud, thus reducing the number of sign-in prompts when accessing Tableau Cloud. Your site administrator can manage these credentials in a central location so that you no longer need to reset multiple passwords. For more information about Google authentication, see Authentication.

Custom schedules for subscriptions

Subscription schedules used to be limited to a set of standard options, but now you can receive emails on whatever schedule works best for you. To learn more, see Subscribe to Views.



5 days a week, every half hour from 09:00 to 17:00

Repeats: Hourly

Every: Half hour

From: 09:00

To: 17:00

Added in February 2017

Tableau Cloud servers were upgraded to version 10.2.

The following items in What's New in Tableau Server also apply to Tableau Cloud.

- Support for accessibility compliance

  The functionality referred to in this item is for Tableau Desktop authors who want to create accessible views that they publish to Tableau Cloud or Tableau Server.

- Web authoring enhancements

Added in 2016

Added in November 2016

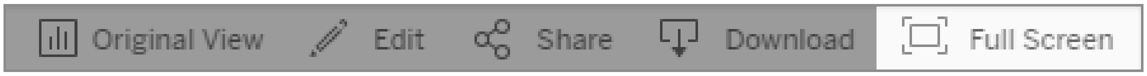
Tableau Cloud servers were upgraded to version 10.1.

Web authoring enhancements

- Show or hide headers in a view.
- View read-only device layouts for dashboards.

Full-screen views

To expand a view, click **Full Screen** at the far right of the toolbar. To return to the view to its previous size, press Esc.



Send subscriptions for high-priority alerts

If you've configured a view to contain data only when high-priority information exists, select the new subscription option, **Don't send if view is empty**. For more information, see Subscribe to Views and Manage Your Subscription Settings.

New location for downloading tabcmd

The tabcmd installer is now available from the Tableau Server Releases page on the Tableau website. In this location, you can always find the latest version of tabcmd.

The tabcmd download is on the release notes, under the version number.

The link from the Tableau Cloud Help has changed, too. If you bookmark this link, you can update it at Install tabcmd.

Sign In to Tableau Cloud

You can sign in to Tableau Cloud from a Tableau *client*. Examples of clients include a web browser, Tableau Desktop, Tableau Bridge, and Tableau Mobile. You can sign in to your site directly, or from a Tableau view embedded in a web page.

This topic discusses how to sign in to a Tableau Cloud site. For information on how to sign in to Tableau Cloud Manager as a cloud administrator, see Sign In to Tableau Cloud Manager.

Sign-in changes for Tableau with MFA users
Starting April 2024, after entering your username from the Tableau Cloud sign-in page, the sign-in process redirects you to the Tableau provider sign-in page where you can enter your password. This change will give you a more seamless sign-in experience to other products and services across the Tableau platform. For more information, see For sites with Tableau with MFA.

Sign-in options and steps

Depending on how your site admin set up your Tableau Cloud site, you will use one of the following ways to sign in (these are also referred to as *authentication* types):

- **Single sign-on**

  Single sign-on (SSO) means that your admin has set up the Tableau Cloud site so that you can use the same username and password (*credentials*) you use for other applications in your company.

  When you use SSO, your credentials are managed outside of Tableau Cloud by a third-party *identity provider* (IdP). When you enter your credentials to sign in to Tableau Cloud, it's the IdP that lets Tableau Cloud know you are an approved user.

- **Tableau with MFA**

  When multi-factor authentication (MFA) is enabled with Tableau authentication (also known as TableauID), you use a combination of your TableauID credentials and a verification method to access Tableau Cloud.

  TableauID credentials are made up of an email address and password that you use for accessing your Tableau Cloud site. These credentials also give you access to other content on the Tableau website such as white papers. You can choose a verification method after you register for MFA. For more information, see Register for multi-factor authentication.

- **Tableau**

  If Tableau hasn't updated your site to require Tableau with MFA yet, you can continue to use Tableau authentication type on a temporary basis.

How to know which type of credentials your site uses

If your site is set up for single sign-on (SSO) credentials, generally your site admin will notify you, and you use the same user name and password you do for signing in to other programs in your organization.

If your site is not setup for SSO, you sign in to your site using Tableau with MFA. In this case, you receive an email invitation to the site. When you click the link in the email, you can create your password. That email address and password become your TableauID. Then, you are prompted to register at least one verification method to use to confirm your identity each time your sign in.

If you are not sure how the site is set up or which credentials to use, check with your Tableau Cloud site admin.

To sign in (includes Tableau Cloud URL)

Do one of the following, depending on where you're signing in:

When signing in from:	Do this:
A web browser	Enter the Tableau Cloud URL into the address bar: **https://online.tableau.com**
Tableau Desktop, to publish or access content	Select **Server** > **Sign In**, and enter the Tableau Cloud URL: http://online.tableau.com

Tableau Desktop, to sign in to Tableau Bridge	Select **Server** > **Start Tableau Bridge Client**.
Tableau Mobile app	Tap **Sign In**, and then tap **Connect to Tableau Cloud**.

For sites with SSO

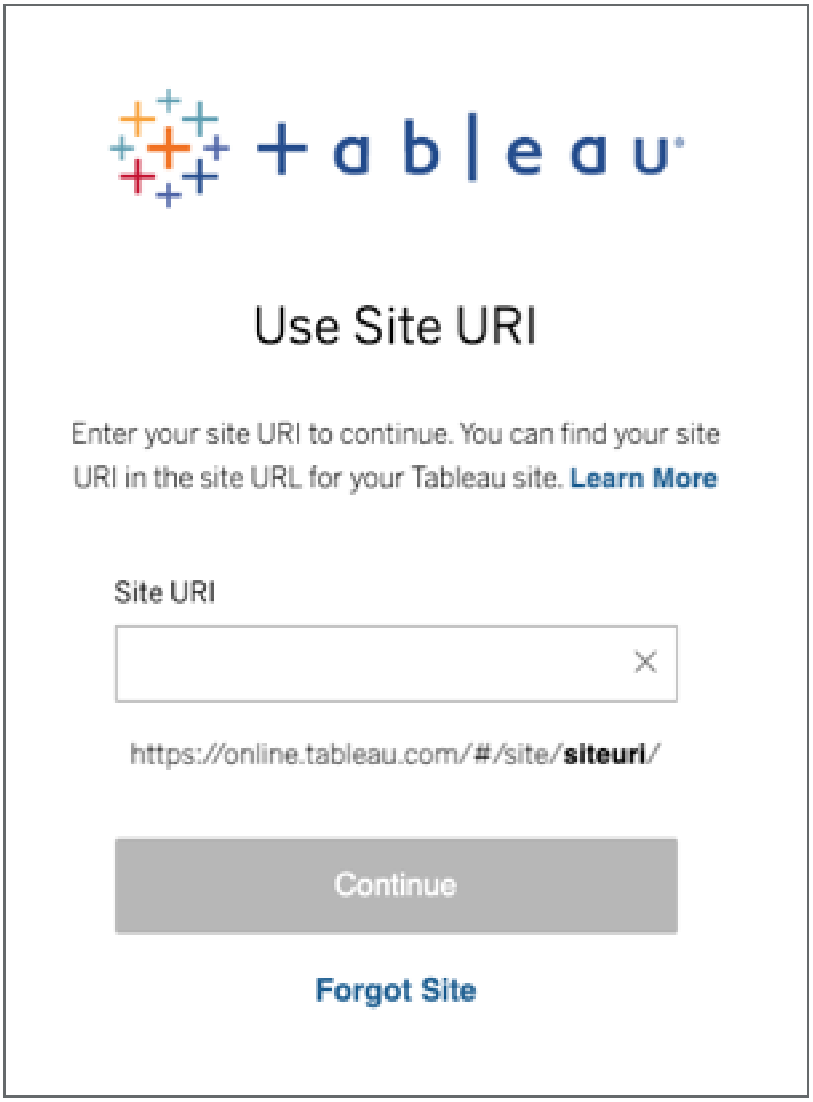
1. On the Tableau Cloud sign-in page, enter your email address and click **Sign In**.

   You are directed to the sign-in form for the identity provider if you've been added to only one site. Enter your user name again and your password. The third-party will authenticate you and direct you back to Tableau Cloud.

2. If you’ve been added to multiple sites with SSO, enter the site *Uniform Resource Identifier (URI)* for the site you want to access, and then click **Continue**.

   As of January 2022, the site URI is required to maintain site privacy. The site URI is the unique identifier for your Tableau Cloud site and appears in the site URL after authenticating. For example, a site name "Company X" may appear in the URL as `https://us-east-1.online.tableau.com/#/site/companyx`. For the site URI, you would enter "companyx".

   To avoid remembering your site URI, you can bookmark site URLs in your browser to quickly redirect and authenticate to that Tableau Cloud site.



Use Site URI
Enter your site URI to continue. You can find your site URI in the site URL for your Tableau site. Learn More
Site URI
https://online.tableau.com/#/site/siteuri/
Continue
Forgot Site

Note: If you don’t remember the site URI, click **Forgot URI** and follow instructions to verify your email address. Only one verification code is sent within five minutes, so be sure to check your spam folder if you don't see an email from Tableau. Be careful to enter the code correctly because multiple incorrect attempts can cause the code to expire. After verification, you're redirected to a list of sites associated with your username. You won't need to verify your email address again for 30 days on this client.

For sites with Tableau with MFA

Starting April 2024, after entering your username from the Tableau Cloud sign-in page, the sign-in process redirects you to the Tableau provider sign-in page where you can enter your password. This change will give you a more seamless sign-in experience to other products and services across the Tableau platform.

Note: If accessing Tableau Cloud behind a firewall or proxy and sign-in problems occur, refer to the Multiple Errors Accessing Tableau Cloud from Behind a Firewall or Proxy knowledge article for more information.

1. On the Tableau Cloud sign-in page, enter your username (email address) and click **Sign In**. You'll be redirected to https://identity.idp.tableau.com/login.

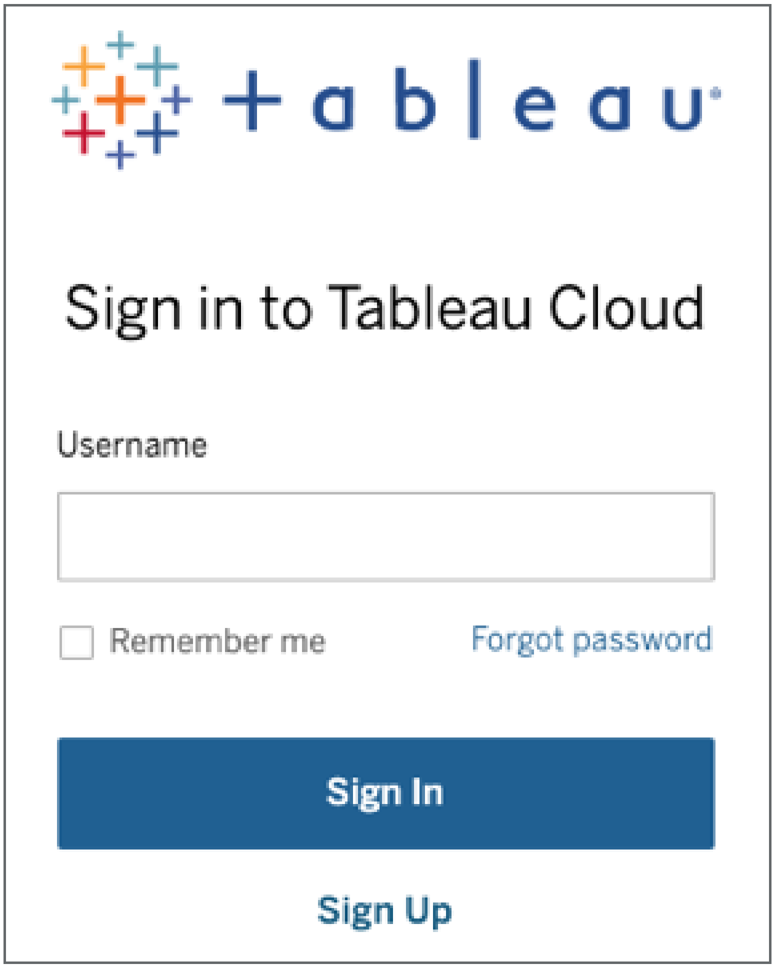
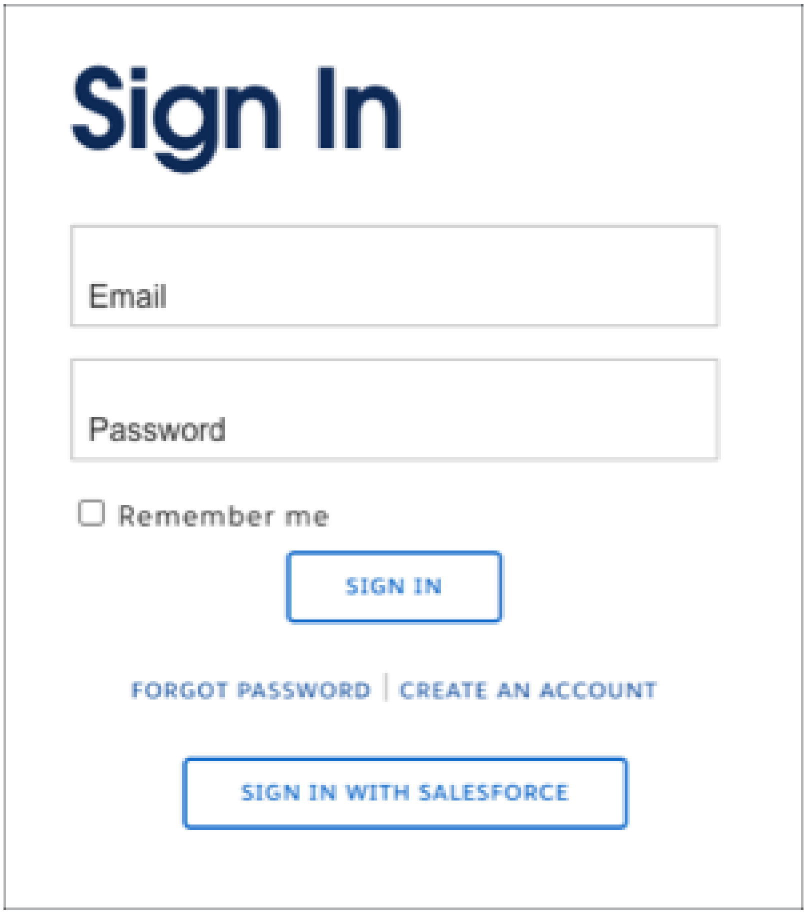


tableau
Sign in to Tableau Cloud
Username
☐ Remember me
Forgot password
Sign In
Sign Up

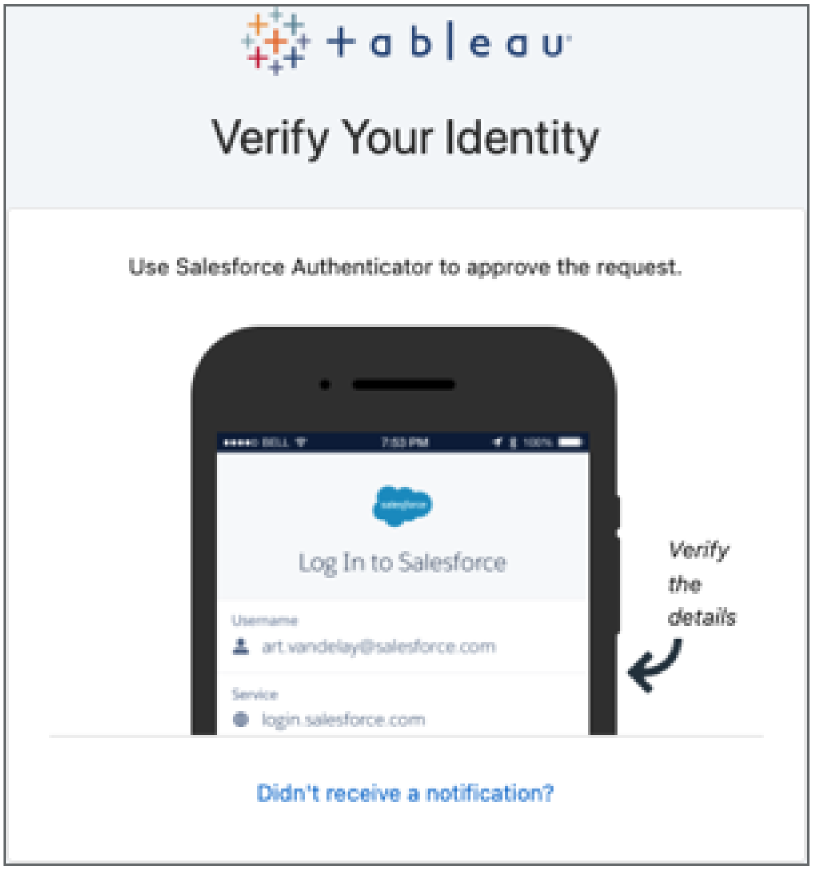
2. On the https://identity.idp.tableau.com/login page, enter your password and click **Sign In** again. You'll be redirected to https://verify.salesforce.com/v1/verify.

   Note: You can’t change your username on the https://identity.idp.tableau.com/login page. If you entered the incorrect username or are unable to sign in, go back to the initial Tableau Cloud sign-in page, and try again.

   
   Sign In
Email
Password
☐ Remember me
SIGN IN
FORGOT PASSWORD | CREATE AN ACCOUNT
SIGN IN WITH SALESFORCE

3. Follow the Tableau Cloud prompt to verify your identity using the verification method you chose during the MFA registration process.

   For example, if you registered the Salesforce Authenticator app as your verification method, you see the following prompt.



Verify Your Identity

Use Salesforce Authenticator to approve the request.

Log In to Salesforce

Username

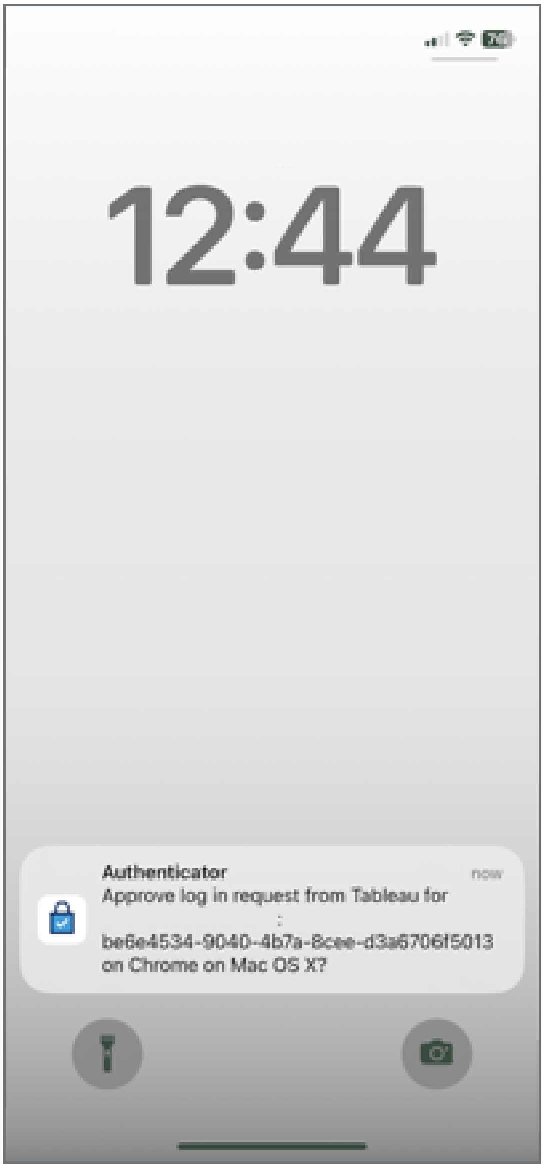
art.vandelay@salesforce.com

Service

login.salesforce.com

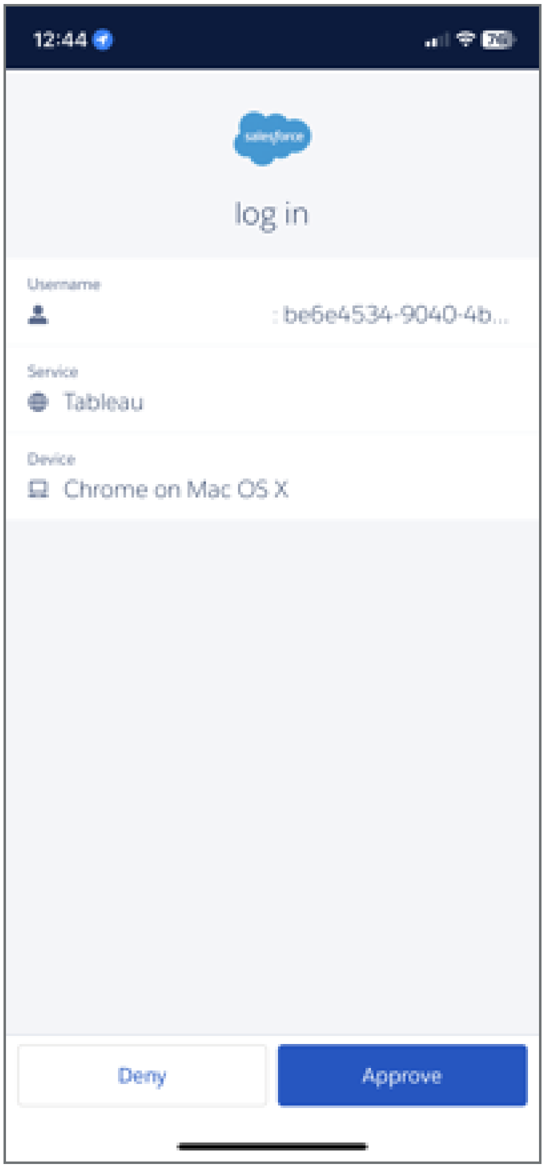
Verify the details
Didn't receive a notification?

a. Respond to the prompt by going to your mobile device and tapping the push notification.



Authenticator
Approve log in request from Tableau for
:
be6e4534-9040-4b7a-8cee-d3a6706f5013
on Chrome on Mac OS X?

b. Verify the request details are correct and tap **Approve**. After your identity has been verified you are redirected to your Tableau Cloud site.



12:44

log in

Username

: be6e4534-9040-4b...

Service

Tableau

Device

Chrome on Mac OS X

Notes:

- If you are signing in to Tableau Cloud or registering for MFA for the first time, see Register for multi-factor authentication section.
- If you are signing in to Tableau Cloud when you have registered only one verification method that is either the built-in authenticator, security key, or recovery codes, you are redirected to register an additional backup verification method.

4. If your site admin has added you to multiple Tableau Cloud sites, select a site from the list of available sites that are associated with the credentials you provided.

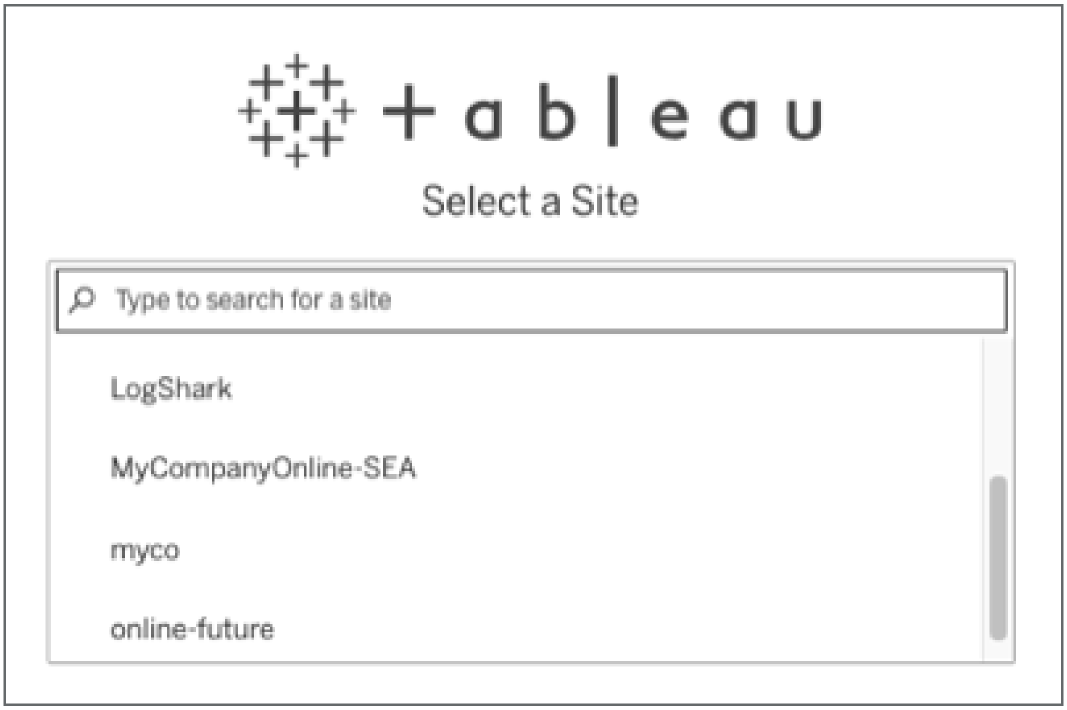
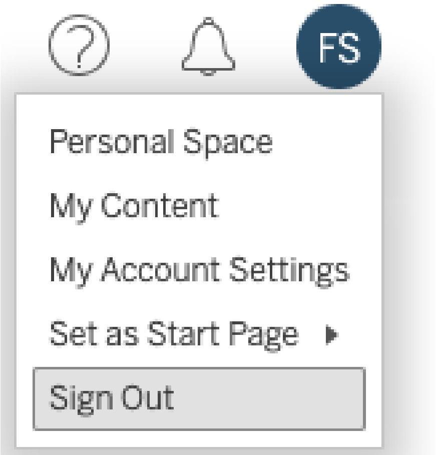


tableau
Select a Site
Type to search for a site
LogShark
MyCompanyOnline-SEA
myco
online-future

To sign out

To sign out, select your display name in the upper-right corner of any page, and then select **Sign Out**.


FS
Personal Space
My Content
My Account Settings
Set as Start Page
Sign Out

If your site uses single sign-on, and you do not see a Sign Out link, close the browser tab or window. The Sign Out link does not appear if your site and the identity provider that manages your company's user information are not configured to support single log-out.

Remember your sign-in credentials

If you want Tableau Cloud to remember your user name, select **Remember me** on the sign-in page. The next time you sign in, Tableau enters your user name. You still need to type your password.

For sites with SSO authentication, Tableau remembers your user name and sets a default site as well. The next time you sign in, Tableau enters your user name and redirects you to the IdP for authentication without prompting for the site's URI.

In both scenarios, the default site will be replaced if:

- You sign in to a different Tableau Cloud site and select **Remember me** again.
- You use deep links, URLs that point to specific sites, to access Tableau Cloud and select **Remember me** when signing in to that site.

To make Tableau forget your user information, remove cookies using your web browser.

Connected clients

Your site admin has the option to allow direct sign-in from approved Tableau clients. For examples of clients, see this topic's introduction.

After you sign in successfully from a recognized client, Tableau stores your credentials in a secure token that remembers your connection with Tableau Cloud. When this token is in place, you can access your Tableau Cloud site directly, without having to sign in.

Clearing saved sign-ins

- If you want to disconnect from your site, you can explicitly sign out from the connected client. For example, in Tableau Desktop, select **Server** > **Sign Out**.
- To remove all existing server connections from Tableau Desktop, select **Help** > **Settings and performance** > **Clear saved server sign-ins**.

Note: Site admins can disallow secure tokens that store users' connections to the site.

Sign in to an embedded view in Internet Explorer

When you browse to a web page that has an embedded view, you see a sign-in button in the frame where the view will appear. If you use Internet Explorer (IE), and after entering your credentials, the sign-in button is not replaced with the view, the browser security settings might be blocking access to the view.

IE uses security zones to determine access levels to websites. To display Tableau embedded views in IE, you can add the website you visit and Tableau Cloud addresses to the correct security zone.

Add web addresses to IE security zones

1. In Internet Explorer, browse to the website that contains the Tableau view.
2. Click the **Tools** button, and then select **Internet Options**.
3. On the **Security** tab, add the website to the appropriate security zone as follows:
    - If the site that contains the Tableau view is internal to your organization, select **Local intranet**, click **Sites**, and click **Advanced**. If the site is not already there, add it to the **Websites** list.

    - If the site is external to your organization, select **Trusted sites**, click **Sites**, and add it to the **Websites** list.

4. Add Tableau Cloud:

   Select **Trusted sites**, and in the **Add this website to the zone** box, enter ***.online.tableau.com**.

5. Click **Add**, and then click **Close**.

These steps were taken from the Microsoft Windows page Security zones: adding or removing websites.

> **Note:** The link provided will take you away from the Tableau website. Although we make every effort to ensure these links to external websites are accurate, up-to-date, and relevant, Tableau cannot take responsibility for the accuracy or freshness of pages maintained by external providers. Contact the external site for answers to questions regarding its content.

Register for multi-factor authentication

To help ensure account security, multi-factor authentication (MFA) became a Tableau Cloud requirement beginning February 1, 2022. To meet the requirement MFA with Tableau authentication might have been enabled. If MFA is enabled, you must register at least one verification method to confirm your identity each time you sign in to Tableau Cloud. **Note:** If you're using Tableau Desktop or Tableau Bridge in conjunction with Tableau Cloud, you must be running version 2021.1 and later.

MFA is a secure account authentication method that requires you to prove your identity by providing two or more pieces of verification information, also known as “factors”, when you sign in to Tableau Cloud. The first factor is the username and password you use to sign in to Tableau Cloud (i.e., your TableauID credentials). The additional factor is a code generated by an authenticator app, such as Salesforce Authenticator or a third-party time-based one-time passcode (TOTP) app.

To compare supported verification methods and review usage requirements, see Verification Methods for Multi-Factor Authentication topic in Salesforce Help.

Important:

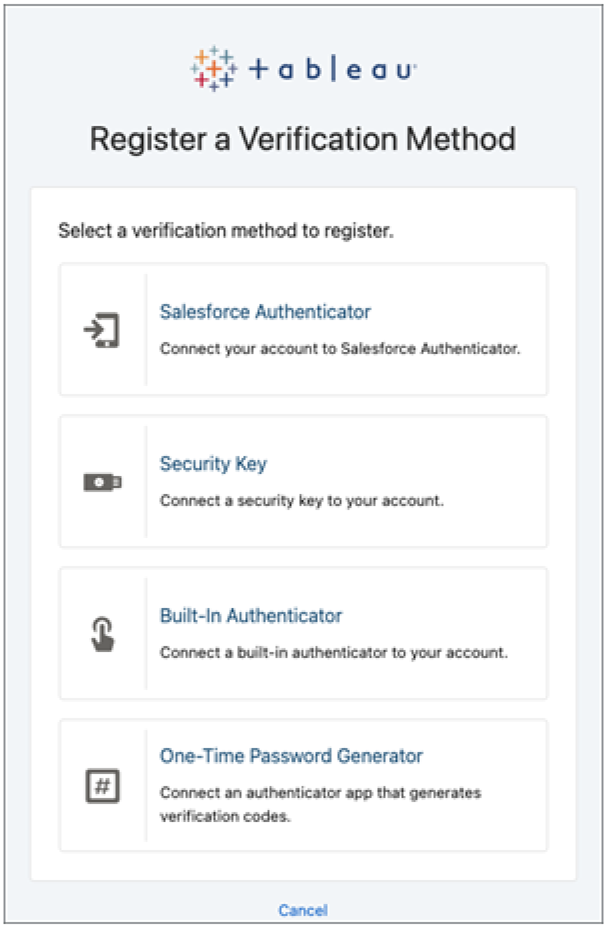
- In most cases, verification methods for Tableau Cloud are mobile authenticator apps that you need to install on a mobile phone.
- Security keys that support WebAuthn or U2F and built-in authenticators **can't** be used when authenticating to Tableau Cloud from **Tableau Desktop**, **Tableau Prep Builder**, **Tableau Bridge**, and **Tableau Content Migration Tool**.
- Recovery Codes option is only available to you after registering your initial set of verification methods.

To register for MFA

1. Sign in to Tableau Cloud with your username and password. You are prompted to register for MFA.

2. Select a verification method.

   For example, click **Salesforce Authenticator**.



Register a Verification Method

Select a verification method to register.

Salesforce Authenticator
Connect your account to Salesforce Authenticator.

Security Key
Connect a security key to your account.

Built-In Authenticator
Connect a built-in authenticator to your account.

One-Time Password Generator
Connect an authenticator app that generates verification codes.

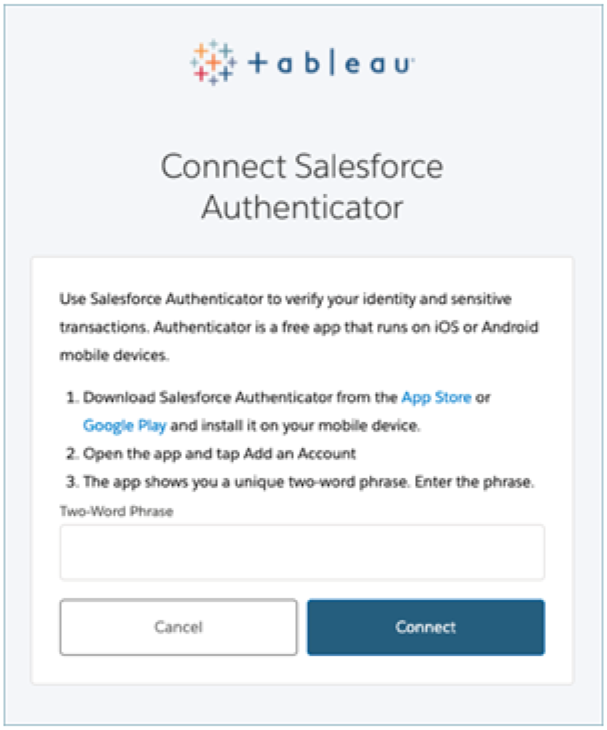
3. Follow the steps in the Tableau Cloud dialog to associate the selected verification method with your Tableau Cloud account.

   For example, if you selected the Salesforce Authenticator app in step 2, you are prompted to do the following:

   a. On an iOS or Android mobile device, download and install the free Salesforce Authenticator app from the App Store or Google Play.

   b. On the mobile device, after the app installation completes, open the app and tap **Add an Account**.

c. In Tableau Cloud, enter the two-word phase from the app in the dialog and click **Connect**.



Connect Salesforce Authenticator

Use Salesforce Authenticator to verify your identity and sensitive transactions. Authenticator is a free app that runs on iOS or Android mobile devices.

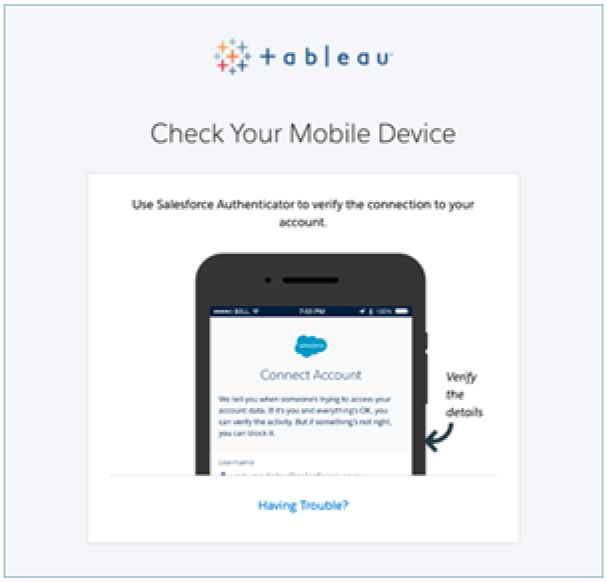
1. Download Salesforce Authenticator from the App Store or Google Play and install it on your mobile device.
2. Open the app and tap Add an Account
3. The app shows you a unique two-word phrase. Enter the phrase.

Two-Word Phrase

4. To complete the sign-in process, Tableau Cloud prompts you to approve the request through the authenticator app on the mobile device. By accepting the request, you are verifying your identity. You are then redirected to your site.

   For example, if using the Salesforce Authenticator verification method, do the following:

   a. When Tableau Cloud shows you the following prompt, respond to the push notification on your mobile device.



Check Your Mobile Device

Use Salesforce Authenticator to verify the connection to your account.

Connect Account

Verify the details

Having Trouble?

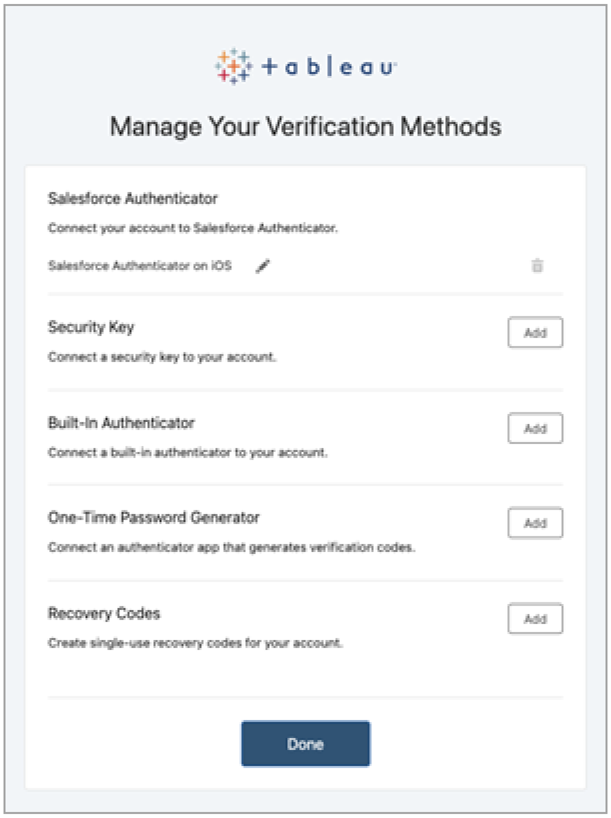
b. In the Salesforce Authenticator app, verify the request details are correct.

c. Tap **Approve**. You are redirected to your site.

Manage verification methods

After you start using MFA, you can manage verification methods by clicking the **Manage MFA Verification Methods** link in your My Account Settings page in Tableau Cloud.

On this page, you can add or remove additional verification methods, including Recovery Codes. For example, if you get a new mobile phone, delete any verification methods on the old mobile phone. If you're unable to copy your authenticator app configuration by restoring it from a backup to your new mobile phone, you must install and register an authenticator app again. For more information, see Manage Your Account Settings.



Manage Your Verification Methods

Salesforce Authenticator

Connect your account to Salesforce Authenticator.

Salesforce Authenticator on iOS

Security Key

Connect a security key to your account.

Built-In Authenticator

Connect a built-in authenticator to your account.

One-Time Password Generator

Connect an authenticator app that generates verification codes.

Recovery Codes

Create single-use recovery codes for your account.

About recovery codes - emergency cases only

To help reduce the risk of a locked-out scenario, we recommend you add **Recovery Codes** as backup after registering for MFA. Recovery codes, to be used in emergency scenarios only, allow you to sign in to Tableau Cloud if you don't have access to your usual MFA verification methods. If you add Recovery Codes option, a list of ten one-time use codes are generated for you that you can use to sign in to Tableau Cloud.

Important:

- Because the list of recovery codes are not accessible after you've added the Recover Codes option, immediately copy and store these codes in a safe and secure location so that you can use them in emergency situations.
- Recovery codes should not be used as your primary verification method. Instead, recovery codes should be used in emergency scenarios only when you don’t have access to your usual MFA verification methods.

Regain site access after being locked out

Important: We strongly recommend that you add Recovery Codes option to help avoid being locked out of your site. Recovery codes should be used in emergency scenarios only.

If you lose all your usual MFA verification methods, you must contact your Tableau Cloud site admin and request your MFA verification methods be reset. After your MFA verification methods have been reset, follow the procedure in Register for multi-factor authentication to register for MFA again.

Understanding License Models

This topic describes the different licensing models and the product keys or subscriptions that may be associated with them. A useful visual of how product keys and subscriptions are represented in Tableau Cloud can be found in the Tableau Customer Portal.

When viewing product keys using the Tableau Customer Portal (Tableau Desktop and Tableau Prep Builder), note the product specific prefixes.

Product Key Prefix	Description
TC	Tableau Creator product key, can be used to activate or deactivate Tableau Desktop and Tableau Prep Builder.
TD	Tableau Desktop product key, can be used to activate or deactivate Tableau Desktop only. This is a legacy product key that is no longer sold or provided.

Term licensing models

Tableau’s term license model is defined by the metric that permits use of Tableau Cloud. Term licenses are also called subscription licenses. Tableau currently sells access to Tableau Cloud with subscription licenses. In the subscription license model, customers pay a yearly subscription fee. If the subscription expires, the software will stop working.

Subscription licenses are either role-based or core-based subscriptions. A single license key can be purchased with all roles and features and this license is called an Updatable Subscription License (USL). Only one key needs to be activated on Tableau Cloud to represent the entire purchase.

- A *role-based license* allows you to add users based on the available licenses of each role type.

- A *usage-based license* imposes no constraints on the number of Viewer user accounts in Tableau Cloud. Instead, the license is per usage, more specifically analytical impressions. An *Embedded Analytics usage-based license* is one type of usage-based license.

Role-based license model

Tableau offers role-based term licenses that grant a range of capabilities at various price points. Four types of role-based term licenses are available: Display, Viewer, Explorer, and Creator.

- *Display licenses* let users share and display Tableau content with a broad, internal audience of users who consume dashboards via shared displays with no interaction. There is no separate site role for Display licenses; when using a Display license, administrators create a dedicated login account for each licensed Display location, which is not the same as an individual user’s login account, and assign the maximum site role of Viewer.
- *Viewer licenses* let users view and interact with workbooks in Tableau Cloud. Viewer licenses also let users access Tableau Mobile, add comments to workbooks, export visuals in various formats, download workbook summary data, create subscriptions for themselves, and receive data-driven alerts.
- *Explorer licenses* are similar to the user-based licenses available in previous Tableau Cloud releases, and include the capabilities provided with Viewer licenses, and additional capabilities. An Explorer license allows access to workbook authoring capabilities using a web browser, as well as a full set of collaboration features.
- *Creator licenses* permit a wide range of capabilities when using Tableau Cloud, and also grant use of Tableau Desktop and Tableau Prep Builder. A Creator license allows all of the capabilities available under the Explorer license, as well as the following

capabilities when using Tableau Cloud:

- Create and publish new workbooks from a new data source.
- Edit embedded data sources in the Data pane.
- Create and publish new data connections.
- Use login-based license management activation on Tableau Desktop and Tableau Prep Builder.

Usage-based license model

In a usage-based licensing (UBL) model, Usage Viewers are licensed per usage measured in analytical impressions, while Creators and Explorers are defined per user.

An analytical impression is generated when a Usage Viewer (who must be a viewer outside your organization) accesses one or more embedded analytics within (or related to) your external facing application, or a Pulse metric. For example, when a Viewer is performing these following actions:

- Loading a dashboard.
- Loading a worksheet.
- Downloading or exporting a visualization (dashboard or worksheet) such as an image, PDF, PowerPoint or Tableau workbook via API or the UI.
- Receiving a subscription.
- Successful requests for detail Pulse insights. A successful detail request can happen either from users interacting with the Pulse interface within Tableau or from embedded scenarios where an external application is making requests to the Pulse Insights API.
- Getting a response from a VizQL Data Service request.

Note: Tableau Pulse will be available for usage-based sites at release, and will begin measuring analytical impressions in June 2024.

Site administrators will receive monthly overview emails updating them on Analytical Impressions consumption so they can track their usage and manage their budget. You can also request usage metrics at any time from your account managers to monitor usage.

Embedded Analytics

Tableau's Embedded Analytics offering is a limited-use license for Tableau Cloud that's made available to customers who want to embed Tableau Cloud analytics into an external facing solution to provide Tableau content and insights to clients outside of their organization.

> **Note:** Embedded Analytics licenses cannot be used in the same environment as full-use licenses. To change to an Embedded Analytics license, first deactivate your existing full-use licenses and then activate the Embedded Analytics license.

For example, consider an organization that runs a service where they analyze consumer data and generate reports on behavioral patterns regarding different consumer demographics. In this scenario, Tableau Cloud acts in support of a specific proprietary application titled 'Demographics Analyzer' and connects with exported TXT files and a SQL database. The organization makes visualizations available to its clients in a secure portal, where clients log in to manage their account and view the results. End users are uniquely identified by the account they use to access the portal.

To verify the license contact Customer Success.

License editions

License editions include a suite of features and functionality to which users are entitled. License editions cannot be mixed within a deployment, meaning all users on a deployment must be on the same license edition. Consider the needs of your entire deployment when selecting your license edition.

Tableau license edition

Tableau license edition is the standard Tableau Cloud edition. It provides Tableau Cloud access for each licensed user, governance, collaboration, data prep, and visual analytics functionality.

Tableau Enterprise license edition

Enterprise edition is designed for sophisticated business environments on Tableau Cloud . It is ideal for organizations that require advanced administration, security, and data management functionality to scale to more users in more complex data environments and meet Enterprise standards.

For more information and a list of features included with Tableau Enterprise, see About Tableau Enterprise.

Tableau+ license edition

The Tableau+ edition is available exclusively for Tableau Cloud. It provides a comprehensive package tailored for wall-to-wall adoption of AI-powered, self-service analytics. It encompasses premium features tailored for larger or more complex deployments, premium AI functionality, and the Premier Success offer.

For more information and a list of features included with Tableau+, see About Tableau+.

Private Connect Licensing

If you have Tableau Cloud with a Tableau Enterprise or Tableau+ license edition, Private Connect is available for purchase as an add-on license. You need an add-on license for each private connection.

You also need to purchase data usage blocks to send and receive data over the private connection. Private connection data usage is billed per terabyte.

Monthly summaries of usage are sent as described in Monthly Account Summary FAQs. Cloud administrators that want more frequent and granular statistics can use the Activity Log to get usage. The private connection **Endpoint ID** that appears in the list of private connections in Tableau Cloud Manager maps to `endpointID` in activity log events.

Feature licenses

Important: As of September 16, 2024, Advanced Management and Data Management are no longer available as independent add-on options. Advanced Management and Data Management capabilities are only available if you previously purchased these, or if you purchase certain license editions - either Tableau Enterprise (for Tableau Server or Tableau Cloud) or Tableau+ (for Tableau Cloud).

Feature licenses are sold differently than other licenses. Features with independent licenses must be licensed for every user in the deployment.

These features are licensed annually, and in the context of licensing, the availability of these features to the user base are “all or none:”

- Data Management
- Advanced Management
- Login-based License Management

Note: Updatable subscription licenses include both features and roles in one license. You no longer need to activate multiple licenses and product key(s) for different features and their associated roles.

Data Management

The Data Management license includes Tableau Catalog and Tableau Prep Conductor. For more information, see About Data Management.

Advanced Management

Tableau Cloud Advanced Management is licensed on a per deployment basis. For more information on Advanced Management and the capabilities included, see About Tableau Advanced Management on Tableau Cloud.

Login-based License Management

Login-based license management (LBLM) simplifies licensing for Tableau Desktop and Tableau Prep Builder. Instead of end users needing to activate product keys, Cloud Creators can activate and use Tableau Desktop and Tableau Prep Builder by signing in to the Cloud site (LBLM).

For more information, see Activate Tableau using Login-based License Management.

Activate Tableau using Login-based License Management

Login-based license management is the preferred license management and activation option for Creator roles within Tableau Cloud, and is enabled by default on your site. Login-based license management allows authorized users to activate and unlock Tableau Desktop and/or Tableau Prep Builder by signing in to Tableau Cloud. Login-based license management eliminates the need to distribute and manage product keys for Tableau Desktop and Tableau Prep Builder.

You only need one Tableau Cloud site to authorize an individual Tableau Desktop or Tableau Prep Builder. You can assign Creator roles to users who use Tableau Desktop, and Tableau Prep Builder for license activation and centralized license management. In addition, login-based license management gives you more visibility into license usage.

You can use administrative views on Tableau Cloud to see the assignment and use of Creator seats in one place. Administrative views provide information about who is using your Creator licenses, and shows the most recent license lease and version of both Tableau Desktop and Tableau Prep Builder, which helps you to monitor your Tableau deployments.

The following Tableau products support login-based license management:

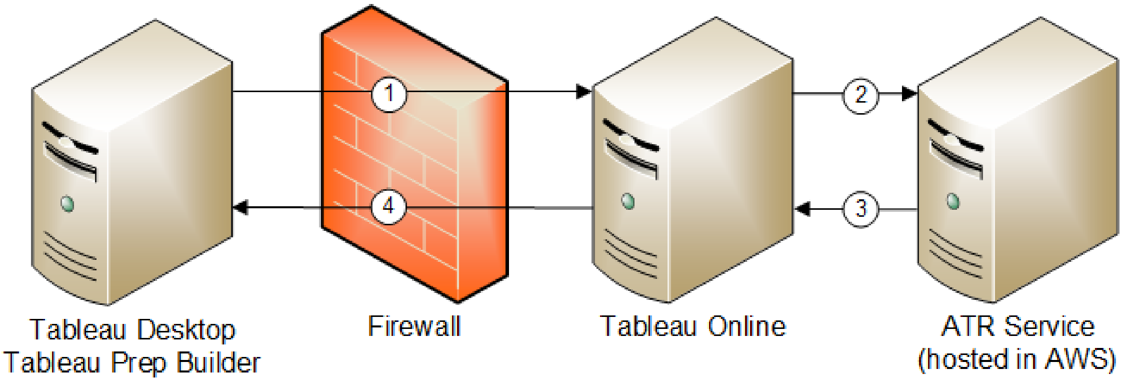
- Tableau Cloud
- Tableau Server
- Tableau Desktop
- Tableau Prep Builder

How login-based license management works

When login-based license management is in use, Tableau Desktop or Tableau Prep Builder periodically contacts Tableau Cloud in order to verify that the user is a Creator and to obtain an authorization to run. Tableau Cloud contacts the Tableau-hosted authorization-to-run (ATR) service to verify that the Tableau Desktop client is allowed activation. The ATR service verifies and manages the license and the length of the authorization window. The diagrams below show the communication process between the client, Tableau Cloud, and the licensing service.

Tableau uses common ports (80 and 443) to make internet requests. In most cases, the computer where Tableau Desktop or Tableau Prep Builder is installed and the network it is running on are already configured to allow the necessary access. For more information about the ports used by Tableau, see Internet Access Requirements.

Login-based license management with Tableau Cloud



1. You install Tableau Desktop or Tableau Prep Builder and select **Activate with your credentials**. You sign into your Tableau Cloud site.
2. Tableau Cloud verifies that you are a Creator. If not, you get an error. If yes, Tableau Cloud communicates with the ATR service.
3. The ATR service returns an ATR lease to Tableau Cloud.
4. Tableau Cloud provides an ATR lease to Tableau Desktop or Tableau Prep Builder to finalize activation.

Use login-based license management

To use login-based license management, you need to install Tableau Desktop and use it with Tableau Cloud.

Step 1: Enable login-based license management

Login-based license management is enabled by default for Tableau Cloud and Tableau Desktop. To use login-based license management, you need to install Tableau Desktop and activate it with Tableau Cloud. If you're activating Tableau Desktop, skip to Step 3: Activate Tableau Desktop.

Change login-based license management settings on Tableau Desktop or Tableau Prep Builder at install

To change login-based license management settings at the command line, you can run the installer .exe file from your computer's command line as an administrator. If you need to extract the .msi files, follow the instructions to Extract and run the Windows (MSI) installer.

To use a duration length other than the default of 14 days/1209600 seconds, include the `ATRREQUESTEDDURATIONSECONDS` switch. For example:

```
tableauDesktop-64bit-2024-2-0.exe /quiet /norestart ACCEPTEULA=1
ATRREQUESTEDDURATIONSECONDS=43200
```

You must run the command from the directory where the .exe file is located or specify a full path to the location of the .exe file on the computer. Do not run the setup program from a shared directory on your network. Instead, download the .exe file to a directory on the computer where you're installing.

The following example shows the Windows installer command that disables login-based license management:

```
tableauDesktop-64bit-2024-2-0.exe /quiet /norestart ACCEPTEULA=1
LBLM=disabled
```

or

```
tableauPrepBuilder-64bit-2024-2-0.exe /quiet /norestart
ACCEPTEULA=1 LBLM=disabled
```

To set the default URL for the Tableau Server you want users to use for activation when using login-based license management, add the `ACTIVATIONSERVER` or `WorkGroupServer` option.

To update the exe:

```
tableauDesktop-64bit-2024-2-0.exe /quiet /norestart ACCEPTEULA=1
ACTIVATIONSERVER=http://<tableau_online_site_url>
```

To update the registry:

```
reg.exe add HKEY_LOCAL_MACHINE\SOFTWARE\Tableau\Tableau 2024.2\Set-
tings /f /v WorkGroupServer /d https://<tableau_server_url>
```

Note: The `ACTIVATIONSERVER` option is only intended for first time activation. If you have previously signed-in to this version of Tableau, you use the `WorkGroupServer` (Windows) or `WorkgroupServer` (macOS) option. For example, if you are using Tableau Desktop on Windows and have previously signed-in successfully, you would use the `WorkGroupServer` option to specify an activation server. On Tableau Desktop on macOS, you would use the `WorkgroupServer` option. On macOS, this option is case sensitive and uses a lowercase "g".

Change login-based license management settings on Tableau Desktop by editing the registry

If Tableau Desktop is already installed, you can change login-based license management settings by editing the Windows registry.

To turn off login-based license management:

```
reg.exe add HKEY_LOCAL_MACHINE\SOFTWARE\Tableau\ATR /f /v LBLM /d
disabled
```

To make login-based license management the only login option:

```
reg.exe add HKEY_LOCAL_MACHINE\SOFTWARE\Tableau\ATR /f /v LBLM /d
required
```

Or, you can enable, disable, or require login-based license management by editing the registry directly:

1. As an administrator on the computer running Tableau Desktop, make a backup of the registry file before you make any changes to it.
2. Edit the registry, and in `HKEY_LOCAL_MACHINE\SOFTWARE\Tableau`, find the hive named ATR and modify the LBLM value to reflect the desired setting:
    a. Name: LBLM.
    b. Data: enabled, disabled, or required.
3. Restart Tableau so the changes take effect.

Change login-based license management settings on Tableau Desktop on macOS

To change login-based license management settings on macOS, run the following commands in a terminal window to update the preferences file, and then install or restart Tableau Desktop.

To turn off login-based license management:

```
sudo defaults write /Library/Preferences/com.tableau.ATR LBLM "disabled"
```

To make login-based license management the only login option:

```
sudo defaults write /Library/Preferences/com.tableau.ATR LBLM
"required"
```

To set the default URL for the Tableau Server you want user to use for activation when using login-based license management on macOS.

First time activation:

```
sudo defaults write /Library/Preferences/com.tableau.ATR LBLM
"required"
```

Subsequent activations:

```
sudo defaults write /Library/Preferences/com.tableau.Tableau-<ver-
sion> Settings.WorkgroupServer "https://<tableau_server_url>"
```

> **Note:** On Tableau Desktop on macOS, you would use the `WorkgroupServer` option. On macOS, this option is case sensitive and uses a lowercase "g".

Login-based license management settings

You use the following settings to change login-based license management, set the ATR duration, and set the activation server URL.

Setting	Value	Description
`LBLM`	enabled, disabled, or required	Set to `enabled` (the default), the licensing screens will present the two options for activation (product key, or credentials). Set to `disabled`, login-based license management will not appear on the licensing screens. Set to `required`, login-based license management is the only way to activate the Tableau Desktop (when the licensing screen appears, it will offer only

		the credentials option for activation). **Note:** When `LBLM` is set to enabled or required, reporting is also enabled.
`ATRREQUESTEDDURATIONSECONDS`	1209600	Sets the authorization to run (ATR) duration (in seconds), which is the length of time that an instance of Tableau Desktop and Tableau Prep Builder is authorized to run. The default is 1209600 seconds (14 days). Do not use commas as separators in the value.
`ACTIVATIONSERVER`	http://<tableau_online_site_url>	For first time activation, sets the default URL for the Tableau Cloud site you want users to use for activation.
`WorkGroupServer` (Windows) `WorkgroupServer` (macOS)	http://<tableau_server_url>	For updates to the Windows registry or macOS plist, sets the default URL for the Tableau Server you want users to use for activation. **Note:** On Tableau Desktop on macOS, you would use the WorkgroupServer

		option. On macOS, this option is case sensitive and uses a lowercase "g".
`REPORTINGFREQUENCYSECONDS`	3600	Sets the default (in seconds) for how often the login-based license management report is sent to Tableau Server or Tableau Cloud. The minimum setting is 60 seconds, and the default is 3600 seconds (one hour). Change this setting to reduce the load on Tableau Server or to reduce network traffic. No matter what the authorization-to-run (ATR) lease duration is set to, `REPORTINGFREQUENCYSECONDS` sets the time interval that the Tableau Desktop or Tableau Prep Builder client report login-based license management activations back to Tableau Server or Tableau Cloud.

Additional configuration for virtual deployments

Tableau Desktop and Tableau Prep Builder periodically contact Tableau Cloud or Tableau Server to verify that Tableau is authorized to run, based on its license. Tableau Cloud or Tableau Server then contacts the ATR service to verify the license and the length of the authorization window.

When configuring a virtual (non-persistent) deployment of Tableau Desktop or Tableau Prep Builder, the duration time should be set to one of the lower values such as 4 or 8 hours in order to avoid an over-use activation error message. After the virtual machine (VM) is returned, the ATR service will handle the activation monitoring.

The following flags should be used on a source image prior to publishing Tableau Desktop to end users. Each end user will be activating the software by logging into Tableau Server or Tableau Cloud with each new VM delivered. No product keys need to be entered if the end user is a Tableau Creator on Tableau Server or Tableau Cloud.

If you are using login-based license management for Tableau Desktop or Tableau Prep Builder on a VM, you may get an error message that your license information has changed whenever you launch a new VM for Tableau Desktop or Tableau Prep Builder. This error forces a restart, which then asks you to register Tableau Desktop again. This error occurs because the ATR service sends a new token that doesn’t match the license cache.

Microsoft Windows

To prevent the error from occurring on Microsoft Windows, you can use the `SYNCHRONOUSLICENSECHECK` and `SILENTLYREGISTERUSER` options with the Windows installer. For example:

```
tableau-setup-std-tableau-2024 SYNCHRONOUSLICENSECHECK="true"
SILENTLYREGISTERUSER="true" ATRREQUESTEDDURATIONSECONDS=14400
```

or

```
tableauDesktop-64bit-2024-2-0.exe /quiet /norestart ACCEPTEULA=1
ATRREQUESTEDDURATIONSECONDS=14400 ACTIVATIONSERVER=http://<tableau_
online_site_url> SYNCHRONOUSLICENSECHECK="true"
SILENTLYREGISTERUSER="true"
```

If Tableau Prep Builder and Tableau Desktop are being delivered on one Virtual Desktop, `ATRREQUESTEDDURATIONSECONDS` only needs to be set during Tableau Desktop installation. However, if you plan to install Tableau Prep Builder as a stand-alone, you'll need to set `ATRREQUESTEDDURATIONSECONDS` during Tableau Prep Builder installation.

Or, you can edit the following registry keys on the source image:

```
Reg key path: HKLM\SOFTWARE\Tableau\<Tableau version>\Settings\
```

```
Reg key (String value, need to set to true to make that feature enabled)
```

```
SynchronousLicenseCheck
```

```
SilentlyRegisterUser
```

macOS

To prevent the error from occurring on macOS, run the following command to set the `LicenseCache.Desktop` flag to `'false'`.

```
sudo defaults write ~/Library/Preferences/com.tableau.Tableau-<version>.plist LicenseCache.Desktop false
```

(Optional) Step 2: Change the authorization to run (ATR) duration

The login-based license management default settings for the authorization to run (ATR) duration are appropriate for most environments, but you can change these default settings if needed. Login-based license management uses the default authorization to run (ATR) duration of 1209600 seconds (14 days), which is the length of time that an instance of Tableau Desktop and Tableau Prep Builder is authorized to run. This means that after the initial authorization, you could use Tableau without any network connection for 14 days before the activation expired.

The default duration value for login-based license management is not appropriate for delivering a non-persistent VM delivery solution to end users. The ATR duration should be lowered to 4 or 12 hours depending on VM use. When a new VM is delivered to an end user, a new authority to run token will be created. When the VM is returned, this token is also returned and is able to be used on the new VM authorization to run request.

Note: Login-based license management uses the following hierarchy when determining ATR duration.

1. **ATR Service** – Establishes the minimum (4 hours/14400 seconds) and maximum (90 days/7776000 seconds) ATR durations applicable to all users/installations. It specifies the default ATR duration (14 days/1209600 seconds) if nothing is specified by Tableau Server or Tableau Desktop.
2. **Tableau Desktop** – Can optionally specify the ATR duration (`ATRREQUESTEDDURATIONSECONDS`) for the computer on which it is installed. If necessary, you can change the default ATR duration (14 days/1209600 seconds) to a setting within the ATR Service minimum (4 hours/14400 seconds) and maximum (90 days/7776000 seconds). This local ATR duration overrides any durations set by the ATR Service or Tableau Server. However, this default ATR duration cannot be more than the maximum ATR duration set on Tableau Server.

Change the ATR duration on Tableau Desktop by editing the registry

To use a duration length other than the default of 14 days/1209600 seconds, update the `ATRRequestedDurationSeconds` registry setting. For example:

1. As an administrator on the computer running Tableau Desktop, make a backup of the registry file before you make any changes to it.
2. Edit the registry, and in `HKEY_LOCAL_MACHINE\SOFTWARE\Tableau\ATR`, update the ATRRequestedDurationSeconds as follows (0 uses the default setting):

   a. Name: Find the string value named `ATRRequestedDurationSeconds`.
   b. Data: Update the number of seconds the duration should last. For example, add 43200 to set a duration of 12 hours.
3. Restart Tableau so that the changes take effect.

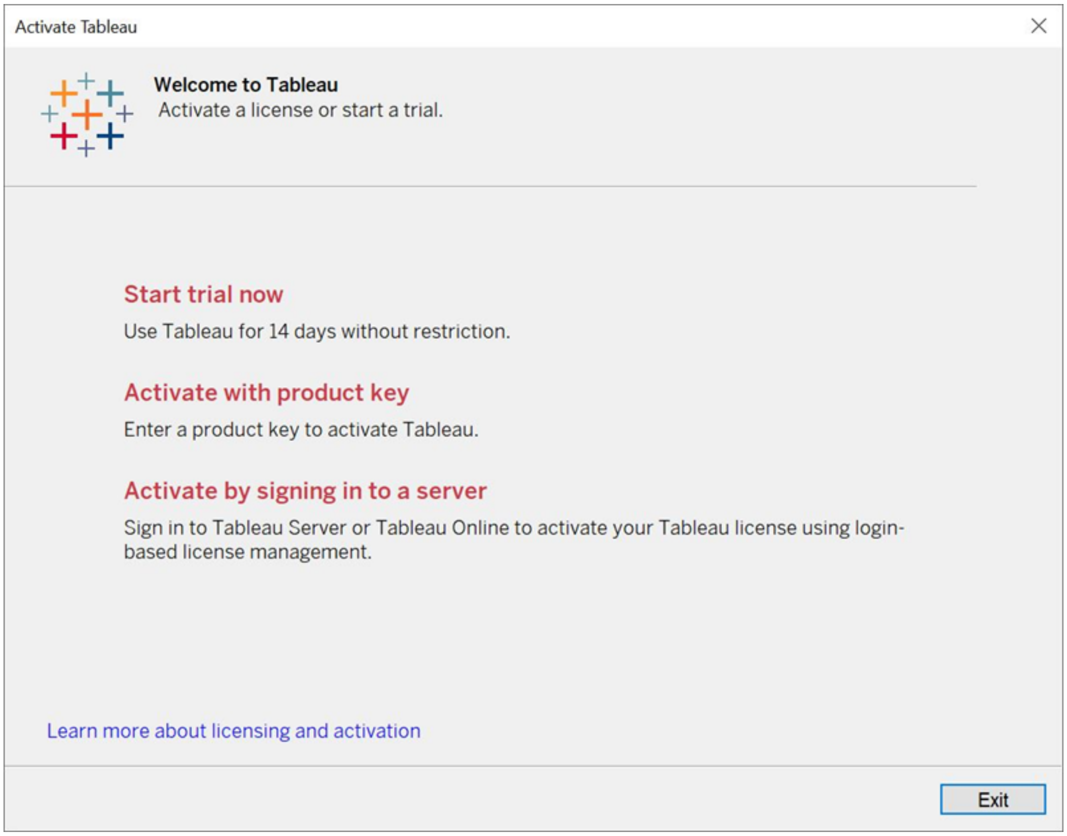
Change the ATR duration on Tableau Desktop on macOS

To use a duration length other than the default of 14 days/1209600 seconds, include the `ATRRequestedDurationSeconds` preferences setting. For example:

```
sudo defaults write /Library/Preferences/com.tableau.ATR ATRRequestedDurationSeconds -string "43200"
```

Step 3: Activate Tableau Desktop

1. Run Tableau Desktop setup.
2. The Activate Tableau screen will include the **Activate by signing in to a server** option.



Activate Tableau

Welcome to Tableau
Activate a license or start a trial.

Start trial now
Use Tableau for 14 days without restriction.

Activate with product key
Enter a product key to activate Tableau.

Activate by signing in to a server
Sign in to Tableau Server or Tableau Online to activate your Tableau license using login-based license management.

Learn more about licensing and activation

3. Click **Activate by signing in to a server** and then click the Tableau Cloud link.

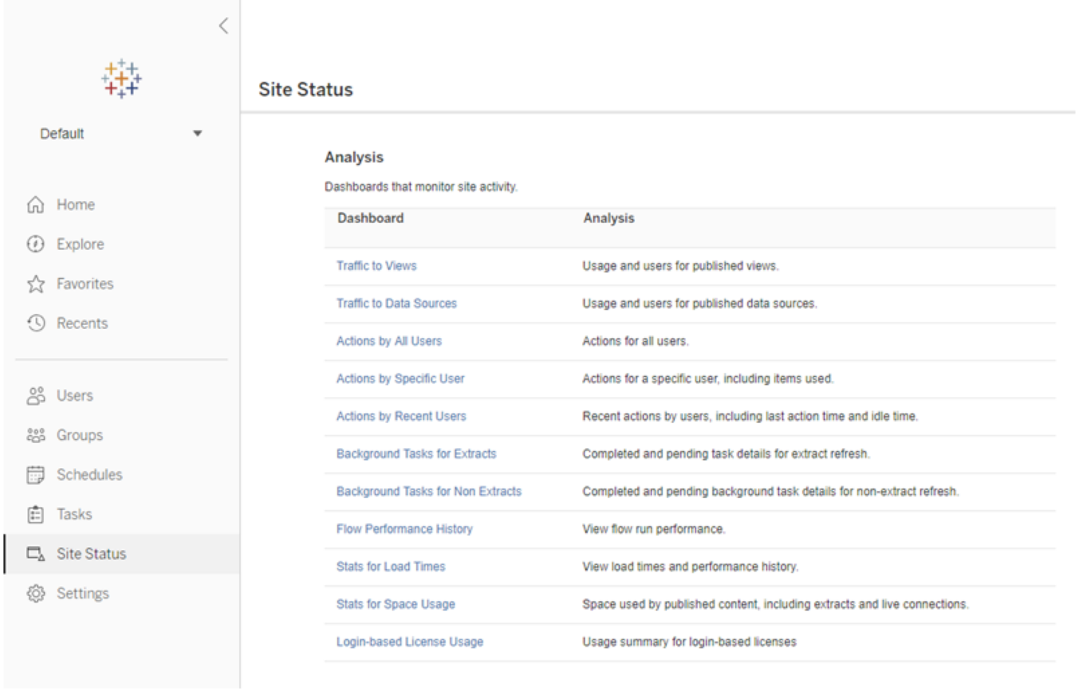
   When prompted, enter valid credentials to sign in to a Tableau Cloud site as a user with a Creator role subscription, and then click **OK**.

View login-based license usage

You can view login-based license usage for Tableau Cloud or Tableau Server. The report shows users, hosts, user role, product, version, activations, Creator seats in use, Creator seats not in use, and when a Creator seat was last used. You can view data for the past 30 days up to a maximum of 183 days.

To view the Login-based license management License Usage administrative view:

1. In Tableau Cloud or Tableau Server, in the navigation pane, click **Site Status**.



Site Status

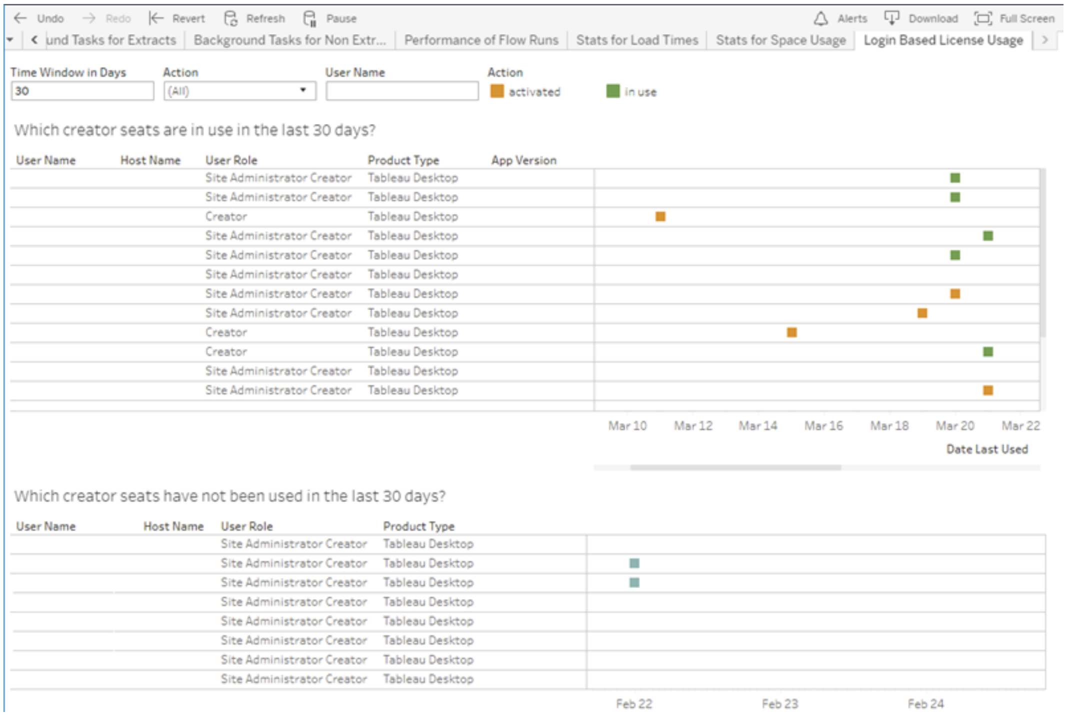
Analysis

Dashboards that monitor site activity.

Dashboard	Analysis
Traffic to Views	Usage and users for published views.
Traffic to Data Sources	Usage and users for published data sources.
Actions by All Users	Actions for all users.
Actions by Specific User	Actions for a specific user, including items used.
Actions by Recent Users	Recent actions by users, including last action time and idle time.
Background Tasks for Extracts	Completed and pending task details for extract refresh.
Background Tasks for Non Extracts	Completed and pending background task details for non-extract refresh.
Flow Performance History	View flow run performance.
Stats for Load Times	View load times and performance history.
Stats for Space Usage	Space used by published content, including extracts and live connections.
Login-based License Usage	Usage summary for login-based licenses

2. On the Site Status page, click **Login-based License Usage**.

3. Optional. On the report screen, you can change the time window to show when seats were last used, filter on actions, filter on user name, and sort by columns.


Undo
Redo
Revert
Refresh
Pause
Alerts
Download
Full Screen
und Tasks for Extracts
Background Tasks for Non Extr...
Performance of Flow Runs
Stats for Load Times
Stats for Space Usage
Login Based License Usage
Action
🟧 activated
🟩 in use
Mar 10
Mar 12
Mar 14
Mar 16
Mar 18
Mar 20
Mar 22
Date Last Used
Feb 22
Feb 23
Feb 24

Time Window in Days: 30

Action: (All)

User Name:

Which creator seats are in use in the last 30 days?

User Name	Host Name	User Role	Product Type	App Version
		Site Administrator Creator	Tableau Desktop	
		Site Administrator Creator	Tableau Desktop	
		Creator	Tableau Desktop	
		Site Administrator Creator	Tableau Desktop	
		Site Administrator Creator	Tableau Desktop	
		Site Administrator Creator	Tableau Desktop	
		Site Administrator Creator	Tableau Desktop	
		Site Administrator Creator	Tableau Desktop	
		Creator	Tableau Desktop	
		Creator	Tableau Desktop	
		Site Administrator Creator	Tableau Desktop	
		Site Administrator Creator	Tableau Desktop	

Which creator seats have not been used in the last 30 days?

User Name	Host Name	User Role	Product Type
		Site Administrator Creator	Tableau Desktop
		Site Administrator Creator	Tableau Desktop
		Site Administrator Creator	Tableau Desktop
		Site Administrator Creator	Tableau Desktop
		Site Administrator Creator	Tableau Desktop
		Site Administrator Creator	Tableau Desktop
		Site Administrator Creator	Tableau Desktop
		Site Administrator Creator	Tableau Desktop

Troubleshooting

You may encounter one of the following error messages while using login-based license management. Use the information below to resolve the issue.

If login-based license management is available as an activation option on Tableau Desktop, but not enabled on your Tableau Cloud site, the following error message may be displayed:

Login-based license management is not enabled on the server you connected to. Select a different server to connect to, use a product key to activate your license, or start a trial to begin working immediately.

Contact your administrator and/or Tableau account manager to ensure that your Tableau Cloud site is enabled for login-based license management.

Login-based license management is not enabled on Tableau Desktop

If login-based license management is not enabled on Tableau Desktop, you will not have the option to activate Tableau using your credentials.

If the login-based license management option has been turned off during installation or with an update, see Step 1: Enable login-based license management.

Product key expiration date doesn't change after purchasing a year subscription

After purchasing a renewal of Tableau Cloud, it might appear that your Tableau Desktop license is going to expire. This is not the case. In **Manage Product Keys**, the expiration date for new Tableau Cloud subscriptions is not updated until two weeks before the previous Site expiration date.

You do not have a Creator license

When attempting to activate from Tableau Desktop, the following error message may be displayed:

You do not have a Creator license. Contact your administrator to obtain one.

This error is displayed if you have not been assigned a Creator role. If you belong to multiple sites on Tableau Cloud or Tableau Server, you need to sign in to the site where you have the Creator role when using login-based license management. Otherwise you'll get this error.

To verify that the product key you have activated on the server includes Creator licenses, open the TSM web UI and click **Configuration**, and then click **Licensing**.

You have activated the maximum number of computers

When attempting to activate from Tableau Desktop, the following error message may be displayed:

You have activated Tableau the maximum number of times allowed under your account. You must wait for the license activation on another computer to expire before you can activate Tableau again.

This error is displayed when you activated Tableau from multiple computers with the same Creator user credentials and exceeded the maximum number of activations. You must wait until the authorization-to-run (ATR) token expires on one of the existing computers before attempting to activate a new computer. If you are using non-persistent virtual machines (VMs), you can shorten the ATR duration to prevent this error from occurring again.

To shorten the ATR token duration for maximum activation

If you encounter this maximum use error when using a non-persistent virtual deployment, it is possible to shorten the ATR duration to 4 hours (14400) seconds to avoid the error in the future.

The following steps shorten the lease on a computer previously activated with login-based license management that will no longer be used, in order to free up a seat to be activated on a new computer:

1. Open a Command Prompt as an administrator on a Tableau Desktop computer that will no longer be used.
2. Navigate to the Tableau binaries (\bin) directory, using the following command.

   Windows: `cd Program Files\Tableau\Tableau <version>\bin`

   Mac: `cd /Applications/Tableau\ Desktop\ <version>.app/Contents/MacOS`
3. Run the following command to set the duration to 4 hours, in seconds (e.g., 14400).

   Windows: `atrdiag.exe -setDuration 14400`

   Mac: `sudo ./atrdiag -setDuration 14400`
4. Delete the previous ATR token using the following command:

Windows: `atrdiag.exe -deleteAllATRs`

Mac: `./atrdiag -deleteAllATRs`

5. Next, overwrite the existing ATR token. Open Tableau Desktop. Tableau displays the “License has Changed” message. Click **Exit** to automatically close and reopen Tableau Desktop.

6. In the registration dialog box, click **Activate**, and then reactivate Tableau Desktop through Tableau Server using login-based license management, which will overwrite the existing token.

7. Close Tableau Desktop and wait for the ATR duration to elapse (e.g., 4 hours) so that the ATR token expires and frees-up a user seat. Do not open Tableau Desktop before the ATR duration has elapsed. Check to make sure the ATR duration has elapsed. The ATR token TTL End should show a date and time in the future (e.g., 4 hours from now).

   Windows: `atrdiag.exe`

   Mac: `./atrdiag`

8. After the ATR token expires and you can successfully sign in to Tableau Server on a new computer.

To return your computer to an unlicensed state

1. Open a Command Prompt as an administrator.

2. Navigate to the Tableau binaries (\bin) directory, using the following command:

```
cd Program Files\Tableau\Tableau <version>\bin
```

3. Run the following command:

   Windows: `atrdiag.exe –deleteAllATRs`

   Mac: `./atrdiag.exe –deleteAllATRs`

> **Note:** This removes only the ATR token from the computer. It does not free-up any of the user seats. The user seat is only freed-up after the deleted ATR token expires.

Your Tableau credentials are invalid

When attempting to activate from Tableau Desktop, the following error message may be displayed:

Your Tableau credentials are invalid. Contact your administrator to reset your account.

This error is displayed when your Tableau license is not recognized. Contact your administrator.

Your computer’s clock is not synchronized to the current time

When attempting to activate from Tableau Desktop, the following error message may be displayed:

Your computer’s clock is not synchronized to the current time. Synchronize your computer’s clock to the current time and then try to activate Tableau.

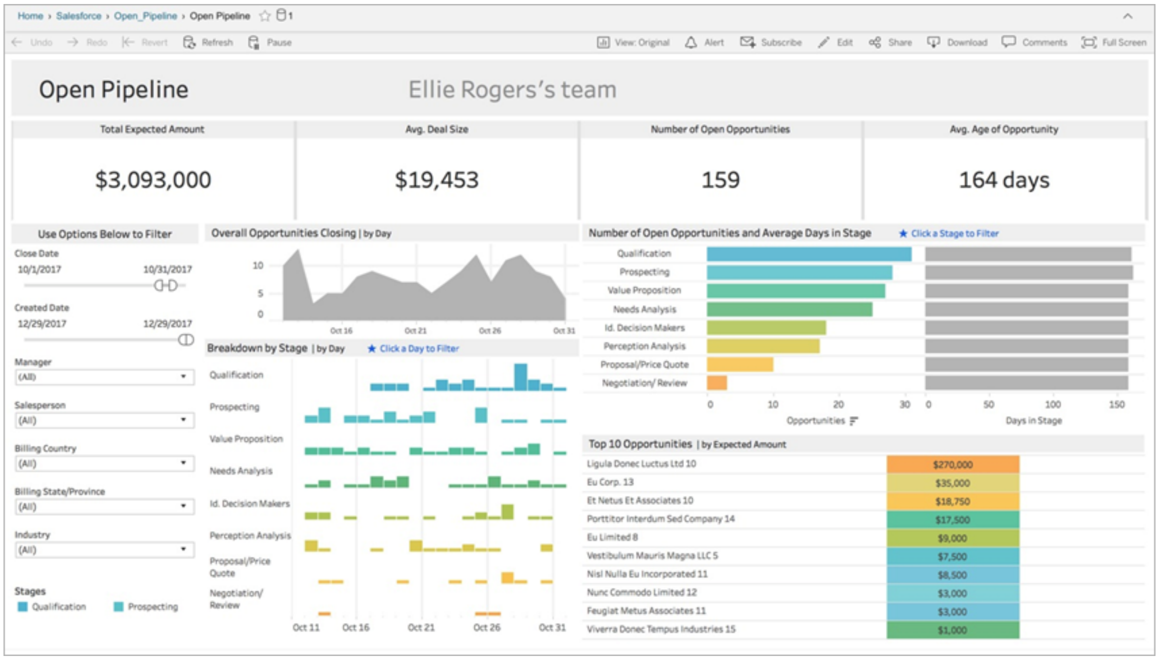
This error is displayed when your computer's clock is not synchronized with the current time. Synchronize your computer’s clock with a time server on the internet or enable automatic time synchronization.

Create Workbooks with Salesforce Data

You can quickly author and analyze Salesforce data in Tableau. Sign in to Salesforce directly from your Tableau Cloud site and select the clouds you want to explore. Tableau integrates your Salesforce data to create a project with ready-to-use starter workbooks and data sources - choose to explore them on your own or share them with other users on your site.

What’s included with the Salesforce project

The Salesforce project includes starter workbooks and data sources, all built using your Salesforce data. Use the starter workbooks to quickly answer questions about your Nonprofit, Sales, and Service Clouds, or connect to Salesforce Admin Insights to see usage trends in your organization.


Home › Salesforce › Open_Pipeline › Open Pipeline
1
Undo
Redo
Revert
Refresh
Pause
View: Original
Alert
Subscribe
Edit
Share
Download
Comments
Full Screen
Overall Opportunities Closing | by Day
10
5
0
Oct 16
Oct 21
Oct 26
Oct 31
Breakdown by Stage | by Day
★ Click a Day to Filter
Qualification
Prospecting
Value Proposition
Needs Analysis
Id. Decision Makers
Perception Analysis
Proposal/Price Quote
Negotiation/ Review
Oct 11
Oct 16
Oct 21
Oct 26
Oct 31
Number of Open Opportunities and Average Days in Stage
★ Click a Stage to Filter
Qualification
Prospecting
Value Proposition
Needs Analysis
Id. Decision Makers
Perception Analysis
Proposal/Price Quote
Negotiation/ Review
0
10
20
30
Opportunities
0
50
100
150
Days in Stage

Open Pipeline

Ellie Rogers’s team

Total Expected Amount	Avg. Deal Size	Number of Open Opportunities	Avg. Age of Opportunity
$3,093,000	$19,453	159	164 days

Use Options Below to Filter

Close Date
10/1/2017 10/31/2017

Created Date
12/29/2017 12/29/2017

Manager
(All)

Salesperson
(All)

Billing Country
(All)

Billing State/Province
(All)

Industry
(All)

Stages
🟦 Qualification 🟦 Prospecting

Top 10 Opportunities | by Expected Amount

Ligula Donec Luctus Ltd 10	$270,000
Eu Corp. 13	$35,000
Et Netus Et Associates 10	$18,750
Porttitor Interdum Sed Company 14	$17,500
Eu Limited 8	$9,000
Vestibulum Mauris Magna LLC 5	$7,500
Nisl Nulla Eu Incorporated 11	$8,500
Nunc Commodo Limited 12	$3,000
Feugiat Metus Associates 11	$3,000
Viverra Donec Tempus Industries 15	$1,000

Nonprofit Cloud

Connect to Nonprofit Cloud to analyze your organization's programs and drive impact.

Includes starter workbooks for: *Nonprofit Case Management - Service Delivery and Staff Capacity*, *Nonprofit Case Management Assessments*, *Nonprofit Case Management Enrollment*, *Nonprofit Case Management Intake*, and *Nonprofit Fundraising Overview*.

Sales Cloud

Connect to Sales Cloud to visualize your sales funnel and better support your sales team.

Includes starter workbooks for: *Account Tracking*, *Open Pipeline*, *Opportunity Overview*, *Opportunity Tracking*, *Quarterly Sales Results*, *Top Accounts*, and *Marketing Leads*.

Salesforce Admin Insights

Connect to Salesforce Admin Insights to visualize usage trends and engagement with your organization.

Includes starter workbooks for: *Salesforce Admin Insights*.

Service Cloud

Connect to Service Cloud to analyze and explore your critical service metrics and cases.

Includes starter workbooks for: *Service Overview* and *Case Tracking*.

Connect to Salesforce

Connecting to your Salesforce data is simple. Once you sign in and select the Clouds to explore, Tableau creates a new project and publishes workbooks and data sources on your site. When the publishing process is complete, you can edit the resulting workbooks just like any other, quickly customizing them for your needs.

To connect to Salesforce, you must be an administrator with the Site Administrator Creator site role and have API access to your Salesforce instance. API access requires Salesforce Professional Edition or higher. For more information, see Set Users' Site Roles.

1. Sign in to your Tableau Cloud site as an administrator, and select **Settings** > **Integrations**.
2. On the Integrations tab, click **Connect to Salesforce Data** and complete prompts to authorize access to Salesforce.
3. In the Connect to Salesforce dialog window, select the Clouds you want to explore.

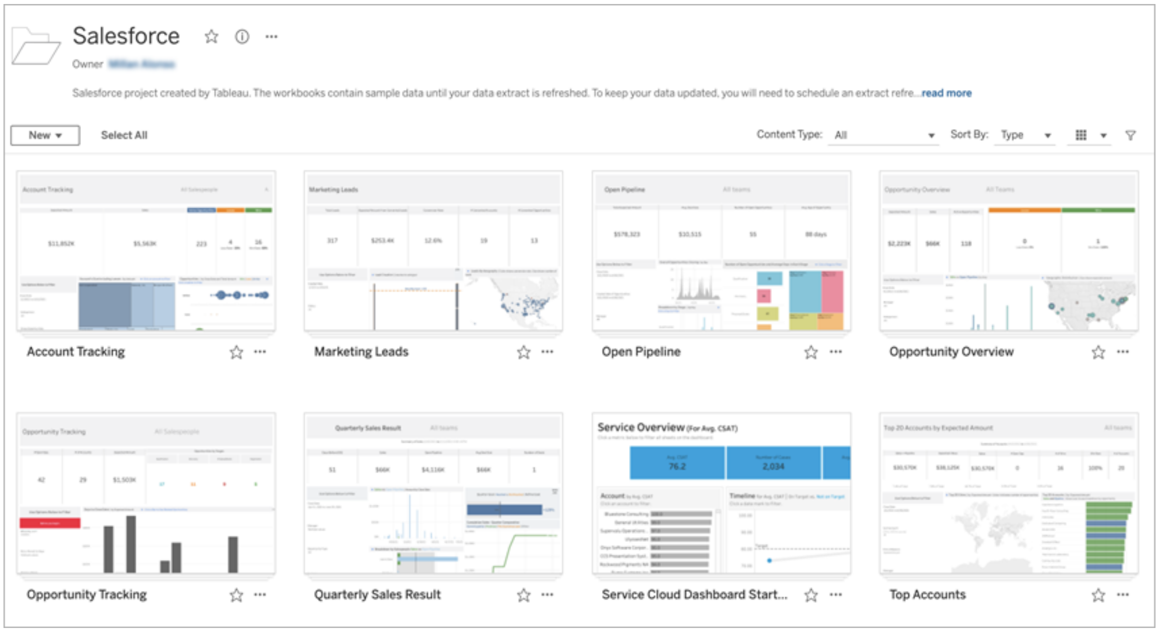
4. Specify a name and initial permissions for the project. You can set permissions for **Only administrators**, or choose to **Inherit permissions from the Default project**. For more information, see Permissions.

5. Review your selections and click **Publish**.

At this point, you've created a new project and published starter workbooks. While Tableau prepares extracts of your Salesforce data, sample data appears in the workbooks so you can explore the layout. You'll receive an email when your Salesforce data is refreshed and added to the workbooks.

> **Note:** Depending on the size of your data source, it may take some time to create extracts. You can view the status of your Salesforce extracts on the Background Tasks for Extracts administrative view.

To see your project and other content you have access to, from the navigation menu, click **Explore**.



Salesforce

Owner [redacted]

Salesforce project created by Tableau. The workbooks contain sample data until your data extract is refreshed. To keep your data updated, you will need to schedule an extract refre...read more

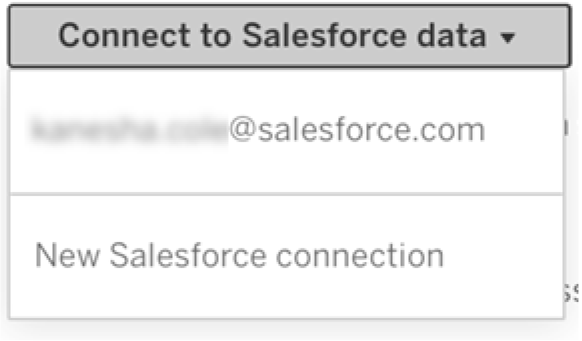
New ▾
Select All
Content Type: All
Sort By: Type
Account Tracking
Marketing Leads
Open Pipeline
Opportunity Overview
Opportunity Tracking
Quarterly Sales Result
Service Cloud Dashboard Start...
Top Accounts

Use existing Salesforce credentials

If you've already connected to Salesforce, you can use existing credentials to create additional starter workbooks.

From the Integrations tab, click **Connect to Salesforce Data**, and select the Salesforce credentials you want to use from the drop-down menu. Tableau creates a new project every time workbooks publish on your site.

> **Note:** Workbooks will publish on the site with your Salesforce credentials embedded. All users with permission to view the workbook will be able to see data based on these credentials.


Connect to Salesforce data ▾
[redacted]@salesforce.com
New Salesforce connection

Schedule refreshes to keep data fresh

To make sure you see the latest information when viewing workbooks or connecting to data sources, you’ll need to schedule refreshes. By default, the Salesforce data extracts created when publishing starter workbooks will not refresh automatically. For more information about refresh schedules, see Schedule Refreshes on Tableau Cloud.

Follow the steps below to schedule extract refreshes:

1. In Tableau Cloud, navigate to the project containing your Salesforce content.
2. Select the data source you want to refresh, click **Actions**, and choose **Refresh Extracts...**
3. In the Create Extract Refresh dialog window, select the **Refresh Type** and **Refresh Frequency**, and click **Create**.

Subscriptions

You’re automatically subscribed to Salesforce workbooks and will receive notification emails every time the data is refreshed. If you want to update your subscription preferences, see Create a Subscription to a View or Workbook.

Change permissions for projects, workbooks, and data sources

After connecting to your Salesforce data, you can choose how users interact with the Salesforce project, workbooks, and data sources published on your site. Permissions are a great way to make sure the right users have access to the starter content and enable them to build workbooks of their own. For more information about configuring permissions on your site, see Permissions.

Create workbooks in Tableau Cloud

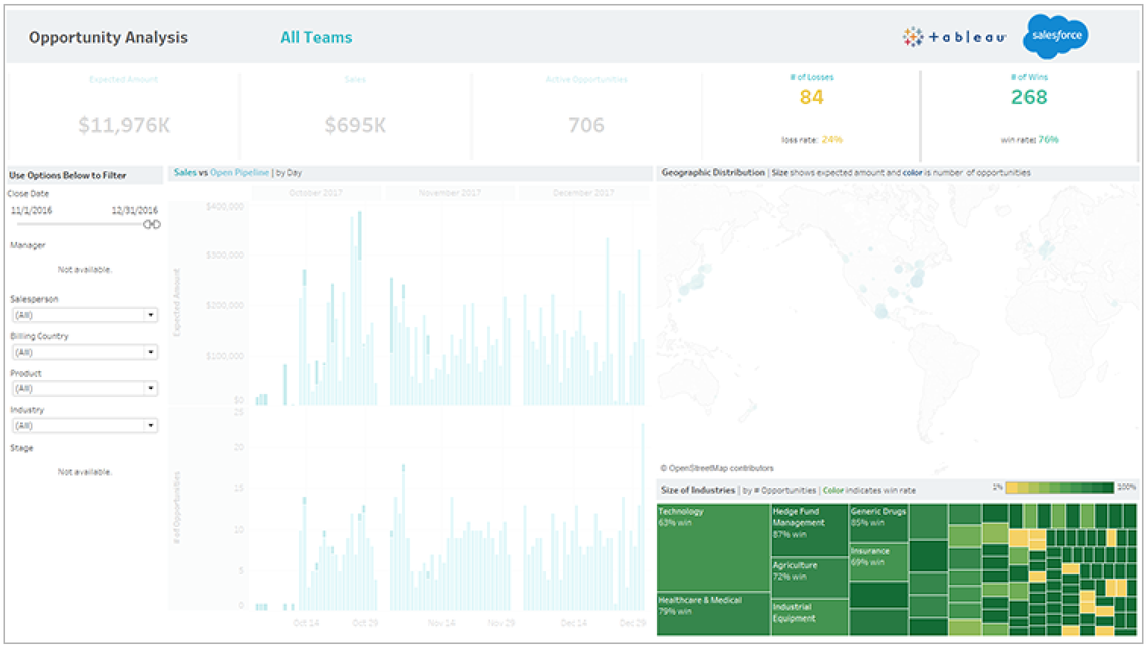
With your Salesforce data sources, you can create new workbooks through web authoring in Tableau Cloud or use Ask Data to query and create visualizations automatically.

- **Web Authoring:** Connect to your data directly in Tableau Cloud to explore and create custom data visualizations of your own. For more information, see Creators: Get Started with Web Authoring in Tableau Desktop help.
- **Ask Data:** Interact with your data by simply typing a question and see automatic data

visualizations in response. For more information, see Automatically Build Views with Ask Data in Tableau Desktop help.

Fix grayed-out views by replacing field names

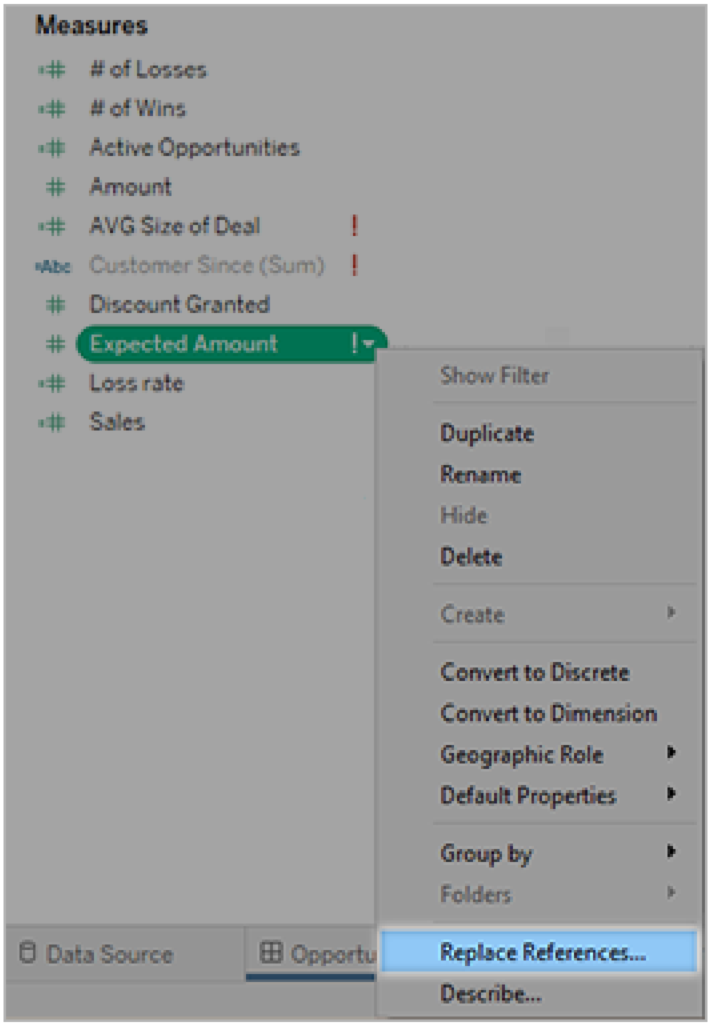
If your organization has customized the data structure of your Salesforce data, you may need to match those changes in the starter workbooks after your data loads in them. For example, if your organization has renamed the Salesforce “Account” field to “Customer”, you'll need to make a corresponding change in workbooks to avoid grayed-out views like this:


Opportunity Analysis
All Teams
tableau
salesforce
Expected Amount
$11,976K
Sales
$695K
Active Opportunities
706
# of Losses
84
loss rate: 24%
# of Wins
268
win rate: 76%
Use Options Below to Filter
Close Date
11/1/2016
12/31/2016
Manager
Not available.
Salesperson
(All)
Billing Country
(All)
Product
(All)
Industry
(All)
Stage
Not available.
Sales vs Open Pipeline | by Day
October 2017
November 2017
December 2017
$400,000
$300,000
$200,000
$100,000
$0
Expected Amount
# of Opportunities
25
20
15
10
5
0
Oct 14
Oct 29
Nov 14
Nov 29
Dec 14
Dec 29
Geographic Distribution | Size shows expected amount and color is number of opportunities
© OpenStreetMap contributors
Size of Industries | by # Opportunities | Color indicates win rate
1%
100%
Technology
63% win
Hedge Fund Management
87% win
Generic Drugs
85% win
Agriculture
72% win
Insurance
69% win
Healthcare & Medical
79% win
Industrial Equipment

To fix grayed-out views:

1. Above the dashboard, click **Edit**.
2. Navigate directly to the grayed-out sheet.
3. In the Data pane at the left, look for red exclamation points (!) next to field names, which indicate that your organization uses different names.

4. Right-click each of those fields, and choose **Replace References**. Then select the correct field name from the list.


Measures
# of Losses
# of Wins
Active Opportunities
Amount
AVG Size of Deal
Customer Since (Sum)
Discount Granted
Expected Amount
Loss rate
Sales
Show Filter
Duplicate
Rename
Hide
Delete
Create
Convert to Discrete
Convert to Dimension
Geographic Role
Default Properties
Group by
Folders
Replace References...
Describe...
Data Source
Opportu

About Tableau+

Tableau+, a license edition of Tableau Cloud, is a comprehensive package tailored for wall-to-wall adoption of self-service analytics in Tableau Cloud. It encompasses premium features tailored for larger or more complex deployments and access to Premier Success. With Tableau+, customers can harness AI-powered visual analytics and insights from their data, wherever it is.

Tableau+ Licensing

Tableau+ is sold on a per-User basis, with Users differentiated by role - Creators, Explorers, and Viewers. Tableau+ provides a unique package of product capabilities for use by each User, including some features that are sold on a Usage-based model; Data Cloud credits and Einstein Requests. Each Tableau+ Deployment includes a set quantity of Data Cloud credits irrespective of the number of Users, whereas each Tableau+ license role level includes a different volume of Einstein Requests, tailored for the anticipated needs of Users at each role level. Importantly, none of these credits are tied to any User individually. When customers purchase Tableau+ for their Tableau Cloud Deployment, the full quantity of Data Cloud credits and Einstein Requests for all Tableau+ subscriptions are provisioned up-front at subscription start for the quoted term and are available for use by all Tableau+ Users in the Deployment.

For information about these license models, see Understanding License Models.

Tableau+ Feature Table

The following table lists the features that are included with the Tableau+ license edition. Feature availability below is for Creator. There are differences in available functionality between Creator, Explorer, and Viewer.

For information about configuring Tableau+ features, see Getting Started with Tableau+.

Feature	Description
Tableau Next	Tableau Next, enabled by Data Cloud and the Salesforce platform, is a composable, AI-analytics platform with semantic AI adding context and meaning to your data analytic insights.
Tableau Authoring	Use Tableau Desktop or Tableau web authoring on Tableau Cloud to create, collaborate, and share insights about your data. Tableau provides you a way to identify and solve problems, or highlight key findings in a visual and easily understandable way.

Tableau Prep	Tableau Prep is a data preparation tool for cleaning, shaping, and combining data for analysis.
eLearning	Role-based training Tableau Learning Paths provide a clear track to proficiency with the most up-to-date Tableau training content. Assessments help you evaluate where you are in your learning path and give you confidence in your new skills. Accelerate the onboarding process for new employees and help more experienced users get the most out of Tableau capabilities.
Tableau Pulse	Tableau Pulse provides insights about your data as a digest sent to subscribed members of an organization. These digests of Pulse insights can surface trends, outliers, and other changes, keeping you up to date on the data relevant to your work. Enhanced Q&A (Discover) is a premium feature in Tableau Pulse. For information about setting Pulse up, see Set Up Your Site for Tableau Pulse
Tableau Agent in Tableau in Prep	Tableau Agent is an intelligent assistant that accelerates time to insight in Tableau Prep and Catalog.
Tableau Agent in Tableau in Catalog	For information about configuring your Tableau Cloud site for AI in Tableau, see Turn On AI in Your Tableau Cloud Site.
Tableau Agent in Tableau Cloud Web Authoring	Tableau Agent in Tableau Cloud web authoring is an intelligent assistant that accelerates time to insight with automated data analysis. For information about enabling Tableau Agent in Tableau Cloud web authoring, see Turn On AI in Your Tableau Cloud Site.

Einstein Requests	Einstein Requests give customers access to generative AI capabilities within Salesforce products, including Tableau Cloud. For those that do not have a Salesforce org at the Enterprise edition level or higher, one will be provided as part of Tableau+.
Data Connect	Data Connect allows seamless access to data across on-premises and private cloud environments in Tableau Cloud without significant increases in IT overhead. One Data Connect Node is included with Tableau+.
Private Connect for AWS	Private Connect for AWS (Amazon Web Services) allows cloud administrators to create secure, private, and dedicated connections between Tableau Cloud and AWS-hosted data providers. These private connections are provisioned on top of AWS PrivateLink, using private IP address space, meaning that data traffic doesn't traverse the public internet. The private and secure nature of private connections addresses a key requirement of restricting data traffic to private networks. Not included by default in Tableau+, but available for purchase separately.
Data Management	Data Management is a collection of features and functionality that helps customers manage Tableau content and data assets in their Tableau Cloud environment. One Resource Block Node is included.
Advanced Management	Advanced Management is a collection of features designed to provide enhanced security, manageability, and scalability capabilities for Tableau Cloud.

Use Tableau Cloud Manager	Tableau Cloud Manager (TCM) provides administrators with a centralized management interface for overseeing their organization's Tableau Cloud sites. With TCM, cloud administrators can create and edit sites, manage users, and monitor license consumption across multiple sites in their tenant, all from a single location. Cloud administrators can manage up to 50 sites with a Tableau+ license.
Data Cloud	Salesforce Data Cloud makes all Salesforce data natively available in Tableau, allowing you to unify enterprise data, harness the power of metadata, and drive AI results from that data. 250,000 Data Cloud credits are included with Tableau+.
Premier Success	The Premier Success Plan helps you start strong, grow your business, and get more value from Salesforce with expert guidance and expedited support.
About Tableau Release Preview	Release preview allows cloud administrators to create and maintain Tableau Cloud sites that receive major release updates before other production environments are upgraded.

Getting Started with Tableau+

Tableau+, a license edition of Tableau Cloud, is a comprehensive package tailored for wall-to-wall adoption of self-service analytics in Tableau Cloud. It encompasses premium features tailored for larger or more complex deployments and access to Premier Success. With Tableau+, customers can harness AI-powered visual analytics and insights from their data, wherever it is. Tableau+ includes some features that require configuration, and this topic describes what you need to do for each of them. Some are unique to Tableau+ while others are shared with other editions of Tableau Cloud. A few require configuration in Salesforce.

Initial steps depend on what type of customer you are:

- New Tableau customers

  As a new Tableau Cloud customer you should get familiar with Tableau Cloud before you explore the unique features of Tableau+. See Get Started and About Tableau+ to begin, then follow the configuration steps below.

- Existing Tableau Cloud customers

  For existing Tableau Cloud customers who upgrade to Tableau+, there is little to do regarding “migrating.” Your existing sites remain (there’s no need to “migrate” them), but unique Tableau+ features require some configuration.

Configure Tableau Cloud and Salesforce for Tableau+ features

These Tableau+ features require configuration before you can use them:

- **Tableau Pulse**: Set Up Your Site for Tableau Pulse (**Note:** Be sure to enable Tableau Pulse summaries of key metrics, which is described in the same topic, here: AI in Tableau for Tableau Pulse.)

- **Tableau Agent** in Prep, Catalog, and Web authoring: Turn On AI in Your Tableau Cloud Site to enable Tableau Agent.

  This requires configuration on each Tableau Cloud site *and* in a Salesforce org that has Einstein generative AI configured. It also requires a Data Cloud instance.

  - A Cloud instance is provided to Tableau+ customers who do not have one.

  - For those that do not have an Enterprise edition level or higher Salesforce org, one will be provided as part of Tableau+.

- Einstein Request Credits: This gives customers access to generative AI capabilities within Salesforce products, including Tableau Cloud.

- **Data Cloud** Configure Data Cloud by setting up an admin user and turning Data Cloud on: Step 2: Set up a Data Cloud Admin User.

The following features are not unique to Tableau+ but provide additional important functionality in your Tableau Cloud instance:

- Data Connect for Private Network Data for access to private network data (includes one node).
- **Data Management**: About Data Management (comes with one resource block. For more information, see Resource Blocks).
- **Advanced Management**: About Tableau Advanced Management on Tableau Cloud
- **Tableau Cloud Manager**: Manage multiple Tableau Cloud sites using TCM. Tableau+ customers get up to 50 sites. For details about using TCM, see Use Tableau Cloud Manager.
- Premier Success: Get maximum value from Tableau with expert guidance and expedited support.
- eLearning: Learn Tableau on your own schedule using self-paced online courses.

About Tableau Enterprise

Tableau Enterprise is our advanced software package to help you explore and manage data faster with Tableau Cloud. It also makes it easier to purchase the capabilities needed by organizations that require advanced data and deployment management options. It includes Tableau role-based licenses, Data Management, Advanced Management, and eLearning for Creators and Explorers.

Tableau Enterprise Licensing

Tableau Enterprise is sold on a per-User role-based licensing model, including Creators, Explorers, and Viewers. This model is structured around the specific roles within an organization, each requiring different levels of functionality. With Tableau Enterprise, each role-based license includes Data Management, Advanced Management, and eLearning for Creators and Explorers.

Tableau Enterprise Feature Table

The following table lists the features that are included with the Tableau Enterprise license edition. Feature availability below is noted for Creator. There are differences in available functionality between Creator, Explorer, and Viewer.

Feature	Description
Tableau Authoring	Use Tableau Desktop or Tableau web authoring on Tableau Cloud to create, collaborate, and share insights about your data. Tableau provides you a way to identify and solve problems, or highlight key findings in a visual and easily understandable way.
Tableau Prep	Tableau Prep is a data preparation tool for cleaning, shaping, and combining data for analysis.
eLearning	Role-based training Tableau Learning Paths provide a clear track to proficiency with the most up-to-date Tableau training content. Assessments help you evaluate where you are in your learning path and give you confidence in your new skills. Accelerate the onboarding process for new employees and help more experienced users get the most out of Tableau capabilities.
About Tableau Pulse	Tableau Pulse provides insights about your data as a digest sent to subscribed mem-

(Tableau Cloud only)	bers of an organization. These digests of Pulse insights can surface trends, outliers, and other changes, keeping you up to date on the data relevant to your work. For information about setting Pulse up, see Set Up Your Site for Tableau Pulse
About Data Management	Data Management is a collection of features and capabilities that helps customers manage Tableau content and data assets in their Tableau Cloud environment. One Resource Block Node is included with Tableau Enterprise.
About Tableau Advanced Management on Tableau Cloud	Advanced Management is a collection of features and capabilities designed to provide enhanced security, manageability, and scalability for Tableau Cloud.
Use Tableau Cloud Manager	Tableau Cloud Manager (TCM) provides administrators with a centralized management interface for overseeing their organization's Tableau Cloud sites. With TCM, cloud administrators can create and edit sites, manage users, and monitor license consumption across multiple sites in their tenant, all from a single location. Cloud administrators can manage up to 10 sites with an Enterprise license.
About Data Connect	Data Connect allows seamless access to data across on-premises and private cloud

	environments in Tableau Cloud without significant increases in IT overhead. Not included by default in Tableau Enterprise, but available for purchase separately.
Private Connect for AWS	Private Connect for AWS (Amazon Web Services) allows cloud administrators to create secure, private, and dedicated connections between Tableau Cloud and AWS-hosted data providers. These private connections are provisioned on top of AWS PrivateLink, using private IP address space, meaning that data traffic doesn't traverse the public internet. The private and secure nature of private connections addresses a key requirement of restricting data traffic to private networks. Not included by default in Tableau Enterprise, but available for purchase separately.

Use Tableau Cloud Manager

Tableau Cloud Manager (TCM) provides administrators with a centralized management interface for overseeing their organization's Tableau Cloud sites. With TCM, cloud administrators can create and edit sites, manage users, and monitor license consumption across multiple sites, all from a single location. Any changes made within TCM are applied at the top level, or tenant, and then shared across all associated sites, ensuring streamlined administration and governance.

For information about Tableau Cloud Manager REST API capabilities, see Tableau Cloud Manager REST API.

Cloud administrators are the only users with access to Tableau Cloud Manager, a role assigned explicitly within TCM. While most cloud administrators typically access a single TCM tenant, your organization's structure may permit access to multiple tenants.

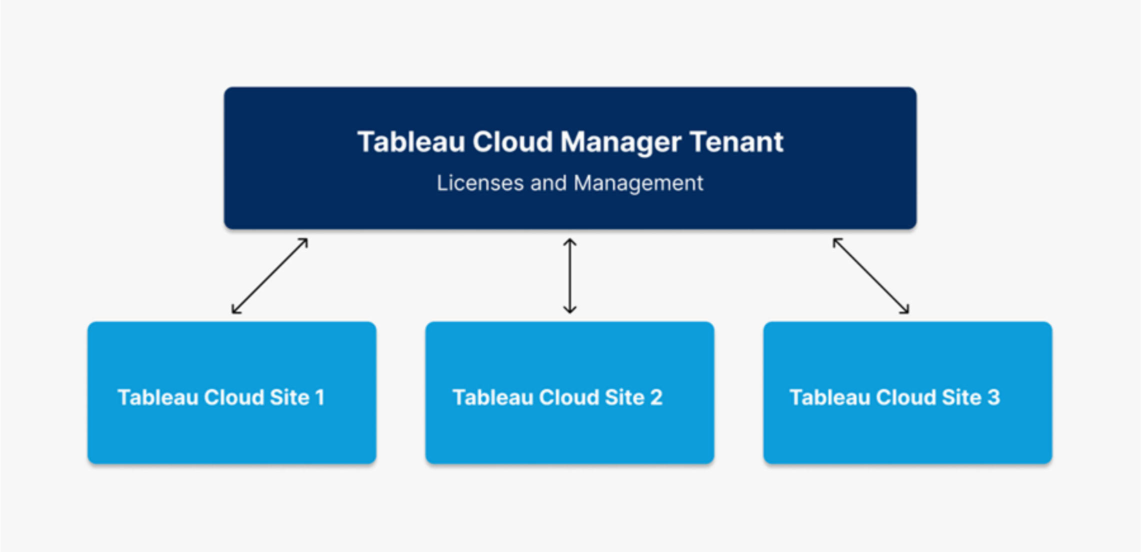
Now that we’ve discussed the capabilities of TCM, let’s explore the concepts it manages within Tableau Cloud.

Understanding tenant and site administration in Tableau Cloud

Before you jump into Tableau Cloud Manager (TCM), it’s important to learn the concepts of tenant and site to understand the administrative structure of Tableau Cloud.

Tenant: A tenant in Tableau Cloud is the top-level administrative layer that encompasses your organization's Tableau Cloud deployment. Think of a tenant as the container that holds all your sites, users, and licenses. Cloud administrators operate at this level through TCM, ensuring centralized control over Tableau Cloud. Within this structure, TCM acts as a centralized location to configure changes for multiple sites, such as adding or deleting users and license management.

Site: A site, by comparison, is under the tenant and can be thought of as a workspace or a dedicated environment for a specific team, department, or project. Each site has its own set of content, users, and permissions, which site administrators manage. While site administrators have control over their individual sites, including managing workbooks, data sources, and user access, they operate within the constraints set at the tenant level. Sites provide a focused area for collaboration and analytics without exposing the administrative functions of the tenant.



In summary, the tenant is the administrative layer that holds all the sites, and a site is a contained environment where teams can work independently. This structure allows for centralized control at the tenant level and flexible management at the site level, enabling organizations to scale their use of Tableau Cloud efficiently and securely.

Cloud Administrator Role and Tasks

This topic outlines the role of a cloud administrator, highlighting how it differs from the site administrator role, and defines the core responsibilities involved in Tableau Cloud Manager

(TCM).

How we define the cloud administrator role

The cloud administrator is responsible for overseeing the Tableau Cloud sites in your organization. Unlike the site administrator, who manages specific site settings and content permissions, the cloud administrator operates at the tenant level, handling broader responsibilities such as user management across multiple sites, license monitoring, and site creation. For more information about tenant and site administration in Tableau Cloud, see Understanding tenant and site administration in Tableau Cloud.

Licensing and access

The role of a cloud administrator is unique compared to traditional site roles. Cloud administrators only have access to Tableau Cloud Manager, and because they don’t have site access, they don’t consume a Tableau Cloud license. If site access is required, cloud administrators can assign themselves a site role through TCM, thus gaining access to any site within the tenant.

Key responsibilities of a cloud administrator

The following are the primary responsibilities of cloud administrators in Tableau Cloud Manager:

- **Manage users across sites:** Cloud administrators oversee users across all sites within Tableau Cloud, such as adding or removing users and adjusting site roles at the tenant level.

- **Bulk upload users across sites:** Cloud administrators can import large numbers of users and configure site access using CSV files. Bulk upload is beneficial for managing user access across multiple sites in large-scale deployments.

- **Track overall licenses:** Cloud administrators actively monitor and manage Tableau Cloud licenses by setting site role limits, enabling site administrators to add users up to a specified count.

- **Create sites:** Cloud administrators are responsible for the creation and deletion of sites within Tableau Cloud. They set the initial framework of sites by assigning the name, region, and initial site administrator. After configuring a site, admin responsibility is then passed to site administrators who manage site level operations.

Tasks outside the cloud administrator's scope

Cloud administrators focus on tenant-level management and don’t directly handle the day-to-day management of specific sites. To gain site access and perform tasks such as setting specific site permissions, managing content, and customizing sites in detail, they must also be assigned the site administrator role. For more information about modifying a user’s site membership, see Manage users’ site membership.

In this topic, we reviewed the differences between the roles of cloud administrator and site administrator. However, in your organization, the same person might cover both roles. In practice, you can divide these responsibilities in the way that works best for your environment.

Sign In to Tableau Cloud Manager

Cloud administrators can sign in to Tableau Cloud Manager (TCM) from the Tableau Cloud sign-in page. If you have access to more than one resource, such as sites or tenants, you can navigate between them from the site picker menu after authenticating. When you're added as a cloud administrator, you receive an email with a link to access TCM. For more information about adding users, see Manage Users With Tableau Cloud Manager.

Sign-in options and steps

Depending on how Tableau Cloud Manager (TCM) is set up, you’ll use one of the following ways to sign in as a cloud administrator (also referred to as *authentication* types):

- **Single sign-on**

  Single sign-on (SSO) means that TCM is set up to use the same username and password (credentials) you use for other applications in your company.

  With SSO, your credentials are managed outside of Tableau by a third-party identity provider (IdP). When you sign in to TCM, it's the IdP that lets Tableau know you're an approved user. TCM supports authentication through Google, OIDC, Salesforce, and SAML.

- **Tableau with MFA**

  When multi-factor authentication (MFA) is enabled with Tableau authentication (also known as TableauID), you use a combination of your Tableau with MFA credentials and a verification method to access TCM.

  TableauID credentials are made up of an email address and password that you use for accessing TCM. These credentials also give you access to other content on the Tableau website such as white papers. You can choose a verification method after you register for MFA. For more information, see Register for multi-factor authentication.

How to know which type of credentials TCM uses

If Tableau Cloud Manager (TCM) is set up for single sign-on (SSO) credentials, a cloud administrator notifies you, and you use the same username and password you do for signing in to other applications in your organization.

If TCM isn't set up for SSO, you can sign in using Tableau with MFA. In this case, you receive an email invitation to TCM. When you click the link in the email, you can create your password. That email address and password become your TableauID. Then, you're prompted to register at least one verification method to confirm your identity each time you sign in.

Sign in to Tableau Cloud Manager

Do one of the following depending on the authentication type:

For SSO

1. On the Tableau Cloud sign-in page, enter your email address and click **Sign In**.
2. Enter the Uniform Resource Identifier (URI) for the Tableau Cloud Manager (TCM) you want to access, and then click **Continue**. You're directed to the sign-in form for the identity provider to complete authentication.

   The URI is a unique identifier for TCM and appears in the URL after authenticating. For example, https://**cloudmanageruri**.cloudmanager.tableau.com. To quickly redirect and authenticate to TCM, bookmark the URL.

   > **Note:** If you don't remember the Cloud Manager URI, click **Forgot URI** and follow the instructions to verify your email address. Only one verification code can be issued within a five-minute period. If you don't see the email, check your spam folder for a message from Tableau. It's important to enter the code correctly, as multiple incorrect attempts cause the code to expire. After verification, you're redirected to a list that displays the TCM and sites associated with your username. You don't need to verify your email address again for 30 days on this client.

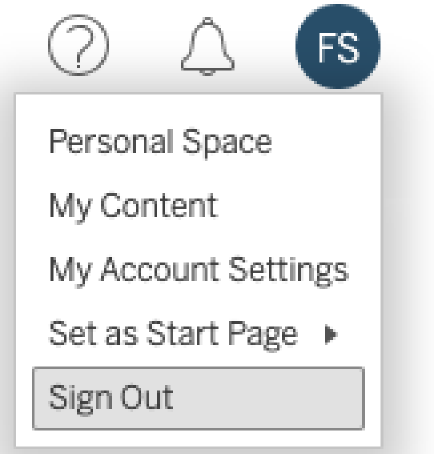
For Tableau with MFA

1. On the Tableau Cloud sign-in page, enter your email address and password, and then click **Sign In**.
2. Enter the Uniform Resource Identifier (URI) for the Tableau Cloud Manager (TCM) you want to access, and then click **Continue**.
3. Enter your password and click **Sign In** again.
4. To complete the sign-in process, follow the Tableau Cloud prompt to verify your identity using the method you chose during MFA registration.

- If you’re signing in to TCM or registering for MFA for the first time, see Register for multi-factor authentication.
- If you've only registered one verification method (built-in authenticator, security key, or recovery codes) when signing in to TCM, you’re prompted to register an additional backup verification method.

Sign out

To sign out, select your display name in the upper-right corner of any page, and then select **Sign Out**.



If Tableau Cloud Manager (TCM) uses single sign-on and you don't see an option to sign out, close the browser tab or window. The sign-out link doesn't appear if TCM and the identity provider managing your company's user information aren't configured to support single log-out.

Remember your sign-in credentials

If you want Tableau Cloud to remember your username, select **Remember me** on the sign-in page. This will populate your username the next time you sign in, but you’ll still need to enter your password.

For SSO authentication, Tableau remembers your username and sets a default Tableau Cloud Manager (TCM). When you sign in again, your username is populated, and you're redirected to the IdP for authentication without being prompted for the Cloud Manager URI.

In both scenarios, the default TCM is replaced if:

- You sign in to a different TCM and select **Remember me** again.
- You use deep links, URLs that point to specific pages, to access Tableau Cloud and select **Remember me** when signing in to that TCM.

To have Tableau Cloud forget your user information, clear your web browser's cookies.

Register for multi-factor authentication

To help ensure account security, multi-factor authentication (MFA) is a required security measure for all Tableau Cloud accounts. With MFA enabled, you must register at least one verification method for identity confirmation each time you sign in to Tableau Cloud Manager.

MFA is a secure account authentication method that requires you to prove your identity by providing two or more pieces of verification information, also known as “factors”, when you sign in to Tableau Cloud. The first factor is the username and password you use to sign in to Tableau Cloud (that is, your TableauID credentials). The additional factor is a code generated by an authenticator app, such as Salesforce Authenticator or a third-party time-based one-time passcode (TOTP) app.

To compare supported verification methods and review usage requirements, see Verification Methods for Multi-Factor Authentication in Salesforce Help.

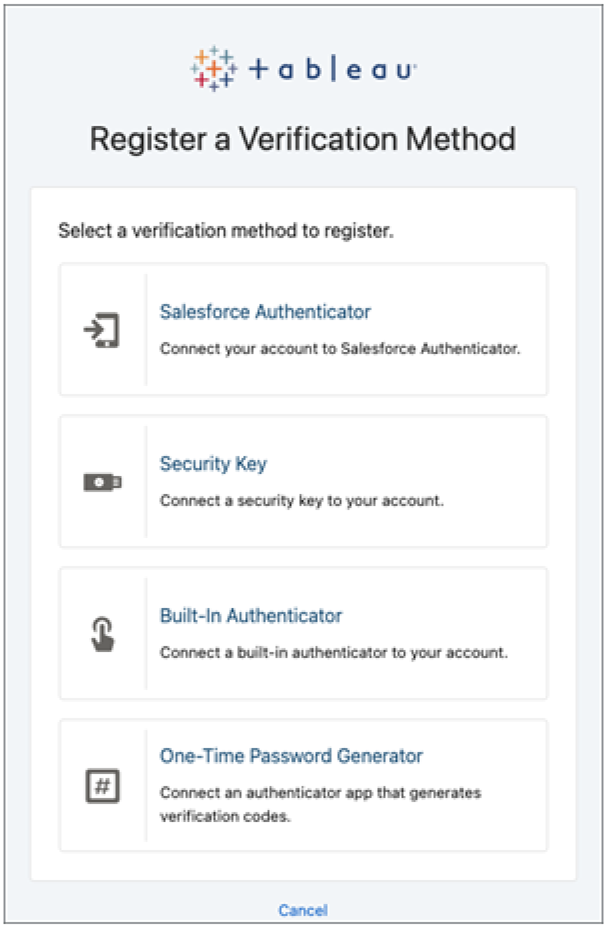
Important:

- In most cases, verification methods for Tableau Cloud are mobile authenticator apps that you must install on a mobile phone.
- Recovery Codes option is only available to you after registering your initial set of verification methods.

To register for MFA:

1. Sign in to Tableau Cloud Manager with your username and password. You’re prompted to register for MFA.
2. Select a verification method.

   For example, click **Salesforce Authenticator**.

   Register a Verification Method

   Select a verification method to register.

   Salesforce Authenticator

   Connect your account to Salesforce Authenticator.

   Security Key

   Connect a security key to your account.

   Built-In Authenticator

   Connect a built-in authenticator to your account.

   One-Time Password Generator

   Connect an authenticator app that generates verification codes.

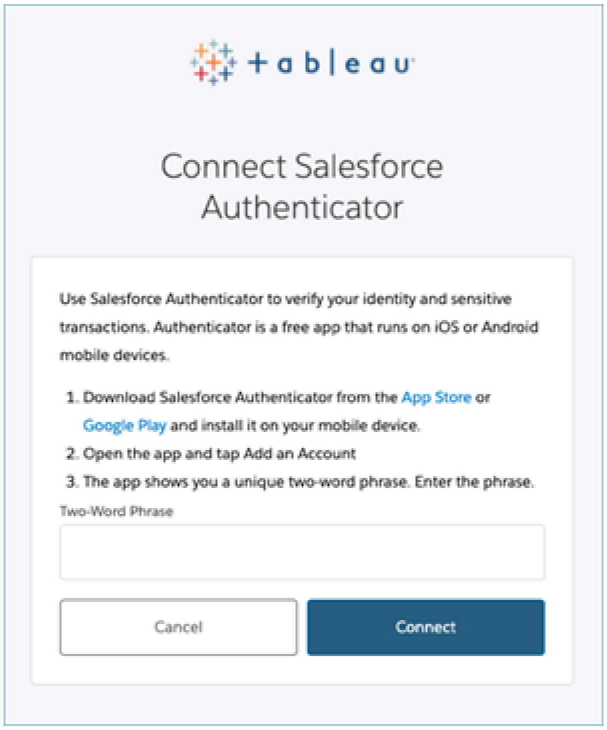
3. Follow the steps in the dialog to associate the selected verification method with your Tableau Cloud account.

   For example, if you selected the Salesforce Authenticator app in step 2, you’re prompted to do the following:

a. On an iOS or Android mobile device, download and install the free Salesforce Authenticator app from the App Store or Google Play.

b. On the mobile device, after the app installation completes, open the app and tap **Add an Account**.

c. In Tableau Cloud, enter the two-word phrase from the app in the dialog and click **Connect**.



Connect Salesforce Authenticator

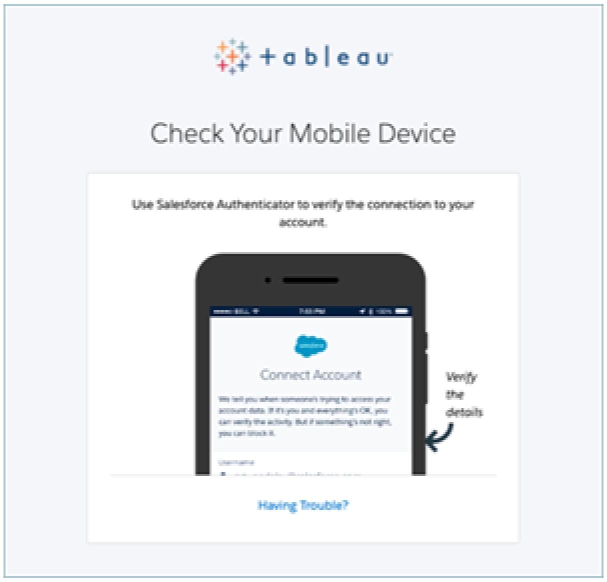
Use Salesforce Authenticator to verify your identity and sensitive transactions. Authenticator is a free app that runs on iOS or Android mobile devices.

1. Download Salesforce Authenticator from the App Store or Google Play and install it on your mobile device.
2. Open the app and tap Add an Account
3. The app shows you a unique two-word phrase. Enter the phrase.

4. To complete the sign-in process, Tableau Cloud prompts you to approve the request through the authenticator app on the mobile device. By accepting the request, you're verifying your identity. You're then redirected to Tableau Cloud Manager.

   For example, if using the Salesforce Authenticator verification method, do the following:

a. When Tableau Cloud shows you the following prompt, respond to the push notification on your mobile device.



Check Your Mobile Device

Use Salesforce Authenticator to verify the connection to your account.

b. In the Salesforce Authenticator app, verify the request details are correct.

c. Tap **Approve**. You're redirected to Tableau Cloud Manager.

Tableau Cloud Manager Authentication

Authentication refers to the options for how cloud administrators can sign in to Tableau Cloud Manager (TCM), and how they access it after signing in the first time. Authentication verifies a user's identity.

TCM supports multiple authentication types, which you can configure on the **Settings** page. The configuration steps discussed in this topic are limited to TCM, with site administrators configuring site authentication separately.

Authentication requirements

Regardless of the authentication type you configure, multi-factor authentication (MFA) is the default and mandatory authentication method when accessing TCM. MFA ensures that users provide an additional verification method beyond their primary credentials, significantly enhancing sign-in security and protecting your organization’s data.

Implementing MFA

Multi-factor authentication (MFA) is a multi-step login process that requires users to provide more than just a password to access their accounts. MFA can be implemented in one of two ways:

- **Single sign-on (SSO) and MFA (recommended method):** To satisfy the MFA requirement, enable MFA with your Google or Salesforce identity provider (IdP).
- **Tableau with MFA (alternative method):** If you don’t work directly with an SSO IdP, you can instead enable a combination of 1) Tableau with MFA credentials, which are stored with Tableau, and 2) an additional verification method before cloud administrators access TCM. We also recommend that users set up recovery codes as a backup verification method for emergency cases only. For more information, see Multi-Factor Authentication and Tableau Cloud.

Supported authentication types

Tableau Cloud Manager (TCM) supports the following authentication types:

- **SSO:** If you enable external authentication on TCM, you can select which users you want to sign in using external credentials and which to use Tableau credentials. You can allow Tableau with MFA and one external provider on TCM, but each user must be set to use one or the other type. You can configure user authentication options on the Users page. For more information, see Manage Users With Tableau Cloud Manager.
    - **OpenID Connect (OIDC):**You can enable SSO through generic OIDC. To do this, you use a third-party identity provider (IdP) with MFA, and configure the site to establish a trust relationship with the IdP. When you enable OIDC, users are directed to the IdP’s sign-in page, where they enter their SSO credentials, already stored with the IdP. **Note:** Enabling OIDC authentication for TCM

requires a separate setup and app integration from Tableau Cloud.

  - **Google:** If your organization uses Google applications, you can enable TCM to use Google accounts for single sign-on (SSO) with MFA using OpenID Connect (OIDC). When you enable Google authentication, users are directed to the Google sign-in page to enter their credentials, which are stored with Google.
  - **Salesforce:** If your organization uses Salesforce, you can enable TCM to use Salesforce accounts for single sign-on (SSO) with MFA using OpenID Connect (OIDC). When you enable Salesforce authentication, users are directed to the Salesforce sign-in page to enter their credentials, which are stored and managed in Salesforce.
  - **Security Assertion Markup Language (SAML):** Finally, another way to use SSO is through SAML. To do this, you use a third-party identity provider (IdP) with MFA, and configure the site to establish a trust relationship with the IdP. When you enable SAML, users are directed to the IdP’s sign-in page, where they enter their SSO credentials, already stored with the IdP. **Note:** Enabling SAML authentication for TCM requires a separate setup and app integration from Tableau Cloud.
- **Tableau with MFA:** The built-in and default authentication type. It requires users to provide their Tableau ID (username and password stored with TCM) and an MFA verification method, such as an authenticator app or security key, to confirm a user's identity. For more information about supported MFA methods, see Multi-Factor Authentication and Tableau Cloud.

Important: In addition to the authentication requirements described above, we recommend that you dedicate a cloud administrator account that is configured for **Tableau with MFA** authentication. If you encounter an issue, a dedicated **Tableau with MFA** account helps ensure that you have access to TCM.

Step 1: Configure authentication for Tableau Cloud Manager

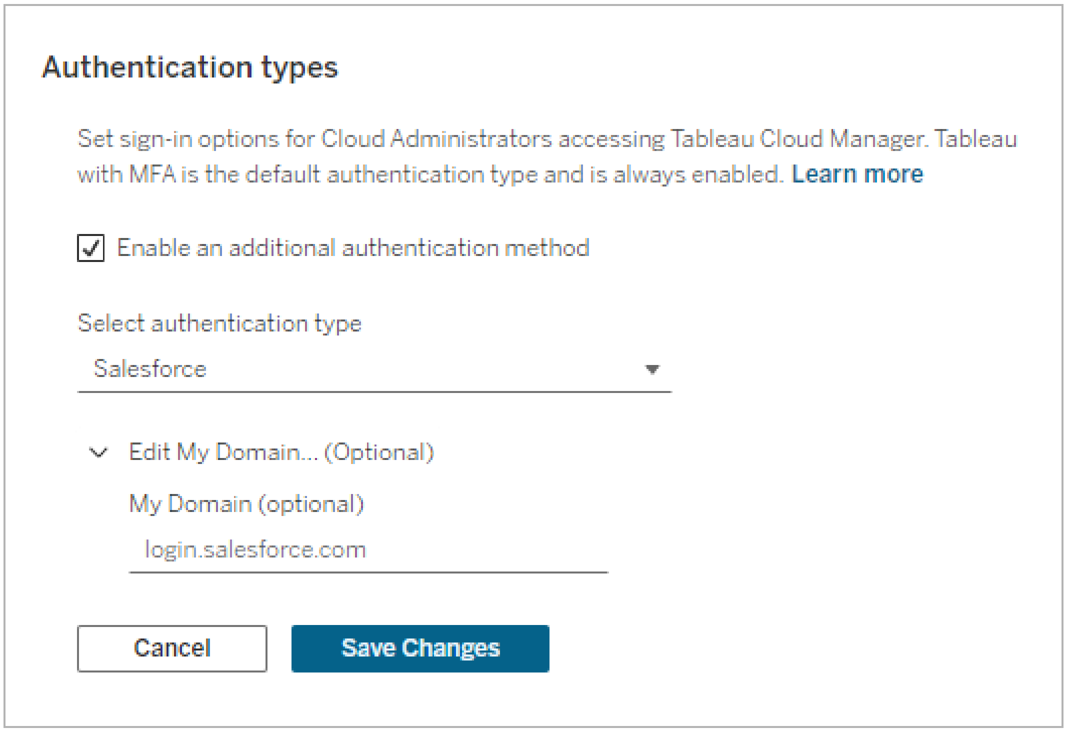
To configure authentication in Tableau Cloud Manager (TCM), follow these steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.

2. Navigate to the **Settings** page.

3. Under **Authentication types**, select **Enable an additional authentication method**.

4. From the drop-down menu, select your preferred authentication type.



Authentication types

Set sign-in options for Cloud Administrators accessing Tableau Cloud Manager. Tableau with MFA is the default authentication type and is always enabled. Learn more

☑ Enable an additional authentication method

Select authentication type: Salesforce

Edit My Domain... (Optional)

My Domain (optional): login.salesforce.com

5. Click **Save Changes**.

Step 2: Assign authentication to cloud administrators

After configuring TCM authentication, you can assign the authentication method to cloud administrators on the Users page. For more information about changing other user details, see Manage Users With Tableau Cloud Manager.

To assign authentication, follow these steps:

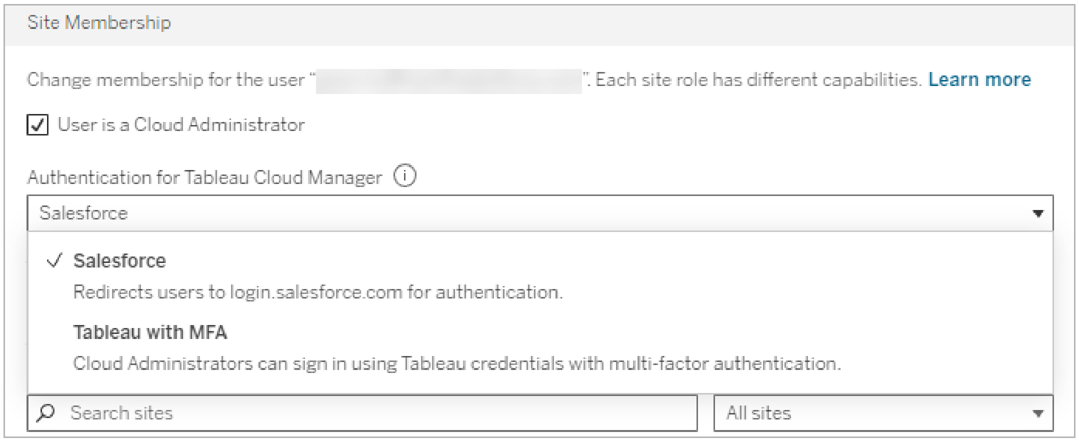
1. Sign in to Tableau Cloud Manager as a cloud administrator.

2. Navigate to the **Users** page and select the users to modify.

   > **Note:** You can select up to 50 users at a time. To modify more than 50 users, import a CSV file containing the desired changes. For more information about modifying users in bulk, see Bulk import users.

3. Select **Actions** > **Site Membership**.

4. Select an authentication method from the Authentication for Tableau Cloud Manager dropdown menu.



Site Membership

Change membership for the user “[redacted]”. Each site role has different capabilities. Learn more

☑ User is a Cloud Administrator

Authentication for Tableau Cloud Manager: Salesforce

✓ **Salesforce**
Redirects users to login.salesforce.com for authentication.

Tableau with MFA
Cloud Administrators can sign in using Tableau credentials with multi-factor authentication.

> **Note:** If an authentication type other than Tableau with MFA has been configured for TCM authentication, TCM will default to using the non-default authentication type when adding a new Tableau Cloud administrator. This can be changed at any time from the **Authentication for Tableau Cloud Manager** dropdown in the Site Membership dialog pictured above.

5. Click **Save**.

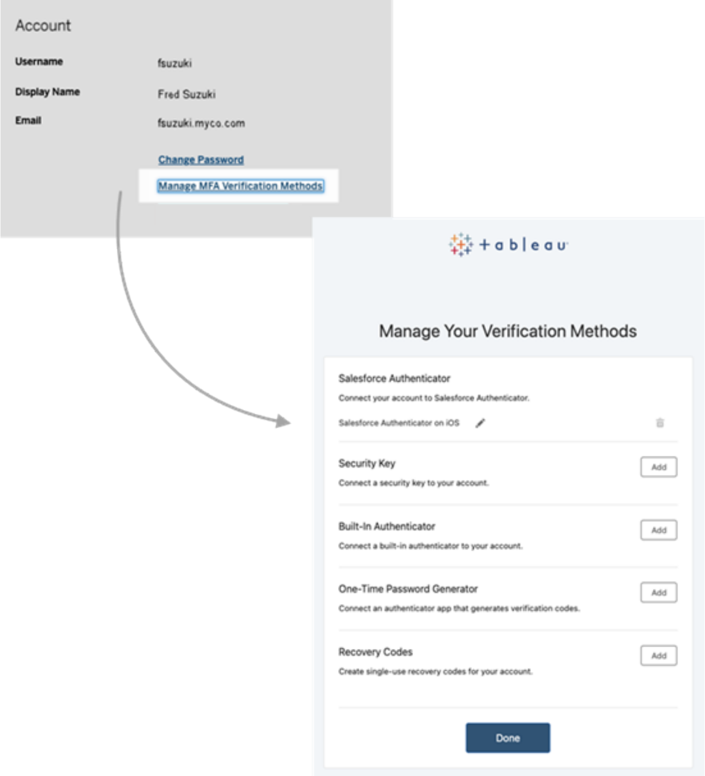
Manage Tableau with MFA

As a cloud administrator, you can manage your Tableau with MFA verification methods in TCM, and reset the Tableau with MFA verification methods for other cloud administrators and multi-site users.

Mange verification methods

You can manage your Tableau with MFA verifications methods from your **My Account Settings** page. After clicking the **Manage MFA Verification Methods** link, you can add or remove additional verification methods, including adding recovery codes.

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. In the upper-right corner of the page, click your profile, and select My Account Settings.
3. Under Account, click **Manage MFA Verifications Methods**.



Account

Username: fsuzuki

Display Name: Fred Suzuki

Email: fsuzuki.myco.com

Manage Your Verification Methods

Salesforce Authenticator

Connect your account to Salesforce Authenticator.

Salesforce Authenticator on iOS

Security Key

Connect a security key to your account.

Built-In Authenticator

Connect a built-in authenticator to your account.

One-Time Password Generator

Connect an authenticator app that generates verification codes.

Recovery Codes

Create single-use recovery codes for your account.

Reset verification methods

You can reset the Tableau with MFA verification methods from the **Users** page in TCM to enable cloud administrators or users to regain access to TCM and sites.

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. Go to the **Users** page and navigate to the user who needs to regain access to TCM or sites.
3. From the Actions menu, select **Reset MFA Verifiers**.
4. In the Reset MFA Verifiers dialog box, click the **Reset MFA Verifiers** button.

   Notes:

   - The option to reset the verification methods is only available when *any* of the following is true:
     - The user belongs to one or more sites under the same TCM tenant.
     - The cloud administrator belongs to only one TCM tenant.
   - If resetting the verification method for a site-level user who is also a cloud administrator, this process resets Tableau with MFA verification methods for the sites they belong to and TCM.

Configure authentication for Tableau Cloud sites

Site authentication is configurable only by site administrators directly at the site level. If you're a cloud administrator, you must also have site administrator privileges to change authentication settings.

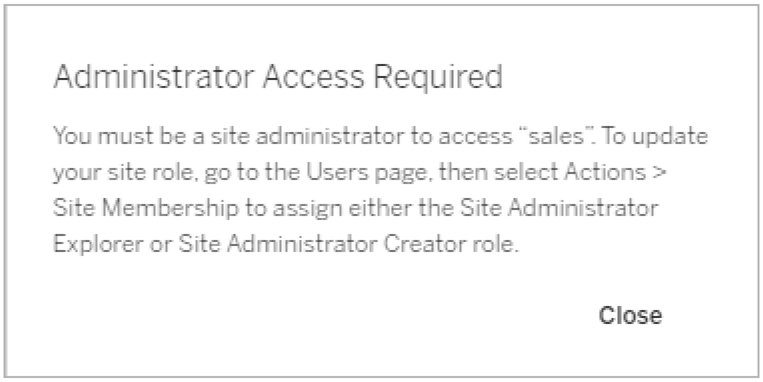
To modify site authentication, follow these steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. Navigate to the **Sites** page.

3. Click the ellipsis icon (**...**) next to the site you want to modify.

4. From the **Actions** menu, select **Authentication Type** to redirect to the site's authentication settings. For more information about configuring site authentication as a site administrator, see Authentication.

If you're not a site administrator, a dialog is displayed with instructions on how to assign the necessary role. You must be a site administrator with the Site Administrator Explorer or Site Administrator Creator role to proceed with configuring site authentication.



Administrator Access Required

You must be a site administrator to access "sales". To update your site role, go to the Users page, then select Actions > Site Membership to assign either the Site Administrator Explorer or Site Administrator Creator role.

Assign user authentication for site users

As a cloud administrator, you can't directly configure site authentication settings. However, if multiple authentication methods are set up on the site, you can modify a user's authentication to a site on the Users page of Tableau Cloud Manager. For more information, see Manage users' site membership.

Personal Access Tokens for Tableau Cloud Manager

Personal access tokens (PATs) provide you with the ability to create long-lived authentication tokens. PATs enable you to sign in to the Tableau Cloud Manager REST API without requiring hard-coded credentials (username and password) or interactive sign-in. For more information, see Tableau Cloud Manager REST API.

Note: Tableau Cloud Manager PATs can’t be used to sign in to the Tableau REST API, which is used to manage and change Tableau Cloud site resources.

We recommend creating PATs for automated scripts and tasks that are created with the Tableau Cloud Manager REST API:

- **Improve security:** PATs reduce risk in the event credentials are compromised. Instead of using a username and password, users can reduce the impact of credential compromise by using a personal access token for automated tasks. If a PAT gets compromised or is used in automation that’s failing or posing a risk, you can revoke the PAT instead of rotating or revoking the user's credentials.
- **Manage automation:** A PAT can be created for each script or task that is run. This allows you to silo and review automation tasks across your organization. Additionally, by using PATs, password resets, or metadata changes (username, email, etc.) on user accounts don’t disrupt automation as it does when credentials are hard-coded into the scripts.

Notes:

- PATs are required to make a Tableau Cloud Manager REST API sign-in request to Tableau Cloud Manager (TCM) with multi-factor authentication (MFA) enabled with Tableau authentication.
- PATs aren’t used for generic client access to TCM.
- PATs are automatically revoked when the TCM authentication method changes.
- The first time you sign in to the Tableau Cloud Manager REST API, a PAT must be created using the TCM UI using the procedure described below or in Authentication in the TCM REST API Help.

Understand personal access tokens

When a personal access token (PAT) is created, it’s hashed then stored in the repository. After the PAT is hashed and stored, the PAT secret is shown one time to the user and then no longer accessible after they dismiss the dialog. Therefore, users are instructed to copy the PAT to a safe place and handle it like a password.

When the PAT is used at run-time, Tableau Cloud Manager (TCM) compares the PAT presented by the user to the hashed value stored in the repository. If a match is made, then an authenticated session is started. In the context of authorization, the TCM session that is authenticated with a PAT has the same access and privileges as the PAT owner.

About PAT expiration

Personal access tokens (PATs) expire if not used after 15 consecutive days or based on the token expiration value selected when creating the PAT, whichever comes first.

After PATs expire, they're unable to be used for authentication and removed from the cloud administrator's **My Account Settings** page.

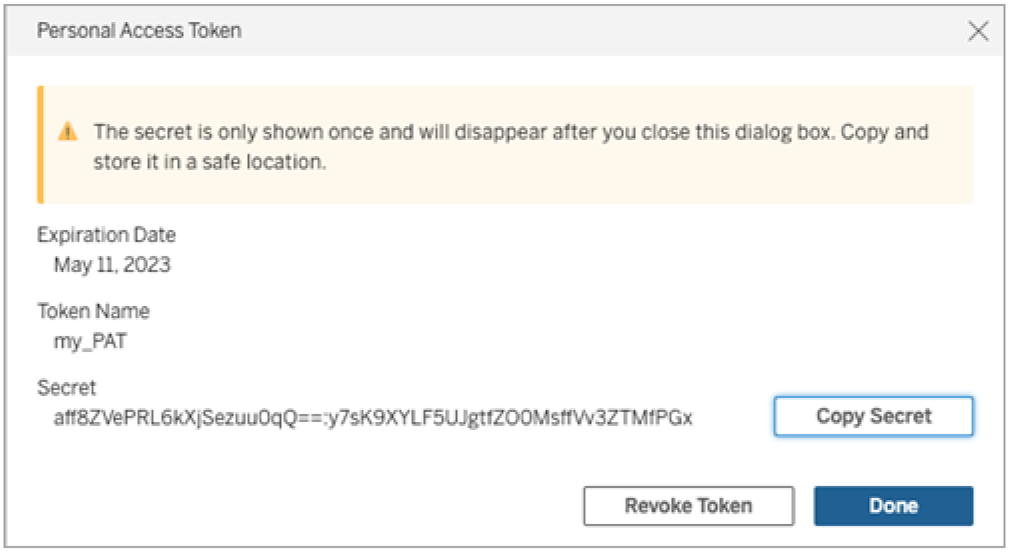
Tasks for managing cloud administrator's personal access tokens

Create a PAT

This procedure requires you to copy a secret to a file. The secret is the string that you include in your automation scripts and will be used to authenticate to Tableau Cloud Manager (TCM). Handle the secret as you would a password: protect the secret and don’t share it with others.

To create a PAT, follow these steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. At the top of a page, click your profile image or initials, and then select **My Account Settings**.
3. Under **Personal Access Tokens**, click **Create Token**.
4. Enter a descriptive name for your token in the **Token Name** field.
5. Select the token expiration date and click **Create Token**.
6. In the Personal Access Token dialog box, click **Copy Secret**.



The secret is only shown once and will disappear after you close this dialog box. Copy and store it in a safe location.

Expiration Date
May 11, 2023

Token Name
my_PAT

Secret
aff8ZVePRL6kXjSezuu0qQ==:y7sK9XYLF5UJgtfZOOMsffVv3ZTMfPGx

7. Paste the secret to a file and store the file in a safe location.
8. When finished, click **Done**.

Note: A user can have up to 104 PATs.

Revoke a PAT

Cloud administrators can revoke their PAT on their My Account Settings page using the following steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. At the top of a page, click your profile image or initials, and then select **My Account Settings**.
3. Under the **Personal Access Tokens** section, identify the PAT that you want to revoke and then click **Revoke Token**.
4. In the Delete dialog box, click **Delete**.

Add, Delete, or Activate Sites

In Tableau Cloud Manager (TCM), the sites you manage correspond to the Tableau Cloud sites within your organization. By default, a tenant contains up to 3 sites, but this capacity increases with different license types – up to 10 sites with an Enterprise license and a maximum of 50 with a Tableau+ license.

> **Note:** Multi-Site Pilot Program customers aren't eligible to manage multiple sites using Tableau Cloud Manager. For more information about feature availability, contact your Tableau account representative.

The **Sites** page contains data for each site in your tenant, including site location, user count, and storage usage. TCM allows you to manage sites and users, but doesn't extend to the governance of content and site settings. These capabilities are reserved for users with the site administrator role, who have the necessary access and permissions at the site level.

This topic walks you through the steps to add new sites and modify existing ones in TCM.

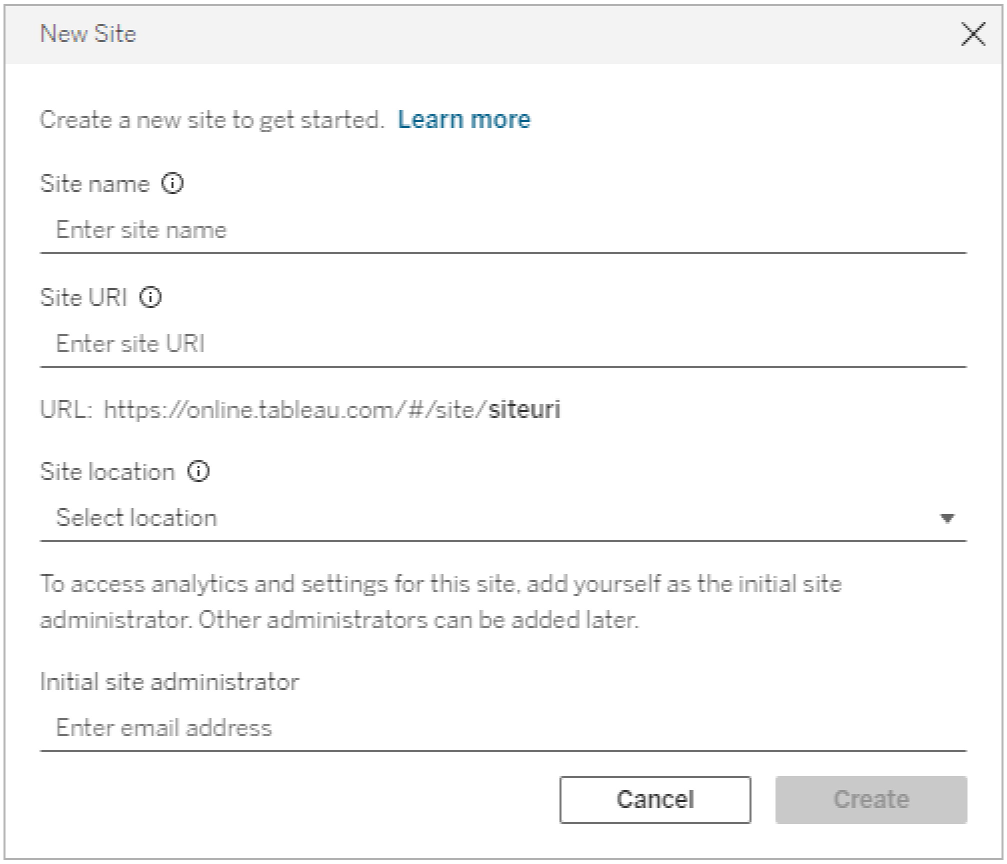
Add sites

As a cloud administrator, you can expand your organization's capabilities within Tableau Cloud by adding new sites. Tableau recommends creating sites when you must manage a unique set of users and their content separately from others. Consider creating a site for the following scenarios:

- **Environment Separation:** To differentiate between development, testing, and production environments.
- **Project Isolation:** For projects that require confidentiality or are independent of existing projects.
- **Regional Requirements:** When expanding to new regions or to comply with specific data residency and privacy laws.

To add a site, follow these steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. On the **Sites** page, click **New Site**.
3. Complete the fields in the New Site dialog:


New Site
Site name
Enter site name
Site URI
Enter site URI
Site location
Select location
Initial site administrator
Enter email address
Cancel
Create

Create a new site to get started. Learn more

URL: https://online.tableau.com/#/site/**siteuri**

To access analytics and settings for this site, add yourself as the initial site administrator. Other administrators can be added later.

a. **Site name:** A name for the Tableau Cloud site. The site name can be the name of your organization or for a specific team, such as Sales or Marketing. Providing a descriptive name allows users to quickly understand the intended purpose of the site.

    - Must be unique within Tableau Cloud Manager (TCM) and the Tableau Cloud pod hosting the tenant.

    - Can only contain Unicode letters, numbers, and the characters `!@$%*.?-_,'()&/:#.`

    - Must not exceed 80 characters.

   b. **Site URI:** The uniform resource identifier (URI) that users enter to sign in to the site.

      - Must be unique across all Tableau Cloud pods.
      - Can only contain letters (`A-Z`, `a-z`), numbers (`0-9`), hyphens (`-`), or underscores (`_`).
      - Must begin and end with a letter or number.

   c. **Site location:** The region or pod where the Tableau Cloud site is hosted. We suggest selecting the closest location to your user base.

   d. **Initial site administrator:** Email address of the initial site administrator. To access analytics and settings for the site, add yourself as the initial site administrator. Other site administrators can be added later.

4. Review the values and click **Create**.

The initial site administrator receives an email with steps to sign in to the site. For more information, see Sign In to Tableau Cloud.

Modify site authentication

Site authentication is only configurable by site administrators, directly at the site level. If you're a cloud administrator, you must also have site administrator privileges to change authentication settings. For more information, see Configure authentication for Tableau Cloud sites.

Delete sites

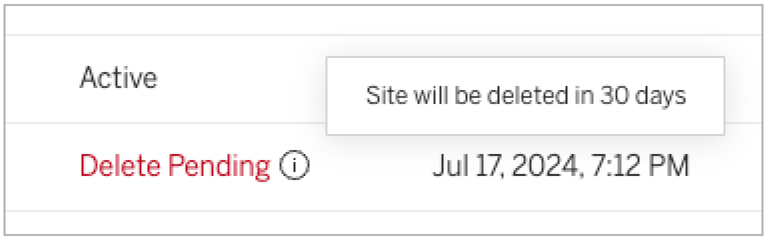
Deleting a site deactivates it immediately and schedules it for deletion after 30 days. During this time, the site is inaccessible to users, but you can reactivate it at any time within the 30-day period. Before proceeding with deletion, ensure that site administrators have notified content owners to back up all necessary workbooks and data sources. Site deletion is irreversible after the 30-day period, and all published content will be permanently removed.

Note: In the event that you accidentally delete a site, allow up to 24 hours for the operation to complete before attempting to reactivate the site.

To delete a site, follow these steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. Navigate to the **Sites** page and select the check box next to the site you want to delete.
3. Click the **Actions** menu or ellipsis icon (**...**) and select **Delete**.
4. In the confirmation dialog, click **Delete**. A notification appears, indicating that the site is scheduled for deletion.

After a site is scheduled for deletion, it reflects a "Delete Pending" status and is removed from the Sites page in Cloud Manager upon deletion. To view the remaining days before deletion, hover over the information icon in the **Status** column.



Active

Site will be deleted in 30 days

Delete Pending ⓘ Jul 17, 2024, 7:12 PM

Activate sites

Cloud administrators can activate a site scheduled for deletion within the 30-day period to prevent permanent removal and ensure continued availability.

To activate a site, follow these steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. Navigate to the **Sites** page and select the check box next to the site you want to activate.
3. Click the **Actions** menu or ellipsis icon (**...**) and select **Activate**.
4. In the confirmation dialog, click **Activate**.

After a site is activated, it reflects an "Active" status and will be accessible to users again. Activating the site preserves all existing workbooks and data sources without any changes.

User activation and site roles

When activating a site, users are restored to the roles they held before the site was scheduled for deletion. If there aren't enough licenses available, such as when other sites consume licenses during the suspended state, users are added until the available license count is exhausted. Any remaining users are unlicensed on the site.

To license the affected users, adjust site role limits across sites. For more information, see Manage Site Role Limits.

Manage Site Role Limits

In Tableau Cloud Manager (TCM), cloud administrators can set site role limits, which define the maximum number of each license type—Creator, Explorer, or Viewer—that can be consumed by a site. After role limits are created, users on the site automatically consume a license of their assigned role, following the limits set by the cloud administrator.

Note: Cloud administrators only have access to TCM and don't consume a license. To gain site access, you can assign yourself a site role or be assigned one by another cloud admin. For more information, see Manage users' site membership.

If a user is added to multiple Tableau Cloud sites, they count against the role limit for each individual site. However, for the overall license consumption within TCM, a user only consumes one license. This license corresponds to the max site role they’ve been assigned across all the sites they’re a member of.

Let’s consider the following scenario where a cloud administrator sets site role limits on two sites:

- **Site A:** 3 Creator, 5 Explorer, 10 Viewer licenses
- **Site B:** 2 Creator, 4 Explorer, 6 Viewer licenses

Jane, who works in both sites, is added as a Creator on Site A and an Explorer on Site B. On Site A, Jane is counted as one of the 3 Creators. On Site B, Jane is counted as one of the 4 Explorers

Despite being a member of both sites, Jane only consumes one Creator license in TCM because that is the highest assigned role across sites.

Create or modify role limits on a site

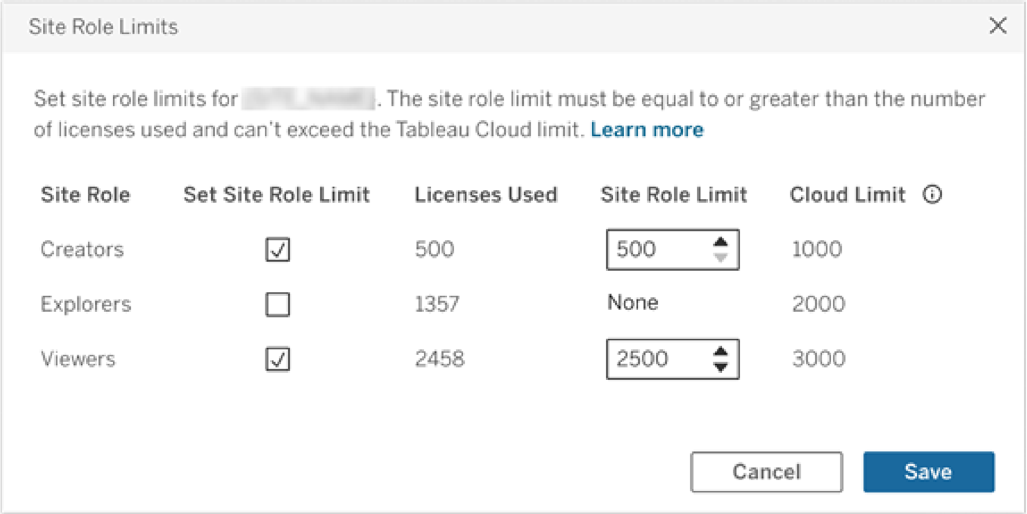
By default, each site within Tableau Cloud Manager (TCM) uses the *cloud limit*, which is the total number of licenses purchased. When adding users to a site, TCM checks against the cloud limit to ensure that the number of users doesn't exceed the total licenses available.

To manage your organization's Tableau Cloud licenses, cloud administrators can set site role limits. This feature enables control over license allocation across different sites within your tenant.

To set site role limits, follow these steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. Navigate to the **Sites** page, and select the site you want to modify.
3. Click the **Actions** menu or ellipsis icon (**...**) and select **Site Role Limits**.

4. In the dialog, select **Site Role Limit** for the site role you want to modify, and then enter the desired value.



Site Role Limits

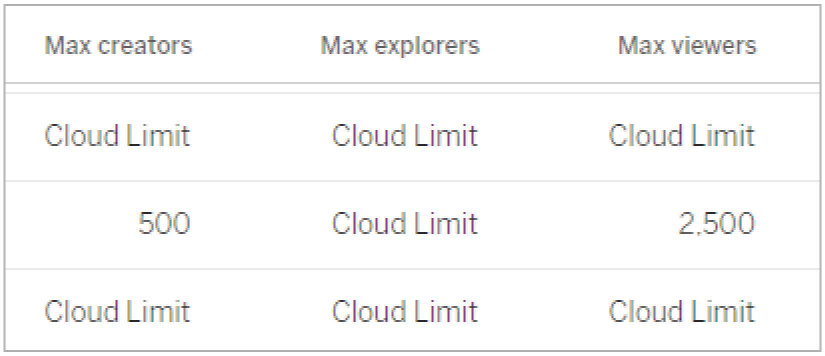
Set site role limits for [redacted]. The site role limit must be equal to or greater than the number of licenses used and can't exceed the Tableau Cloud limit. Learn more

Site Role	Set Site Role Limit	Licenses Used	Site Role Limit	Cloud Limit ⓘ
Creators	☑	500	500	1000
Explorers	☐	1357	None	2000
Viewers	☑	2458	2500	3000

Note: The site role limit must be equal to or greater than the number of licenses used and can't exceed the cloud limit for that site role.

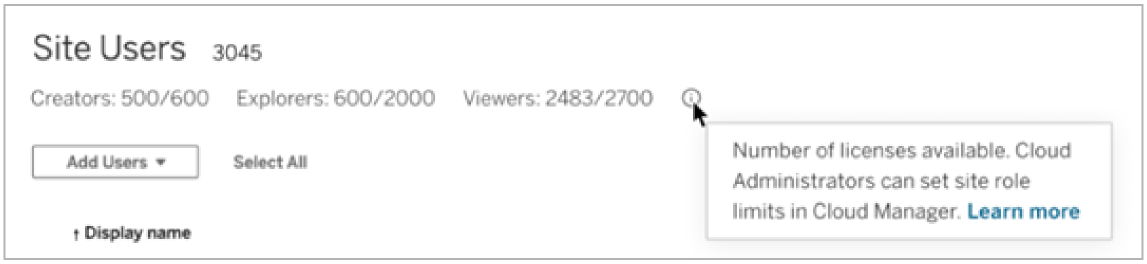
5. Click **Save**.

After setting site role limits, the maximum license count is visible on the **Sites** page of TCM.



Max creators	Max explorers	Max viewers
Cloud Limit	Cloud Limit	Cloud Limit
500	Cloud Limit	2,500
Cloud Limit	Cloud Limit	Cloud Limit

At the site level, site administrators can see role limits for their site on the **Users** page.



Site Users 3045

Creators: 500/600 Explorers: 600/2000 Viewers: 2483/2700

Number of licenses available. Cloud Administrators can set site role limits in Cloud Manager. Learn more

When site role limits are met

When a user is added to a site, they automatically consume the license assigned to their site role. However, if the maximum number of licenses for that role (the site role limit) has already been reached, the following occurs:

- If all licenses for a site role are in use, but there are available licenses at a higher role, the user is added to the site and consumes a license for the higher role. For example, if there are no available Explorer licenses, a user added as an Explorer consumes an available Creator license.
- If no higher role licenses are available, the user is added to the site as an Unlicensed user.

Users consuming licenses different from their assigned roles, such as Viewers using Explorer licenses, can affect site role limits. Cloud administrators can address this scenario in two ways:

- Unlicensing these users and updating the site role limit as needed. For more information, see Create or modify role limits on a site.
- Purchasing additional licenses through the Tableau Webstore. For more information, see Buy More Licenses.

Manage Users With Tableau Cloud Manager

Everyone who accesses Tableau Cloud—whether to browse, publish, edit content, or perform administrative tasks—must be added as a user. Cloud administrators have the following options for adding users:

- Enter users’ email addresses individually
- Import users via a CSV file that you create using the CSV Import File Guidelines

How users are managed in Tableau Cloud

Within Tableau Cloud, user management is handled through two distinct pages: the Cloud Users page and the Site Users page. The Cloud Users page, accessible only to cloud administrators in Tableau Cloud Manager (TCM), serves as the central place for assigning users to multiple sites and for removing users from Tableau Cloud. Meanwhile, the Site Users page is available to site administrators, allowing them to manage users within their specific sites.

Note: You can only remove a user if the user doesn’t own any content (projects, workbooks, views, or data sources). For more information, see Remove users from Tableau Cloud.

With TCM, users are added at the tenant level and then assigned to the appropriate sites as needed. Adding users through TCM can improve the onboarding process by reducing the administrative burden on site administrators, allowing them to focus more on site-specific management tasks. As a cloud administrator, you can also modify a user’s site membership and role at any time. For more information, see Manage users’ site membership.

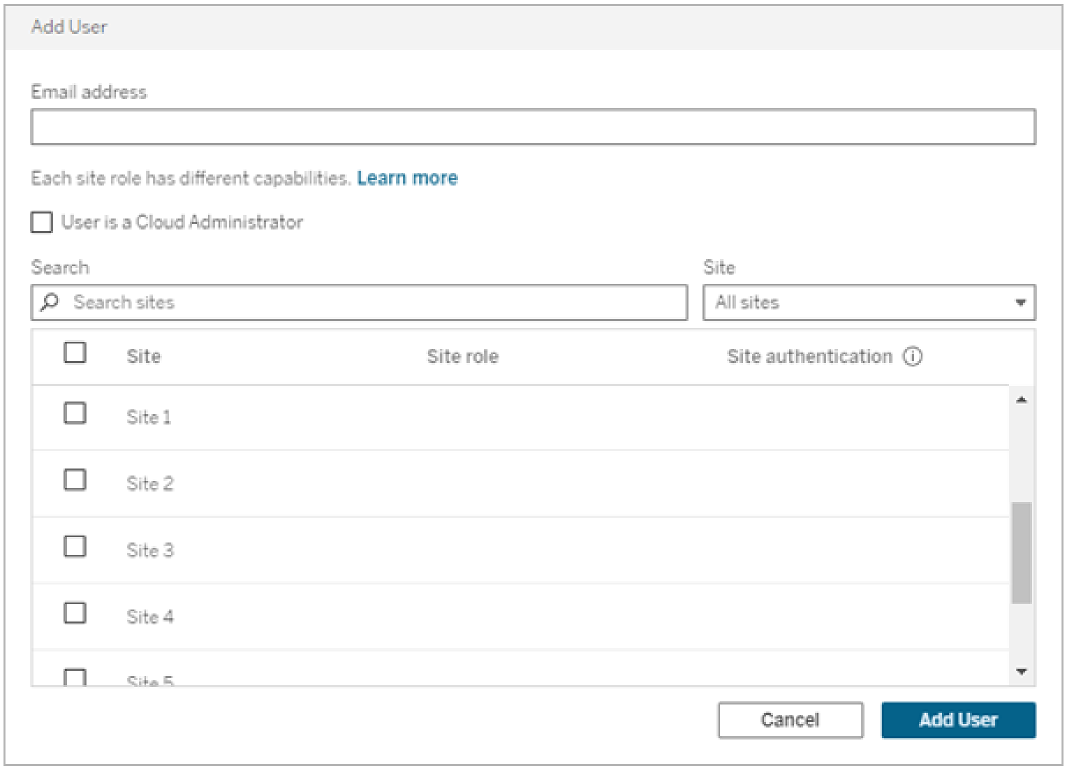
Add users to Tableau Cloud Manager

You can add users to Tableau Cloud Manager (TCM) individually or in bulk by uploading a CSV file with user information.

Add a user individually

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. Navigate to the **Users** page, and select **Add Users** > **Add User by Email**.

3. Complete the fields in the Add User dialog:



Each site role has different capabilities. Learn more

Add User
Email address
☐ User is a Cloud Administrator
Search
Search sites
Site
All sites
☐ Site
Site role
Site authentication
☐ Site 1
☐ Site 2
☐ Site 3
☐ Site 4
☐ Site 5
Cancel
Add User

   a. **Email address:** Email address of the user.

   b. **(Optional) User is a Cloud Administrator:** Select whether to add the user as a cloud administrator. By default, cloud administrators authenticate using Tableau with MFA when they sign in to TCM. If an external authentication method is configured, select an alternative authentication type from the dropdown menu.

   c. **Site:** Select one or more sites to add the user to.

   d. **Site role:** Assign the user a site role on each selected site. For more information about site roles and capabilities, see Set Users' Site Roles.

   e. **Site authentication:** Select an authentication method for the user. The default authentication method is Tableau with MFA (multi-factor authentication). If site administrators have configured multiple authentication methods, select an alternative authentication type from the dropdown menu.

4. Click **Add User**. An email is sent to the user with the next steps to sign in to Tableau Cloud.

If a new user’s email address is already associated with an account on tableau.com, the user is prompted to sign in using the existing email address and password for that account.

If a new user’s email address isn’t associated with an account on tableau.com, the user is prompted to provide a first and last name and password.

Bulk import users

To automate the process of adding users, you can create a CSV file containing user information, and then import the file to Tableau Cloud Manager (TCM). When importing the CSV file, you can specify the users’ site membership, site role, and authentication type. The following columns and values are exclusive to TCM:

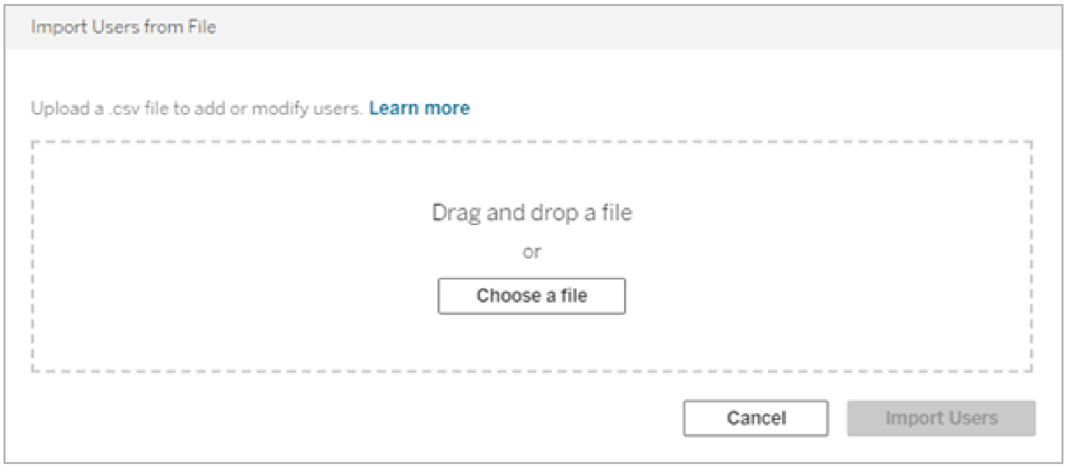
- **Site URI:** The uniform resource identifier for the site. To import a user as a cloud administrator, include the Site URI column and leave it blank.
- **Administrator level:** To add a user as cloud administrator, set the value to `Cloud`.
- **Authentication type:** The user authentication type for accessing a site or TCM.

> **Note:** This section contains the steps for importing, assuming that you have already created the CSV file. If you haven’t created the file yet, see CSV Import File Guidelines for a list of file format requirements and import options.

To add or modify users from a CSV file, follow these steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. Navigate to the **Users** page, and select **Add Users** > **Import Users from File**.

3. To upload a file, drag the CSV file into the dialog, or click **Choose a file**.



Import Users from File

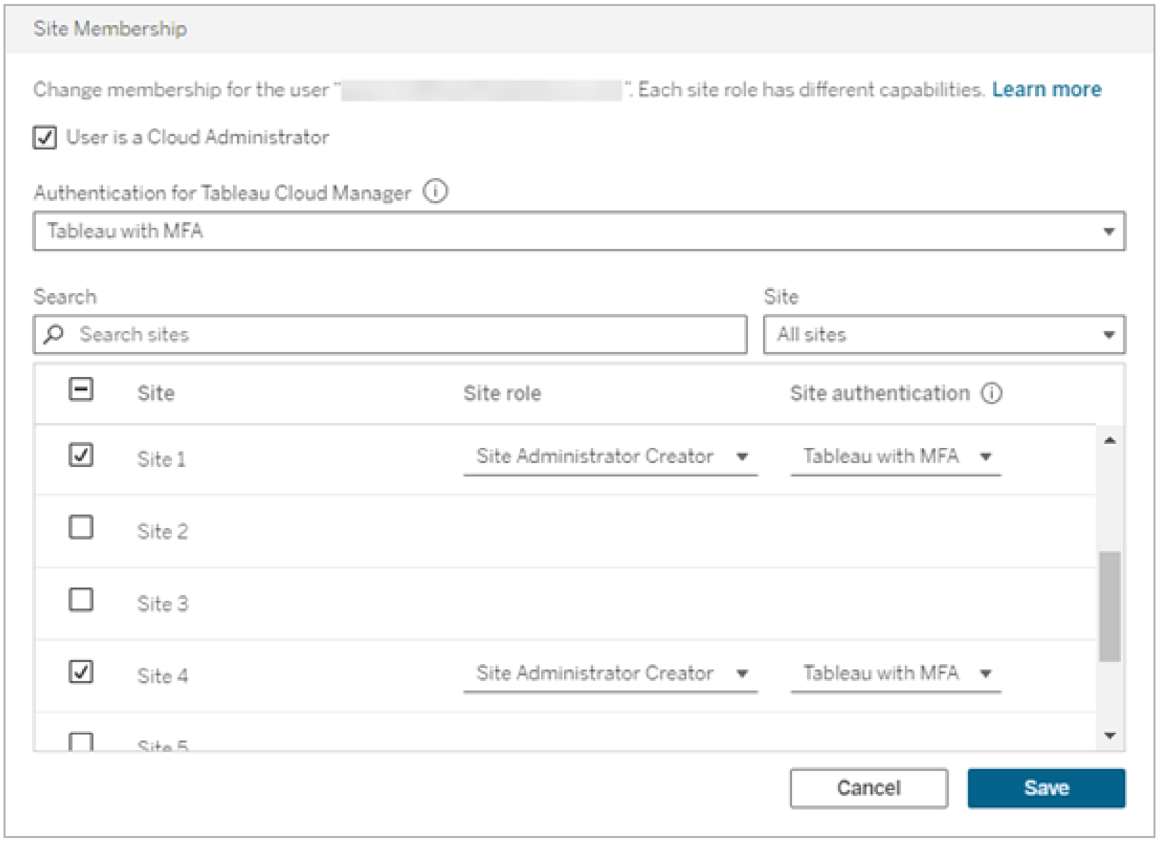
Upload a .csv file to add or modify users. Learn more

4. Click **Import Users**.

Important: Importing a CSV file with different site roles automatically updates existing users to the roles specified, even if they're more restrictive. This change affects all users, including cloud administrators.

Manage users' site membership

Site membership refers to the sites and roles assigned to each user in a tenant. Cloud administrators can modify a user's site membership at any time, such as granting access to additional sites or changing their designated site role and authentication. All changes to users are performed in the site membership dialog and then shared across sites.



Site Membership

Change membership for the user "[redacted]". Each site role has different capabilities. Learn more

☑ User is a Cloud Administrator

Authentication for Tableau Cloud Manager: Tableau with MFA

Search: Search sites

Site: All sites

⊟	Site	Site role	Site authentication
☑	Site 1	Site Administrator Creator	Tableau with MFA
☐	Site 2		
☐	Site 3		
☑	Site 4	Site Administrator Creator	Tableau with MFA
☐	Site 5		

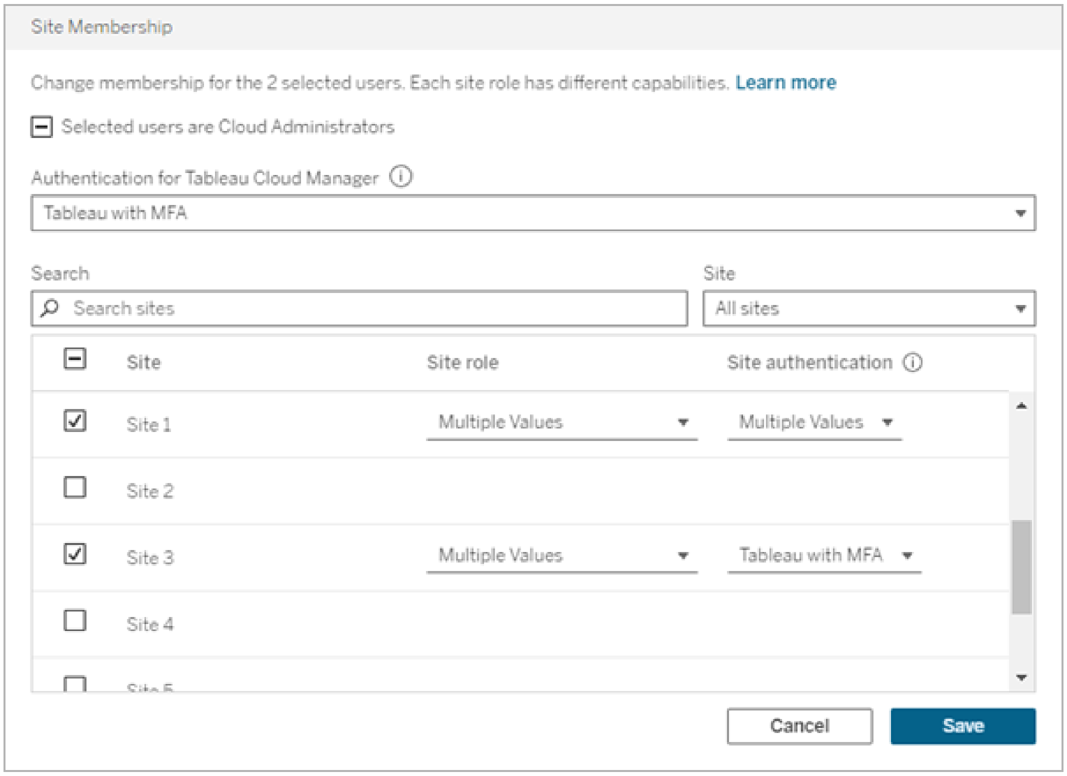
To modify site membership, follow these steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. Navigate to the **Users** page and select the users to modify.

   > **Note:** You can select up to 50 users at a time. To modify more than 50 users, import a CSV file containing the desired changes. For more information about modifying users in bulk, see Bulk import users.

3. Select **Actions** > **Site Membership**.
4. In the dialog, modify users' site membership, including their site role and authentication method.

When modifying site membership for multiple users, the **Site role** and **Site authentication** dropdown menus display “Multiple Values” when users are assigned different values on the site. Selecting a new value from the list assigns the same value to the selected users.



Change membership for the 2 selected users. Each site role has different capabilities.

⊟ Selected users are Cloud Administrators

Authentication for Tableau Cloud Manager: Tableau with MFA

Site: All sites

⊟	Site	Site role	Site authentication
☑	Site 1	Multiple Values	Multiple Values
☐	Site 2		
☑	Site 3	Multiple Values	Tableau with MFA
☐	Site 4		

5. Click **Save**.

Assign or remove cloud administrator privileges

You can have up to 100 cloud administrators in Tableau Cloud Manager (TCM). To assign or remove the cloud administrator role, select the **User is a Cloud Administrator** checkbox while modifying site membership. When a user is assigned cloud administrator privileges, they gain access to the TCM web interface and Tableau Cloud Manager REST API.

> **Note:** If an authentication type other than Tableau with MFA has been configured for TCM authentication, TCM will default to using the non-default authentication type when adding a new Tableau Cloud administrator. This can be changed at any time from the **Authentication for Tableau Cloud Manager** dropdown in the Site Membership dialog pictured above.

Remove users from Tableau Cloud

You can remove a user only if the user doesn't own any content (projects, workbooks, views, or data sources). If you attempt to remove a user who owns content, the user's site role is set to Unlicensed, but the user isn't removed from Tableau Cloud Manager.

A user who belongs to multiple sites and owns content on any of them is removed from the sites where they don't own content. The user remains a member on sites where they own content, but is demoted to the Unlicensed site role.

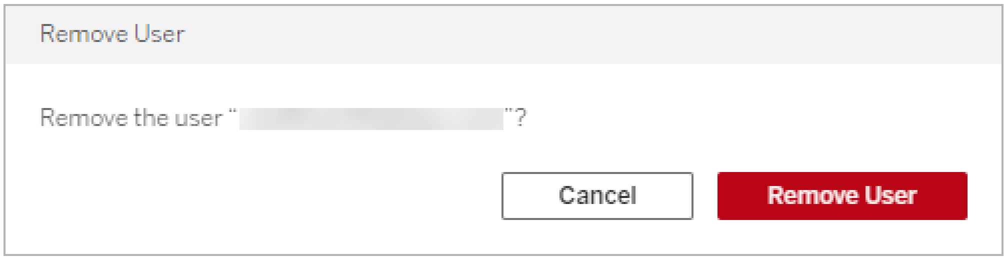
To remove a user from Tableau Cloud, follow these steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. Navigate to the **Users** page, and select one or more users to remove.

   > **Note:** You can select up to 50 users at a time. To modify more than 50 users, import a CSV file containing the desired changes. For more information about modifying users in bulk, see Bulk import users.

3. Select **Actions** > **Remove**.

4. In the confirmation dialog, select **Remove User**.



Remove User

Remove the user "[redacted]"?

Set up Private Connect for AWS

Private Connect for AWS (Amazon Web Services) allows cloud administrators to create secure, private, and dedicated connections between Tableau Cloud and AWS-hosted data providers. These private connections are provisioned on top of AWS PrivateLink, using private IP address space, meaning that data traffic doesn't traverse the public internet. The private and secure nature of private connections addresses a key requirement of restricting data traffic to private networks.

As a cloud administrator, you can create private connections and assign them to sites. They can also provide connection information to creators and the groups that support them.

To learn more about setting up Private Connect, see Private Connect for AWS.

Site Administrator Role and Tasks

This topic describes the typical role of the Tableau Cloud site administrator, and how it differs from the related data manager role. It then lists the core tasks that the site administrator completes to set up your Tableau Cloud site. Additional topics in this section provide more information about each of the steps.

How we define the site administrator role

We define the site administrator as the person who is in charge of creating and maintaining the framework that enables Tableau Desktop users in your organization to publish, share, manage, and connect to data sources and workbooks. For example, a site manager works with site users and their permissions, in contrast to working directly with content that is published to the site.

The Tableau Cloud site administrator is typically part of the IT team at your organization. If your organization doesn't have a formal IT team, the site administrator might be a savvy Tableau Desktop user who takes on this role (the *accidental admin*, so to speak).

Tasks that are typically outside the site administrator's realm

In this documentation, we make a distinction between the roles of site administrator and data manager, which is the role for the person who creates and publishes data sources to Tableau Cloud. Even so, in your organization, the same person might cover both roles. In practice, you'll divide these responsibilities in the way that works best in your environment. To learn more about the data manager's realm, see Publish Data Sources and Workbooks.

Steps for setting up your site

The table below shows a loose sequence of steps for setting up a site. You can complete the steps in any order that makes sense for you. At the bottom of this topic you'll find a list of links to more resources for each of the steps.

Before you configure the site, we recommend getting acquainted with the site authentication options, users’ site roles, projects, and permissions. Create and document a plan for your projects, groups, and overall permissions strategy. Setting up a test project to experiment with different settings is a good way to iron out these issues. You can change many site settings after your users are working with the site, but try to go in with the intention of minimizing post-production changes.

Upload your logo	This simple first step helps you get familiar with the environment while you incorporate your organization's branding into your site. Sign in, go to the **Settings** page, and upload your logo where indicated.
Configure site access	If your organization uses single sign-on, you can configure your site to use Google or SAML authentication. Otherwise, you can use the default Tableau ID authentication, where each user signs in using an email address and password that is unique to Tableau Cloud. In addition to the authentication type, you can determine whether to allow users to sign in directly from Tableau *clients* after signing in the first time. This is enabled by default.
Create projects	Projects help you manage users’ access (permissions) to data sources and workbooks that are published to your site. You can set default groups and permissions for all content on the **Default** project, lock the project, and then use it as a template for additional projects you create. Projects can also serve as staging environments.
Set up the permissions structure	In Tableau, permissions work with site roles to make up a user’s access to the site and its content.
Add users	Each user who accesses Tableau Cloud must sign in.

Upload your logo	This simple first step helps you get familiar with the environment while you incorporate your organization's branding into your site. Sign in, go to the **Settings** page, and upload your logo where indicated.
	Determine the users you want to be able to sign in to the site. If you enabled Google or SAML authentication, determine which of those users will sign in with their single sign-on credentials, and which will use TableauID credentials. Add or import multiple users at a time based on their authentication type.
Get your data to Tableau Cloud	We recommend that you designate a Tableau Desktop user who will publish vetted data sources to the site (that is, who will serve in the data manager role mentioned earlier). These will be the shared data sources that other Tableau users can connect to. As the site administrator, you can centrally manage data source permissions. Other attributes that either you or the data manager can maintain centrally are connection information (credentials, access tokens) and refresh schedules for cloud data sources. For more information, see Keep Data Fresh.
Analyze site usage and performance	You can monitor usage of published data sources and workbooks, the success of extract refresh tasks, user activity, and so on.

Navigate the Admin Areas of the Tableau Web Environment

As an administrator on Tableau Server or Tableau Cloud, you can access admin settings that aren’t available to other users to configure sites, users, projects, and to do other content-related tasks.

Access based on site role and number of sites

The menus you get when you sign in to Tableau Server or Tableau Cloud depend on the following conditions:

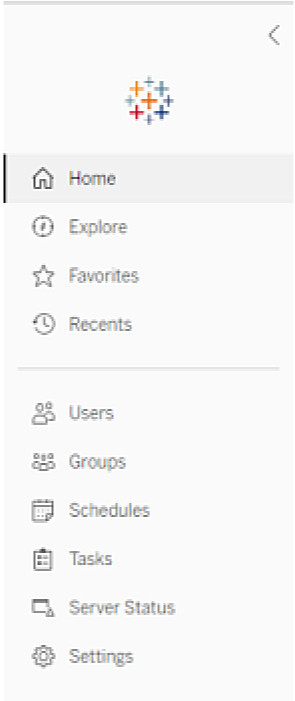
- Whether you’re a site or server administrator.

  Site administrator access is available on Tableau Cloud and Tableau Server. Server administrator access is only on Tableau Server.

- Whether you have access to only one site or to multiple sites.

Server administrator

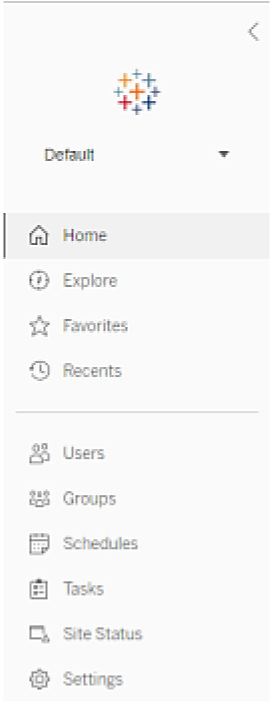
On a **single-site** server, the site selector does not appear, and all other menus are the same.


Home
Explore
Favorites
Recents
Users
Groups
Schedules
Tasks
Server Status
Settings

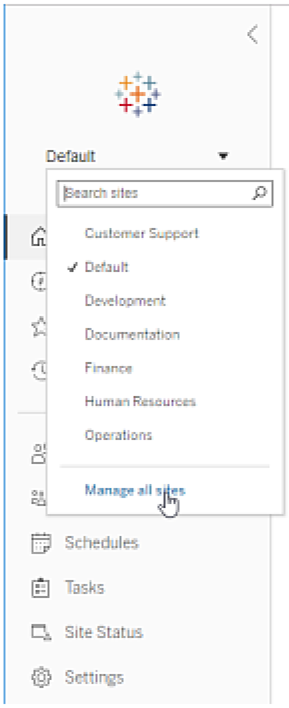
In a **multi-site** environment, menus along the left enable you to modify a specific site or all sites, and to configure users, groups, schedules, tasks, and server settings.

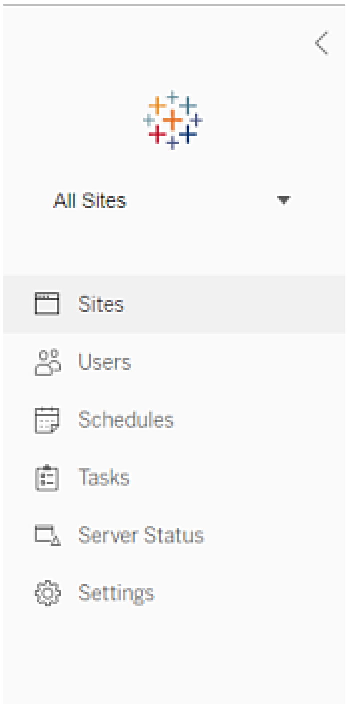
To access server administrator settings that affect all sites, open the site menu by clicking the arrow next to the current site name, and then select **Manage all sites**.

The **Content** and **Group** tabs go away, and the site menu text changes to **All Sites** to let you know you are managing server-wide settings, and options like **Server Status** reflect the server-wide view.


Default
Home
Explore
Favorites
Recents
Users
Groups
Schedules
Tasks
Site Status
Settings

To return to the site administration menus, select **All Sites**, and the select the site you want to manage.


Default
Search sites
Customer Support
✓ Default
Development
Documentation
Finance
Human Resources
Operations
Manage all sites
Schedules
Tasks
Site Status
Settings

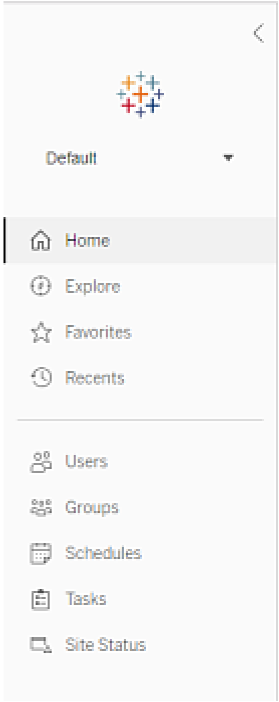

All Sites
Sites
Users
Schedules
Tasks
Server Status
Settings

Site administrator

If you are a site administrator for Tableau Cloud or Tableau Server, and you have access to multiple sites, you'll get menus for selecting which site to manage, and for managing that site's content, users, groups, schedules, and tasks, and for monitoring its status.

The site selector displays the name of the current site. To go to another site, select the site menu, and then select the site name.

If you have access to only one site, the site selector does not appear, but all other menus are the same.



Server administrator tasks

Server administrators (available with Tableau Server Enterprise only) can do the following:

- Monitor server status and activity.
- Generate log files.
- Add sites and edit site settings. Only server administrators can add sites to the server.
- Add users to the server, and assign users to sites.
- Add and manage site groups.

To manage settings only for a specific site, you must first navigate to the site. Within each site, you can do the following:

- Administer content: Create projects, move content from one project to another, assign permissions, change ownership of a content resource, and so on.
- Manage schedules for extract refreshes and subscriptions.
- Monitor site activity and record workbook performance metrics.
- Manage storage space limits for content published by users.
- Allow web authoring.
- Enable revision history.
- Allow site administrators to add and remove users.
- Set the maximum number of licenses that site can consume for each license type (Creator, Explorer, Viewer).
- Allow users to subscribe to workbooks and views, and allow content owners to subscribe others to workbooks and views.
- Enable offline snapshots for favorites (iOS only).

Site administrator tasks

A site administrator on Tableau Cloud or Tableau Server can do the following tasks:

- Administer content: Create projects, move content from one project to another, assign permissions, change ownership of a content resource, and so on.
- View, manage, and manually run schedules for extract refreshes and subscriptions.
- Add and manage site users.
- Add and manage site groups.
- Monitor site activity.

Customize the Site and Content Settings

As a Tableau administrator, you can customize a site for your organization. The settings available to you depend on your site configuration and whether you use Tableau Cloud or Tableau Server. To view and edit site settings, you must be a Site Administrator on Tableau Cloud or Server Administrator on Tableau Server.

Use the topics below to customize your site.

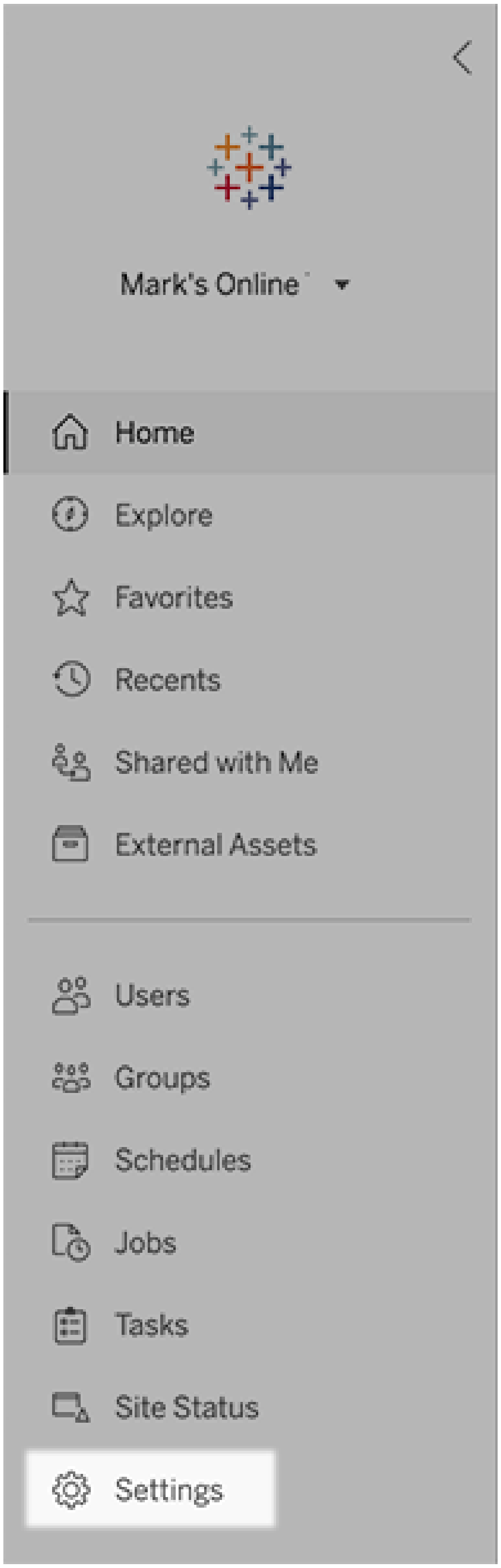
Site Settings Reference

Customize a site for your organization using the settings below. To view and edit site settings, you must be a Site Administrator on Tableau Cloud or Server Administrator on Tableau Server.

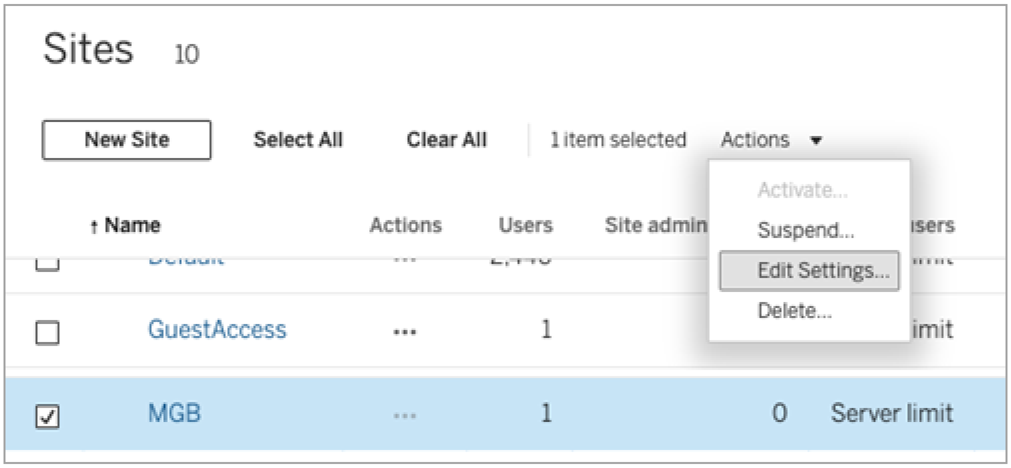
Site settings are displayed differently in Tableau Cloud and Tableau Server. The settings available to you depend on your site configuration and whether you use Tableau Cloud or Tableau Server. To easily find a specific setting below, press Ctrl+F (Windows) or Command+F (macOS) and search for the setting.

Accessing site settings

- (Tableau Cloud) From the Home page, expand the side pane, and click **Settings** at bottom.


Mark's Online
Home
Explore
Favorites
Recents
Shared with Me
External Assets
Users
Groups
Schedules
Jobs
Tasks
Site Status
Settings

- (Tableau Server) If you're editing an existing site, select it on the Sites page, and then select **Edit Settings**. Or, in a single-site deployment, click **Settings** at the bottom of the side pane.


Sites 10
New Site
Select All
Clear All
1 item selected
Actions
Activate...
Suspend...
Edit Settings...
Delete...
↑ Name
Actions
Users
Site admin
isers
GuestAccess
1
imit
MGB
1
0
Server limit

General tab

Setting	Description
Site Name and ID (Tableau Server Administrators only)	Specifies the site name seen in the user interface and the ID seen in the site URL. (If you are editing the Default site, you cannot change the ID.) You can't change the “#/site” portion of the URL (for example, http://localhost/#/site/sales). In multi-site server environments, these segments appear in the URL for sites other than the Default site.
Storage (Tableau Server Administrators only)	Select either **Server Limit** or **GB**, and for the latter enter the number of gigabytes you want as a limit for storage space for published workbooks, extracts, and other data sources. If you set a server limit and the site exceeds it, publishers will be prevented from uploading new content until the site is under the limit again. Server administrators can track where the site is relative to its limit using the Max Storage and Storage Used columns on the Sites page.

Revision History (Tableau Server Administrators only)	Specifies the number of previous versions of workbooks, flows, and data sources that are stored on the server.
Tableau Prep Conductor	Controls whether users with appropriate permissions can schedule and monitor flows. Tableau Prep Conductor is part of Data Management. For more information, see Tableau Prep Conductor.
Web Authoring	Controls whether browser-based authoring is enabled for the site. When web authoring for workbooks is disabled, users can't create or edit published workbooks from the server web environment but instead must use Tableau Desktop to republish the workbook. When web authoring for flows is disabled, users can't create or edit published flows from the server web environment but instead must use Tableau Prep Builder to re-publish the flow. For more information, see Set a Site's Web Authoring Access and Functions in Tableau Cloud Help.
Managing Users (Tableau Server Administrators only)	Determines whether only server administrators can add and remove users and change their site roles, or whether site administrators can too. If you allow site administrators to manage users, specify how many users they can add to the site by selecting one of the following: • Server Limit adds the number of available server seat licenses. For a server with core-based licensing, there is no limit. • Site Limit lets site administrators add users up to a limit you specify. • Site Role Limit lets site administrators add users of each site role up to the license limit you specify for the site. For more information, see View Server Licenses.
Guest Access	Lets people who lack a Tableau Server account see views that

(Tableau Server Administrators only)	have guest access permissions. **Note:** If you use Tableau Server, your administrator can disable Guest Access.
Tableau Catalog	Turns off Catalog capabilities when Tableau Server or a Tableau Cloud site is licensed with Data Management. For more information, see Disable Catalog.
Workbook Performance after a Scheduled Refresh (Tableau Server Administrators only)	Pre-computes recently viewed workbooks with scheduled refreshes to open them faster. For more information, see Configure Workbook Performance after a Scheduled Refresh.
Workbook Performance Metrics (Tableau Server Administrators only)	Lets site users collect metrics on how workbooks perform, such as how quickly they load To initiate recording, users must add a parameter to the workbook's URL. For more information, see Create a Performance Recording.
Managed Keychain Clean Up (Tableau Server Administrators only)	Lets site administrators manage saved credential keychains for OAuth connections on the site. For more information, see OAuth Connections.
Automatically Suspend Extract Refresh Tasks	To save resources, Tableau can automatically suspend extract refresh tasks for inactive workbooks. This feature applies only to refresh schedules that run weekly or more often. For more information, see Automatically Suspend Extract Refreshes for Inactive Workbooks in Tableau Cloud Help.
Linked Tasks (Tableau Server and Site Administrators	Lets Server administrators enable users to schedule flow tasks to run one after the other. They can also enable users to trigger the scheduled flow tasks to run using **Run Now**.

only)	This setting can be applied at the server level to include all sites on Tableau Server. The setting can be disabled at the site level to include only specific sites. If the setting is turned off after linked tasks are scheduled, any tasks that are running will complete and the scheduled linked tasks are hidden and no longer show on the **Scheduled Tasks** tab. For more information, see Schedule Linked Tasks.
Email Settings (Tableau Server Administrators only)	Specifies the From address and message footer seen in automatic emails for alerts and subscriptions.
Site Invite Notification (Tableau Cloud only)	For sites with single-sign-on authentication, sends an invite email when new users are added to the site.
Site Logo (Tableau Cloud only)	Specifies the image that appears with the site name.
Start Page	Controls which site page appears when users sign in. By default, the Home page appears, but you can instead open All Projects, All Workbooks, or other pages. For more information, see Set the Default Start Page in Tableau Cloud Help. **Note:** If you use Tableau Server, your administrator can override this site setting.
Tableau Pulse - Deployment (Tableau Cloud only)	Controls whether Tableau Pulse is available for all users, a group of users, or no users. For more information, see Set Up Your Site for Tableau Pulse.
Tableau Pulse - Digest Schedule	The time at which Tableau Pulse starts generating digests. For more information, see Set Up Your Site for Tableau Pulse.

(Tableau Cloud only)	
AI in Tableau (Tableau Cloud only)	This section includes multiple settings that control whether generative AI is enabled for Tableau features. Some generative AI features require Tableau+ and a connection to a Salesforce org with Einstein generative AI set up. For more information about how to turn on AI in Tableau features, see Turn On AI in Tableau for Your Site. To learn more about AI in Tableau, see AI in Tableau.
Personalized Insight Ranking (Tableau Cloud only)	Controls whether users can provide thumbs-up or thumbs-down feedback on individual insights. When this setting is turned on and users provide feedback, that feedback is used by the Tableau Pulse insights platform to further personalize and rank the types of insights it shows to a user. This setting is independent of the setting to deploy Tableau Pulse. When Personalized Insight Ranking is turned off, users won't be able to submit thumbs-up or thumbs-down feedback on individual insights. For more information, see "Turn off Personalized Insight Ranking" in Set Up Your Site for Tableau Pulse.
User Visibility	Controls what user and group names are visible to other users. For more information, see Manage User Visibility in Tableau Cloud Help.
Availability of Ask Data	Controls whether Ask Data lenses are enabled or disabled for data sources. Ask Data lets users query data using conversational language and automatically see visualizations. For more information, see Automatically Build Views with Ask Data in Tableau user Help.
Availability of Explain Data	Controls whether site users with the appropriate permissions can run Explain Data and authors can access Explain Data Settings.

	For more information, see Control Access to Explain Data. To learn more about Explain Data, see Discover Insights Faster with Explain Data.
Automatic Access to Metadata about Databases and Tables	Automatically grants users certain capabilities to external assets using derived permissions. For more information, see Turn off derived permissions in Tableau Cloud Help.
Sensitive Lineage Data	Specifies whether sensitive lineage data should be obfuscated or filtered when users don't have the appropriate permissions to related metadata. For more information, see Sensitive lineage data.
Cross-Database Joins	Determines where the join process happens when joining data from multiple sources. For more information, see Combine Tables from Different Databases in Tableau user Help.
Extract Encryption at Rest (Tableau Server Administrators only)	Lets you encrypt .hyper extracts while they are stored on Tableau Server. Server administrators can enforce encryption of all extracts on their site or allow users to encrypt all extracts associated with particular published workbooks or data sources. For more information, see Extract Encryption at Rest.
Tableau Support Access (Tableau Cloud only)	Allows Tableau Support technicians access to the site to help troubleshoot support cases. By default, this feature is disabled. For more information, see Enable Support Access.
Sharing	Allows users to share items directly with other users. When an item is shared, the recipients get a notification and the item is added to their Shared with Me page. If this is not enabled, users can only copy a link to share. For more information, see Share Web Content in Tableau user Help.
Comments	Controls whether users can add remarks in a Comments side pane for each view and @mention other Tableau users to notify them via email. For more information, see Comment on Views in Tableau user Help.

Data-Driven Alerts	Lets users automatically receive emails when data reaches key thresholds. For more information, see Send Data-Driven Alerts in Tableau user Help.
Subscriptions	Lets site users subscribe to views and receive regular emails of them. On Tableau Server, these options are available only if you first configure subscription settings.
High-Visibility Data Labels in View and Workbook Subscriptions	Controls whether subscriptions include relevant upstream high visibility data quality warnings and sensitivity labels in the email. On Tableau Server, these options are available only if you first turn on and configure subscriptions. For more information on data quality warnings, see Set a Data Quality Warning. For more information on sensitivity labels, see Sensitivity Labels. Previously titled **Data Quality Warnings in Subscriptions**. **Note:** Data quality warnings and sensitivity labels are a feature of Tableau Catalog, which is part of Data Management.
Tagging	Specifies the number of tags that users can add to items. The default limit is 50 tags, and the maximum is 200. For more information, see Use Tags.
Recommendations for Views	Controls whether recommendations show on the site and whether the names of users who have looked at recommended items show on recommendation tooltips. **Note:** If you use Tableau Server, your administrator can disable Recommendations.
Request Access	Lets users send access requests to content or project owners. For more information, see Let Site Users Request Access to Content in

	Tableau Cloud Help.
Metrics Content Type	Controls whether metrics are available on the site. When you turn metrics on, users can create metrics from views and metrics appear as a content type. When turned off, metrics won't appear on the site or continue to sync. If you turn on metrics again, pre-existing metrics will reappear and resume refreshing. For more information, see "Set Up for Metrics" in Tableau Cloud Help or Tableau Server Help. **Retirement of the legacy metrics feature** Tableau's legacy metrics feature was retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. In October 2023, Tableau retired the ability to embed legacy metrics in Tableau Cloud and in Tableau Server version 2023.3. With Tableau Pulse, we've developed an improved experience to track metrics and ask questions of your data. For more information, see Create Metrics with Tableau Pulse to learn about the new experience and Create and Troubleshoot Metrics (Retired) for the retired feature.
Web Page Objects and Web Images	Controls whether these Web Page and Image objects can display target URLs. For more information, see Security for Web Page objects in Tableau user Help.
Personal Space	Allows Creator and Explorer site users to create and save content to a private Personal Space. When Personal Space is turned on, you can set user storage limits. For more information, see Create and Edit Private Content in Personal Space.
Collections	Controls whether collections are available on the site. When you turn on collections, users can create collections to organize content and browse collections made available by other users. For more information, see Organize Items in a Collection.
Site Time Zone for Extracts	The default time zone for extract-based data sources in a site is Coordinated Universal Time (UTC). Site administrators can set a

	different time zone. For more information, see Set the Site Time Zone for Extracts in Tableau Server Help or Set the Site Time Zone for Extracts in Tableau Cloud Help.
Extract Quota Limit Notifications	Sends email alerts to all site administrators when extract refresh jobs are canceled because of extract job capacity issues.
Flow Parameters	Enables users to schedule and run flows that include parameters.
(Tableau Server and Site Administrators only)	Administrators can also enable flow parameters to accept any value. If this option is enabled, any flow user can enter any value in a parameter, potentially exposing data that the user should not have access to. Starting in version 2023.2, administrators can enable system parameters that allow users to apply date or time parameters to flow output names for file and published data source output types. When the flow is run, the start time is automatically added to the flow output name. Parameters can be entered in an input step for file name and path, table name, or when using custom SQL queries, in an output step for file name and path and table name, and in any step type for filters or calculated values. Flow parameter settings can be applied at the server level to include all sites on Tableau Server. The settings can be disabled at the site level to include only specific sites. For more information about using parameters, see Create and Use Parameters in Flows in the Tableau Prep help.
Run Now	Controls who can run jobs manually using the Run Now option from the web, Rest API, and Tabcmd. By default, this option is selected to allow users to run jobs manually. Clear the check box if only

	administrators should be allowed to run jobs manually. **Note:** If you use Tableau Server, your administrator can disable this site setting.
Manage Notifications	Controls how site users can receive notifications for events such as extract jobs, flow runs, when another user shares content with them or mentions them in a comment. Notifications can be seen in their Tableau site via the notification center, sent by email, or sent to a Slack workspace. When a notification is enabled, users can configure their notification preferences on their Account Settings page. **Note:** If you use Tableau Server, your server administrator can disable this site setting.
Customize Email Notifications (Tableau Cloud only)	Controls whether email notifications for data-driven alerts and subscriptions to workbooks and views are sent using the Tableau email server or your own SMTP server. When you use your own SMTP server, you can customize the email sender's name as well as the domain used in the sender's email address and the domain for links in the notifications emails. Added for Tableau Cloud in February 2024. Separately from the SMTP settings, you can control whether the email notifications sent to users for data-driven alerts and subscriptions include links. These links direct users to your Tableau site to see the content and manage the alert or subscription. A link to unsubscribe is always included in notification emails, regardless of whether this setting is on. Added for Tableau Cloud in June 2023.
Flow Subscriptions	Controls whether flow owners can schedule and send emails with

	flow output data to themselves and others. When you allow flow subscriptions, you can control whether flow output data is included in the subscription email and whether flow output files are attached to the email. For more information, see Notify Users of Successful Flow Runs
OAuth Clients Registry	For a subset of connectors, you can register a custom OAuth client to override pre-configured OAuth client settings. By registering a custom OAuth client, you enable new and existing connections to use the custom OAuth client instead of the default OAuth client. For more information, see Configure Custom OAuth.
Personal Access Tokens (Tableau Cloud only)	Controls whether personal access tokens (PATs) creation is enabled for all users, a group of users, or no users. Also allows PATs expiration period to be customized. Changes to these settings apply only to new PATs. Existing PATs remain valid and unchanged. For more information about PATs, see Personal Access Tokens.
View Acceleration	Controls whether Creator and Explorer site users can accelerate the views in their Tableau Server workbooks for faster loading times. When you allow view acceleration, you can set a maximum number of views to be accelerated, and you can choose to automatically suspend acceleration for views that repeatedly fail the acceleration task. For more information, see View Acceleration.
Assertions for Group Membership	Enables local group membership to be controlled and managed by your SSO IdP or through a Tableau connected app by dynamically asserting group membership when a user authenticates to Tableau Cloud. Requires additional configuration in the SAML assertion, OIDC assertion, or JSON web token (JWT). For more information, see Dynamic group membership using assertions.
Group Sets	Enables the **Group Sets** page and the ability to create group sets. Group sets can be used by certain users (site admins, project owners, and content owners) to apply permission rules that require

	users to be members of all groups in the group set to access content whose permissions are dependent on the group set. For more information, see Work with Group Sets.
Recycle Bin	Controls whether Recycle Bin is turned on for a site, allowing admins and authors with Explorer (can publish) or Creator licenses to restore previously deleted projects, workbooks, and data sources for a selected period of time. For more information, see Recycle Bin.

Authentication tab (Tableau Cloud)

Setting	**Description**
Authentication Types	Specifies how users can sign in to the site, and how they access it after signing in the first time. Authentication verifies a user’s identity. For more information, see Authentication.
Default Authentication Type for Embedded Views	Specifies how users can sign in to embedded views. By default, Tableau authentication is selected.
Control User Access in Authentication Workflows	Enables user attribute functions used in embedded content to accept the passing of user attributes from a JSON Web Token (JWT). The user attributes are passed to Tableau to customize and control the data that can be shown to a user at runtime. For more information, see Embedding API v3 Help.
Automatic Provisioning and Group Synchronization (SCIM)	Allows you to manage users on the site through a third-party identity provider (IdP). When enabled, the Base URL and Secret boxes are populated with values to use in the IdP SCIM configuration. For more information, see Automate User Provisioning and Group Synchronization through an External Identity Provider.
Connected Clients	Allows Tableau clients such as Tableau Mobile, Tableau Bridge, and others to stay authenticated to the server after a user provides sign-in credentials the first time. When turned off, users are required to sign

in explicitly each time they visit Tableau Cloud. For more information, see Access Sites from Connected Clients.

Bridge tab (Tableau Cloud)

Setting	Description
Client Not Running Notifications	Sends email alerts to data source owners when a client appears to be disconnected from the site.
Pooling	Distributes live queries and refresh jobs across all clients in Bridge pools. For more information, see Configure and Manage the Bridge Client Pool.
Private Network Allowlist	Add and manage domains that enable dedicated Bridge pool access to private network data on behalf of Tableau Cloud.

Extensions tab

Setting	Description
Dashboard and Viz Extensions	Manage and control dashboard and viz extensions. Dashboard extensions are web applications that run in custom dashboard zones and can interact with the rest of the dashboard. Viz extensions are web applications that support new viz types. For more information, see "Manage Dashboard and Viz Extensions" in Tableau Cloud Help or Tableau Server Help.
Analytics Extensions	Enables a set of functions that your users can use to pass expressions to analytics extensions for integration with R and Python. For more information, see "Configure Connection with Analytics Extensions" in Tableau Cloud Help or Tableau Server Help.
Tableau Prep Extension	When authoring flows on the web, enables users to apply Einstein Discovery-powered models to their flows to bulk score predictions for their data. For more information, see Configure Einstein Discovery Integration in the

Tableau Server help.

Integrations tab

Setting	Description
Slack Connectivity	Displays connections between a Slack workspace and the Tableau site. When connected, Tableau site users can see their Tableau notifications in the connected Slack workspace. In Tableau Cloud, you can request that the Slack workspace administrator install the Tableau for Slack app, then finalize the connection once installed. For more information, see Integrate Tableau with a Slack Workspace.
Analytics Extensions	Enables a set of functions that your users can use to pass expressions to analytics extensions for integration with R and Python. For more information, see "Configure Connection with Analytics Extensions" in Tableau Cloud Help or Tableau Server Help.
Publish to Salesforce (Beta on Tableau Cloud and Tableau Server)	Allows site users to publish views to a Salesforce app. When a view is published to Salesforce, anyone with access to the selected app can see that the content exists. However, only those signed in with existing Tableau permissions can see the view. For more information, see Publish Views to Salesforce (Beta).

Connected Apps tab

Setting	Description
Connected Apps	

	Create and manage Tableau connected apps, or explicit direct trust or OAuth 2.0 trust relationship between your Tableau Cloud site and custom applications and programmatically authorize access to the Tableau REST API on users' behalf using JSON web tokens (JWTs). For more information, see Use Tableau Connected Apps for Application Integration in the Tableau Cloud Help.

Mobile tab

Setting	Description
App Lock	Requires a biometric method or device passcode for users to open this site on Tableau Mobile. For more information, see Enable App Lock for Added Security in the Tableau Mobile Deployment Guide.
Offline Previews	Controls whether offline previews are generated for display when users access the site on Tableau Mobile. For more information, see Manage Tableau Mobile Data on Devices in the Tableau Mobile Deployment Guide.
Mobile Security Policies	Some security policies are enabled automatically and cannot be disabled. Mobile security policies are not available for MAM versions of Tableau Mobile.
Jailbreak Detection	Controls whether a Tableau Mobile app user with a device that has been "jailbroken" or "rooted" is allowed to access content on Tableau, and what level of response occurs when a jailbroken or rooted device is detected. For more information, see Tableau Mobile App Security Settings.
Malware Detection (Android only)	Controls whether malware detection is enabled for mobile devices, and what level of response occurs when malware

	is detected. For more information, see Tableau Mobile App Security Settings.
Maximum Days Offline Without Policy Refresh	Controls whether there is a maximum number of days a mobile device can be offline and still use the app. For more information, see Tableau Mobile App Security Settings.
Prevent Debugging	Controls whether debuggers are prevented on mobile devices. For more information, see Tableau Mobile App Security Settings.
Screen Sharing and Screenshots (Android only)	Controls whether a Tableau Mobile user is able to take screenshots or use screen sharing while in the app. For more information, see Tableau Mobile App Security Settings.

Turn On AI in Your Tableau Cloud Site

Note: Einstein Copilot has been renamed Tableau Agent, as the platform expands to accommodate more AI agent functionality. Starting in October 2024, you'll see updates to page sections, field names, and other UI text throughout Tableau Prep, Tableau Catalog, Tableau Desktop, and Tableau Cloud Web Authoring. Help content and Trailhead modules are also being updated to reflect these changes.

AI in Tableau brings trusted Einstein generative AI capabilities to the entire Tableau platform. AI in Tableau can enhance your data analysis by suggesting steps to help you clean your data in Tableau Prep flows, creating calculations for Tableau Prep flows or when building a viz, recommending insightful questions to explore your data, summarizing key metrics, and creating compelling visualizations directly from your data sets.

AI in Tableau is powered by Einstein AI and inherits the Einstein Trust Layer and security controls. To learn more about AI in Tableau, see AI in Tableau. For general information about Einstein Generative AI, see About Einstein Generative AI in the Salesforce help.

This topic includes procedures for three different scenarios and walks you through the steps necessary to configure AI for use in Tableau Cloud in each of those scenarios. The steps you follow depend on what you are trying to do:

- **Trial customers:** If you are trying AI in Tableau with a trial, go to the instruction later in this topic: Trial Users.
- **Tableau Pulse customers:** Tableau Cloud administrators can turn on insight summaries and better semantic matching for Ask Q&A in Tableau Pulse. For details, see AI in Tableau for Tableau Pulse.
- **Tableau+ customers:** Tableau+ customers can configure Enhanced Q&A (Discover), as well as other generative AI and Tableau Agent features. These features require additional configuration steps in Salesforce and are described in Configure Tableau Cloud sites for AI.

  Beginning in version 2025.1.0, Tableau Desktop users who are signed into a Tableau Cloud site with Tableau+ and with AI enabled will be able to access Tableau Agent. For more details, see Build Views and Explore Data with Tableau Agent in the Tableau Desktop and Web Authoring Help.

  Beginning in version 2025.2, Tableau Prep users who are signed into a Tableau Cloud site with Tableau+ and with AI enabled will be able to access Tableau Agent in Tableau Prep Builder and in Tableau Cloud for Tableau Prep web authoring to help clean and transform your data. For more details about this feature, see Build Tableau Prep flows with Tableau Agent in the Tableau Prep help.

Prerequisites for Enabling AI in Tableau Cloud

Tableau Cloud customers have a couple of options for configuring generative AI in their sites. The necessary steps depend on what features you have access to and want to use.

- Tableau Pulse features such as insight summaries and better semantic matching for Ask Q&A, need to be turned on in Tableau Cloud site settings, but don't require you to log into a Salesforce org.

- Enhanced Q&A (Discover) in Tableau Pulse must be turned on in Tableau Cloud site settings, and also requires a connection to a Salesforce org. For more information, see Configure Tableau Cloud sites for AI and AI in Tableau for Tableau Pulse.

- To use generative AI with other features such as Tableau Cloud web authoring, Tableau Prep, and Tableau Catalog you must have Tableau+, and configuration is necessary in both Tableau and in Salesforce. For instructions, see Configure Tableau Cloud sites for AI. To turn on AI in Tableau for these features, you'll need the following:

  - A Tableau Cloud site with Tableau+. For more information about Tableau+, see About Tableau+

  - A Salesforce org that has Einstein generative AI set up. When you purchase Tableau+ a Salesforce org is provisioned for you if you don't already have one, but you'll need to configure it for Einstein generative AI. The instructions below walk you through this.

  - A Data Cloud instance. When you purchase Tableau+ a Data Cloud instance is provided if you do not already have one.

  - The proper permissions and credentials for Tableau and Salesforce. These are explained below.

  For complete instructions go to Configure Tableau Cloud sites for AI below.

Permissions and credentials for Tableau and Salesforce.

To connect your Salesforce Org to your Tableau Site, you'll need user credentials with the following roles and permissions:

- **Tableau**: *Tableau Cloud Site Administrator (Explorer or Creator)* role. For more information about setting this site role and its permissions, see Set Users' Site Roles.

- **Salesforce**: *Customize Application Profile* permission. For more information about this permission, see User capabilities with 'Customize Application' Profile permission in the Salesforce help.

> **Note**: When the Salesforce Org is provisioned for Tableau+ customers, the admin user that is created should already have the Customize Application permission assigned. For more information about this permission, see Custom Permissions, and Grant Permissions on Custom Settings in the Salesforce help.

Configure Tableau Cloud sites for AI

To take full advantage of generative AI in Tableau, you must make configuration changes in both Salesforce and your Tableau Cloud site. This is a multi-step process and the following procedures describe how to do this. These options are available to Tableau+ customers.

Briefly, the configuration includes two main parts, setting up Einstein generative AI in Salesforce, and then setting it up in your Tableau Cloud site. Here is an outline of these steps, followed by detailed instructions:

- Set up Einstein generative AI in Salesforce:

  Step 1: Activate your Salesforce Org.

  Step 2: Set up a Data Cloud Admin User.

  Step 3: Turn on Data Cloud.

  Step 4: Configure your Salesforce org.

- Configure AI in Tableau

Set up Einstein generative AI in Salesforce

To set up Einstein generative AI for your Salesforce org, complete the following steps.

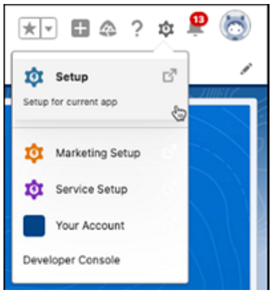
Step 1: Activate your Salesforce Org

After your purchase is completed, Salesforce will email an invitation to activate your new Salesforce Org if you do not already have one. Your activation will provision your Salesforce Org and finalize the creation of your Salesforce Org User.

> **Note**: If you provided an existing Salesforce Org to use during the quoting process, work with your Salesforce Admin to turn on Data Cloud and Einstein generative AI.

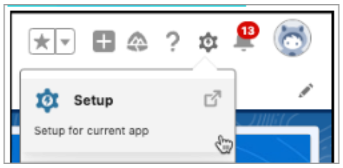
Step 2: Set up a Data Cloud Admin User

To turn on Data Cloud, you need to have the **Data Cloud Admin** permission set. If you don't see **Data Cloud Setup** in your setup menu, complete the steps in this section. Otherwise, proceed to the next section to turn on Data Cloud.

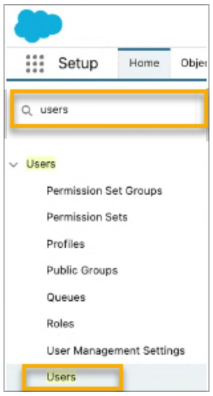

13
Setup
Setup for current app
Marketing Setup
Service Setup
Your Account
Developer Console

Add the Data Cloud Admin permission set to a user

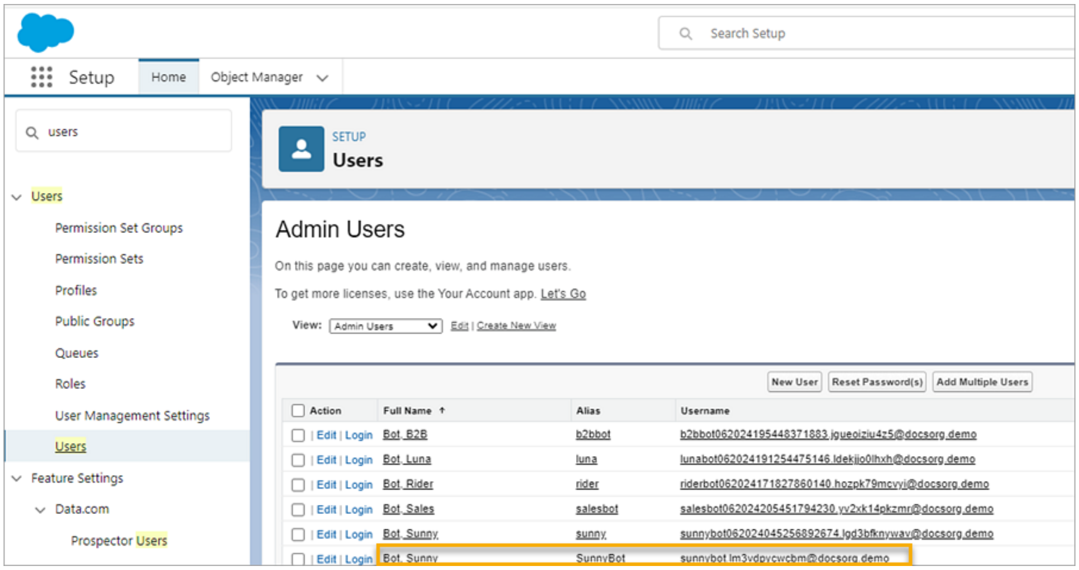
1. In the top right corner, select the **Setup** ⚙ icon.
2. Select **Setup** from the drop-down menu.


13
Setup
Setup for current app

3. In the Quick Find box, type **Users**, then select **Users** from the results.


Setup
Home
Objec
users
Users
Permission Set Groups
Permission Sets
Profiles
Public Groups
Queues
Roles
User Management Settings
Users

4. On the **Users** page, select the user who should have Data Cloud permissions. Click on the **User name**, **Alias**, or **Username** to open and edit the user profile.


Search Setup
Setup
Home
Object Manager
users
Users
Permission Set Groups
Permission Sets
Profiles
Public Groups
Queues
Roles
User Management Settings
Users
Feature Settings
Data.com
Prospector Users
SETUP
Users
New User
Reset Password(s)
Add Multiple Users

Admin Users

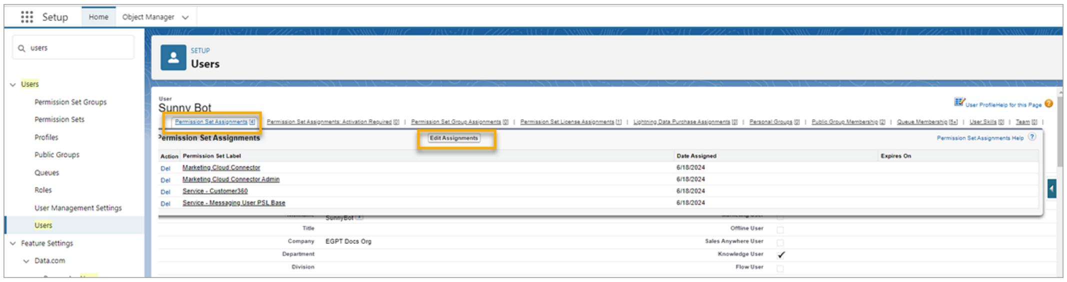
On this page you can create, view, and manage users.

To get more licenses, use the Your Account app. Let's Go

View: Admin Users Edit | Create New View

☐ Action	Full Name ↑	Alias	Username
☐ | Edit | Login	Bot, B2B	b2bbot	b2bbot062024195448371883.jgueoiziu4z5@docsorg.demo
☐ | Edit | Login	Bot, Luna	luna	lunabot062024191254475146.ldekjjo0lhxh@docsorg.demo
☐ | Edit | Login	Bot, Rider	rider	riderbot062024171827860140.hozpk79mcvyi@docsorg.demo
☐ | Edit | Login	Bot, Sales	salesbot	salesbot062024205451794230.yv2xk14pkzmr@docsorg.demo
☐ | Edit | Login	Bot, Sunny	sunny	sunnybot062024045256892674.lgd3bfknywav@docsorg.demo
☐ | Edit | Login	Bot, Sunny	SunnyBot	sunnybot.lm3vdpycwcbm@docsorg.demo

5. To view the permission sets assigned to the user, on the User profile page, hover over **Permission Set assignments**, then select **Edit Assignments**. If the user is already assigned the **Data Cloud Admin** or **Data Cloud Marketing Admin** permission set, it would be shown in the first 5 permission sets.

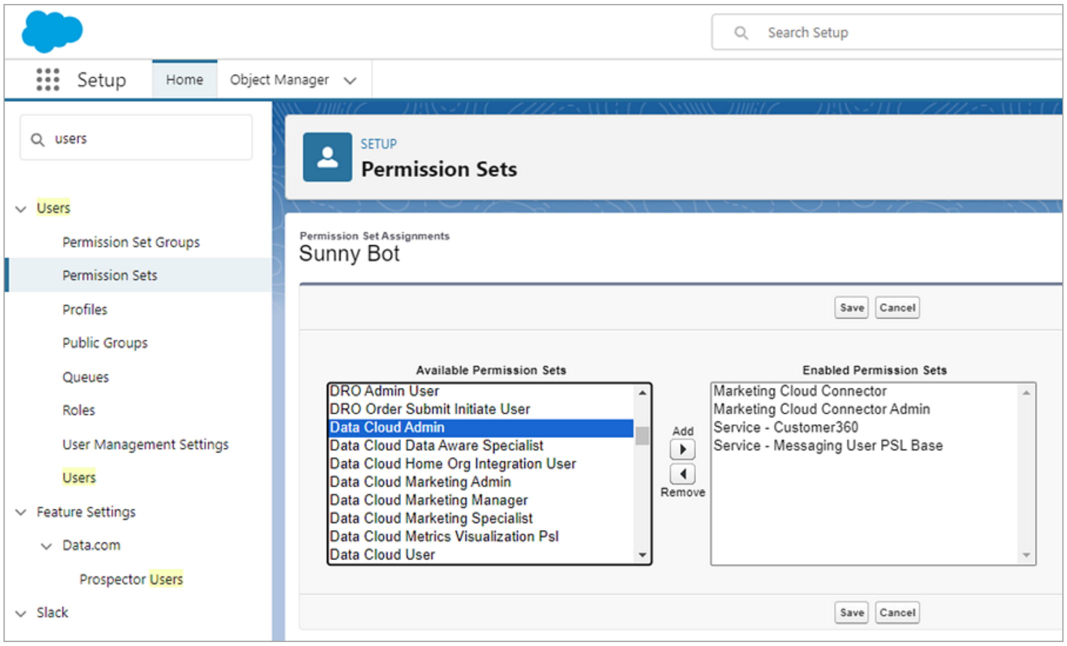

Setup
Home
Object Manager
users
Users
Permission Set Groups
Permission Sets
Profiles
Public Groups
Queues
Roles
User Management Settings
Users
Feature Settings
Data.com
SETUP
Users
User
Sunny Bot
Permission Set Assignments [4]
Permission Set Assignments: Activation Required [0]
Permission Set Group Assignments [0]
Permission Set License Assignments [1]
Lightning Data Purchase Assignments [0]
Personal Groups [0]
Public Group Membership [2]
Queue Membership [5+]
User Skills [0]
Team [0]
User ProfileHelp for this Page
Edit Assignments
Permission Set Assignments Help

Permission Set Assignments

Action	Permission Set Label	Date Assigned	Expires On
Del	Marketing Cloud Connector	6/18/2024	
Del	Marketing Cloud Connector Admin	6/18/2024	
Del	Service - Customer360	6/18/2024	
Del	Service - Messaging User PSL Base	6/18/2024	

Title		Offline User	☐
Company	EGPT Docs Org	Sales Anywhere User	☐
Department		Knowledge User	✓
Division		Flow User	☐

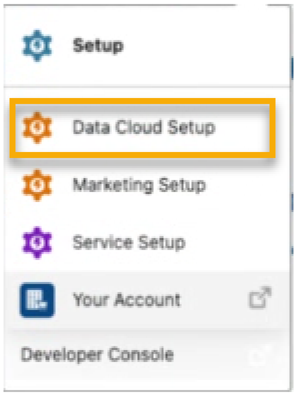
6. In the **Permission Sets** page, select the **Data Cloud Admin** permission in the **Available Permission Sets** then select the **Add** arrow to add it to the **Enabled Permissions Sets**. Then select **Save**.


Search Setup
Setup
Home
Object Manager
users
Users
Permission Set Groups
Permission Sets
Profiles
Public Groups
Queues
Roles
User Management Settings
Users
Feature Settings
Data.com
Prospector Users
Slack
SETUP
Permission Sets
Save
Cancel
Add
Remove
Save
Cancel

Permission Set Assignments
Sunny Bot

Available Permission Sets	Enabled Permission Sets
DRO Admin User	Marketing Cloud Connector
DRO Order Submit Initiate User	Marketing Cloud Connector Admin
Data Cloud Admin	Service - Customer360
Data Cloud Data Aware Specialist	Service - Messaging User PSL Base
Data Cloud Home Org Integration User	
Data Cloud Marketing Admin	
Data Cloud Marketing Manager	
Data Cloud Marketing Specialist	
Data Cloud Metrics Visualization Psl	
Data Cloud User	

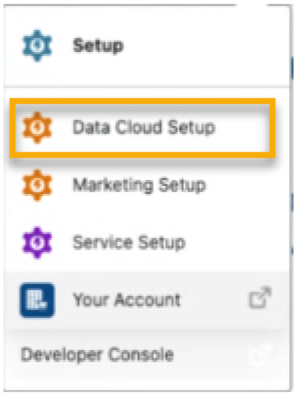
You should now see **Data Cloud Setup** in the **Setup** menu.


Setup
Data Cloud Setup
Marketing Setup
Service Setup
Your Account
Developer Console

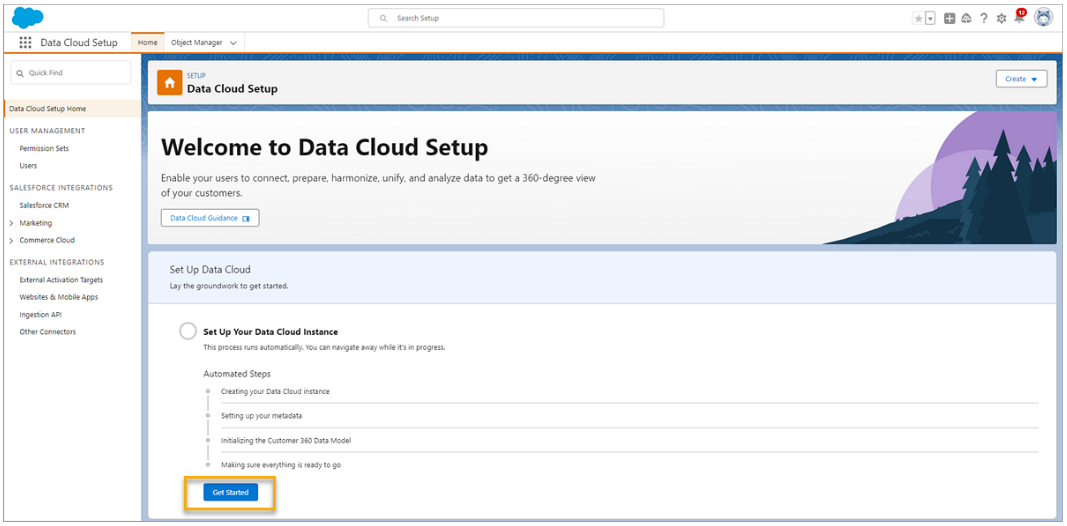
Step 3: Turn on Data Cloud

Enable Data Cloud in your provisioned Salesforce org. Users must have the **Data Cloud Admin** permission set assigned to enable Data Cloud. For more information about setting up Data Cloud in Salesforce, see Setup and Maintain in the Salesforce help.

1. Log in to your Salesforce org in Salesforce.
2. In the top right corner, select the **Setup** ⚙ icon.
3. Select **Data Cloud Setup** from the drop-down menu. If you don't see this option, your users might not have Data Cloud permissions set up. If this is the case, follow the steps in Step 2: Set up a Data Cloud Admin User.


Setup
Data Cloud Setup
Marketing Setup
Service Setup
Your Account
Developer Console

4. On the Data Cloud Setup page, in the bottom left hand corner, select **Get Started** to begin provisioning your org’s Data Cloud. This may take a few minutes.


Search Setup
Data Cloud Setup
Home
Object Manager
Quick Find
Data Cloud Setup Home
USER MANAGEMENT
Permission Sets
Users
SALESFORCE INTEGRATIONS
Salesforce CRM
Marketing
Commerce Cloud
EXTERNAL INTEGRATIONS
External Activation Targets
Websites & Mobile Apps
Ingestion API
Other Connectors
SETUP
Data Cloud Setup
Create
Data Cloud Guidance
Get Started

Welcome to Data Cloud Setup

Enable your users to connect, prepare, harmonize, unify, and analyze data to get a 360-degree view of your customers.

Set Up Data Cloud

Lay the groundwork to get started.

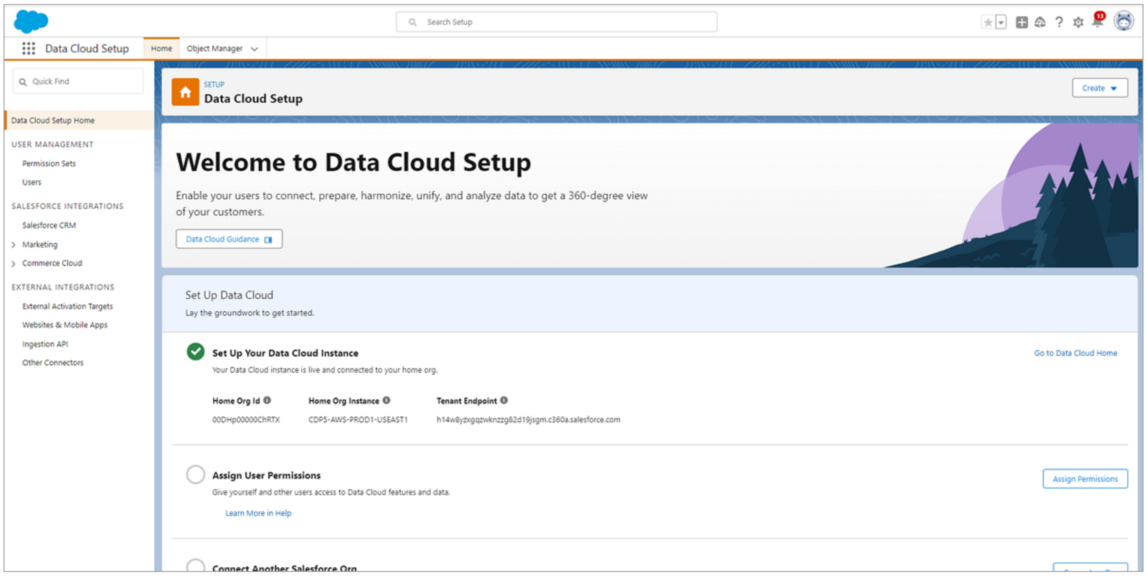
○ **Set Up Your Data Cloud Instance**

This process runs automatically. You can navigate away while it's in progress.

Automated Steps

- Creating your Data Cloud instance
- Setting up your metadata
- Initializing the Customer 360 Data Model
- Making sure everything is ready to go

The process runs automatically. Once complete your page will look similar to the page below.


Search Setup
Data Cloud Setup
Home
Object Manager
Quick Find
Data Cloud Setup Home
USER MANAGEMENT
Permission Sets
Users
SALESFORCE INTEGRATIONS
Salesforce CRM
Marketing
Commerce Cloud
EXTERNAL INTEGRATIONS
External Activation Targets
Websites & Mobile Apps
Ingestion API
Other Connectors
SETUP
Data Cloud Setup
Create
Data Cloud Guidance
Go to Data Cloud Home
Assign Permissions
Learn More in Help

Welcome to Data Cloud Setup

Enable your users to connect, prepare, harmonize, unify, and analyze data to get a 360-degree view of your customers.

Set Up Data Cloud

Lay the groundwork to get started.

✓ **Set Up Your Data Cloud Instance**

Your Data Cloud instance is live and connected to your home org.

Home Org Id	Home Org Instance	Tenant Endpoint
00DHp00000ChRTX	CDP5-AWS-PROD1-USEAST1	h14w8yzxgqzwknzzg82d19jsgm.c360a.salesforce.com

○ **Assign User Permissions**

Give yourself and other users access to Data Cloud features and data.

○ **Connect Another Salesforce Org**

Step 4: Configure your Salesforce org

Set up your Salesforce org to turn on Einstein generative AI. Data Cloud setup must be complete before you can turn on the Einstein Trust Layer, set up data masking and turn on

Einstein generative AI data collection and storage.

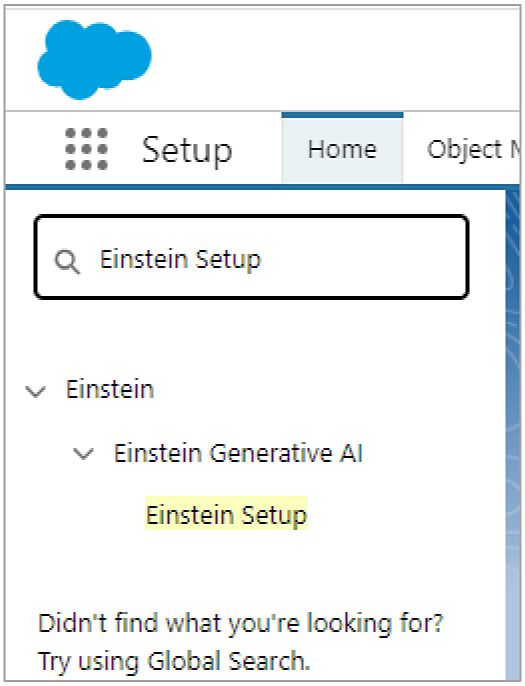
You'll need to do the following:

- Turn on Einstein Generative AI to sync Einstein and Data Cloud and use generative AI features.
- Set up Einstein Trust and set up data masking for Personally Identifying Information (PII).
- Turn on Einstein Generative AI data collection and storage to store your Einstein generative AI audit and feedback data in Data Cloud.

For more information, see Set Up Einstein Generative AI in the Salesforce help.

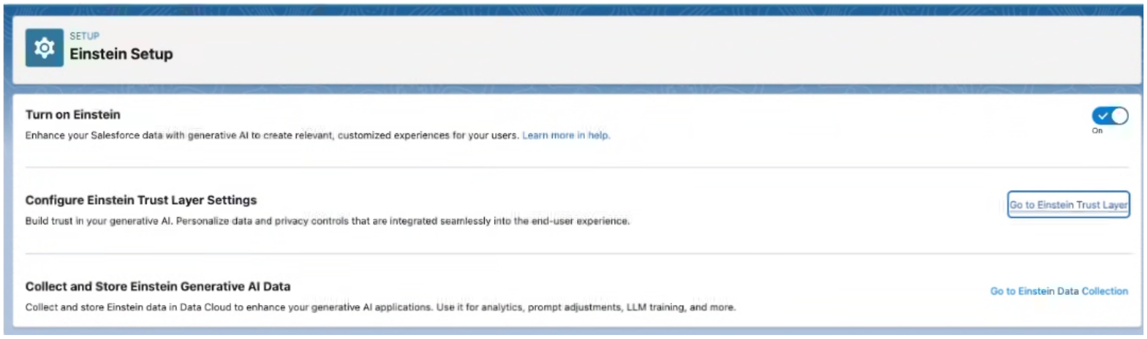
Turn on Einstein

1. In your Salesforce Org, if you aren't already in the **Setup** pages, select the **Setup** ⚙ icon in the top right corner of the page. The select Setup from the drop-down menu.
2. In the Setup Quick Find box, type **Einstein Setup**, then select **Einstein Setup** from the results.


Setup
Home
Object M
Einstein Setup
Einstein
Einstein Generative AI
Einstein Setup

Didn't find what you're looking for?
Try using Global Search.

3. Enable **Turn on Einstein**.


SETUP
Einstein Setup
On
Go to Einstein Trust Layer
Go to Einstein Data Collection

Turn on Einstein

Enhance your Salesforce data with generative AI to create relevant, customized experiences for your users. Learn more in help.

Configure Einstein Trust Layer Settings

Build trust in your generative AI. Personalize data and privacy controls that are integrated seamlessly into the end-user experience.

Collect and Store Einstein Generative AI Data

Collect and store Einstein data in Data Cloud to enhance your generative AI applications. Use it for analytics, prompt adjustments, LLM training, and more.

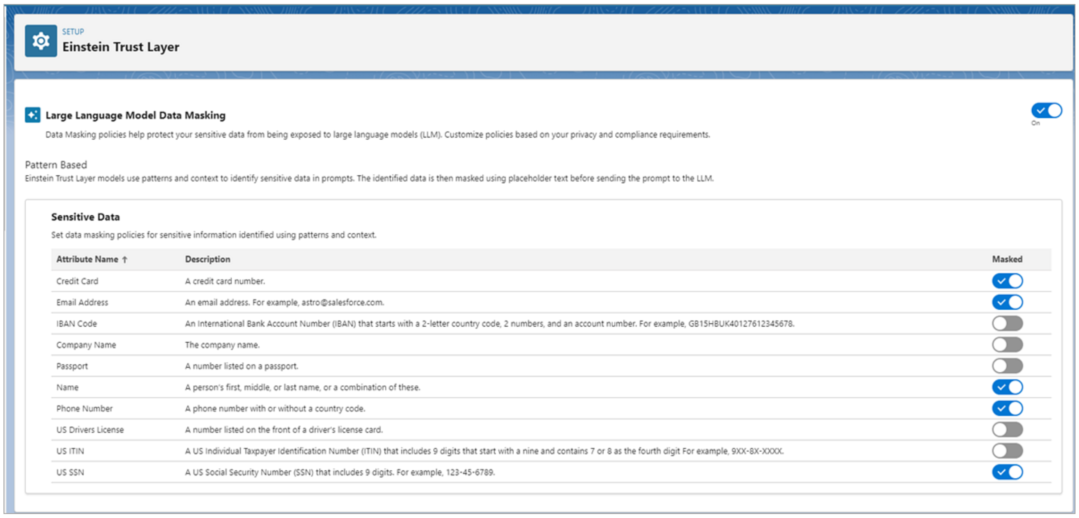
Set up the Einstein Trust Layer

Build trust in your generative AI. Use the Einstein Trust Layer to personalize data privacy controls that are integrated into the end-user experience.

> **Note**: Data Cloud setup must be complete before you can turn on the Einstein Trust Layer and configure data masking.

1. In the Einstein Setup page, select **Go to Einstein Trust Layer**.

2. In the **Einstein Trust Layer** page, turn on **Large Language Model Data Masking** and set the masking options for your organization.



SETUP

Einstein Trust Layer

Large Language Model Data Masking ✓ On

Data Masking policies help protect your sensitive data from being exposed to large language models (LLM). Customize policies based on your privacy and compliance requirements.

Pattern Based

Einstein Trust Layer models use patterns and context to identify sensitive data in prompts. The identified data is then masked using placeholder text before sending the prompt to the LLM.

Sensitive Data

Set data masking policies for sensitive information identified using patterns and context.

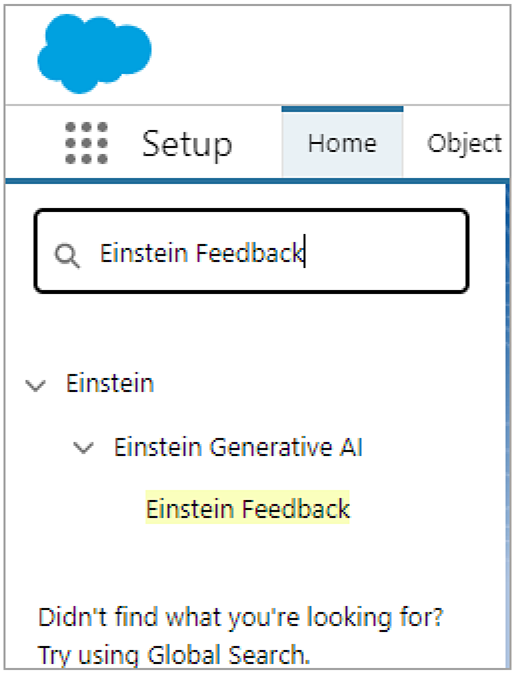
Attribute Name ↑	Description	Masked
Credit Card	A credit card number.	✓
Email Address	An email address. For example, astro@salesforce.com.	✓
IBAN Code	An International Bank Account Number (IBAN) that starts with a 2-letter country code, 2 numbers, and an account number. For example, GB15HBUK40127612345678.	○
Company Name	The company name.	○
Passport	A number listed on a passport.	○
Name	A person's first, middle, or last name, or a combination of these.	✓
Phone Number	A phone number with or without a country code.	✓
US Drivers License	A number listed on the front of a driver's license card.	○
US ITIN	A US Individual Taxpayer Identification Number (ITIN) that includes 9 digits that start with a nine and contains 7 or 8 as the fourth digit For example, 9XX-8X-XXXX.	○
US SSN	A US Social Security Number (SSN) that includes 9 digits. For example, 123-45-6789.	✓

Turn on Einstein Generative AI data collection and storage

Track the use of generative AI in your Salesforce org and ensure that AI usage complies with your security, privacy, regulatory, and AI governance policies.

Note: Data Cloud setup must be complete before you can turn on Einstein generative AI data collection and storage.

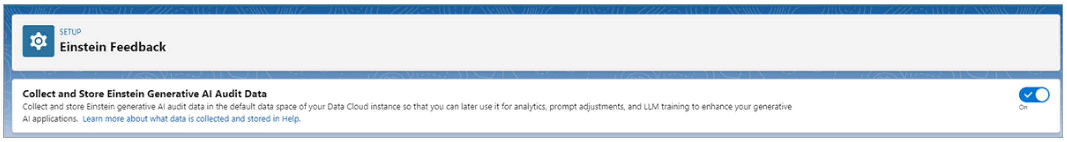
1. In the Setup Quick Find box, type **Einstein Feedback**, then select **Einstein Feedback** from the results.



Einstein Feedback

Didn't find what you're looking for?
Try using Global Search.

2. In the Einstein Feedback page, turn on **Collect and Store Einstein Generative AI Audit Data**. It can take a few hours before Einstein Generative AI audit data is available in Data Cloud.



Collect and Store Einstein Generative AI Audit Data

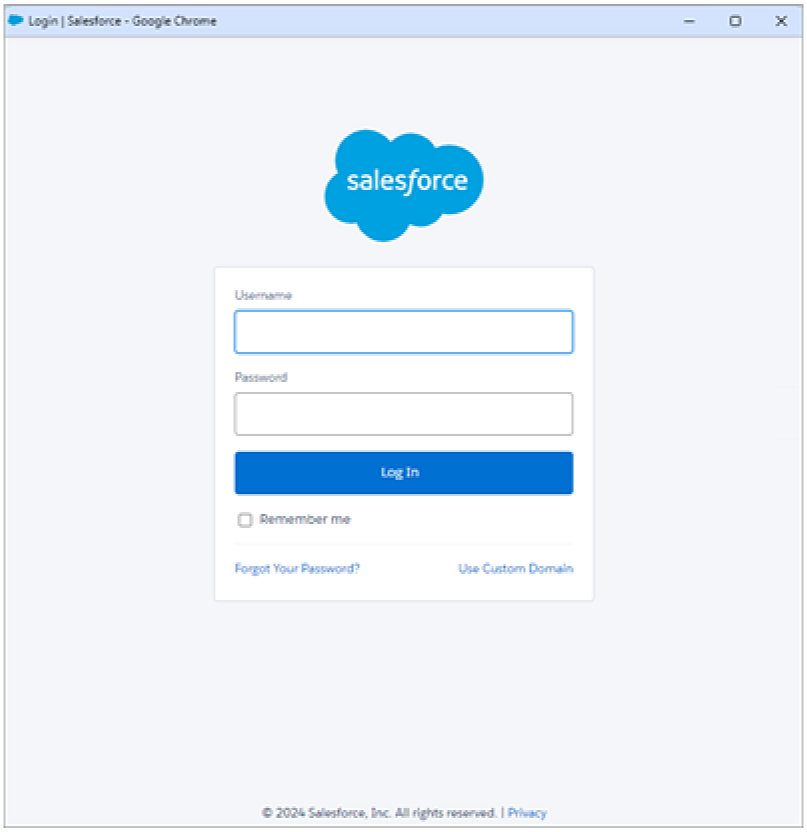
Collect and store Einstein generative AI audit data in the default data space of your Data Cloud instance so that you can later use it for analytics, prompt adjustments, and LLM training to enhance your generative AI applications. Learn more about what data is collected and stored in Help.

Configure AI in Tableau

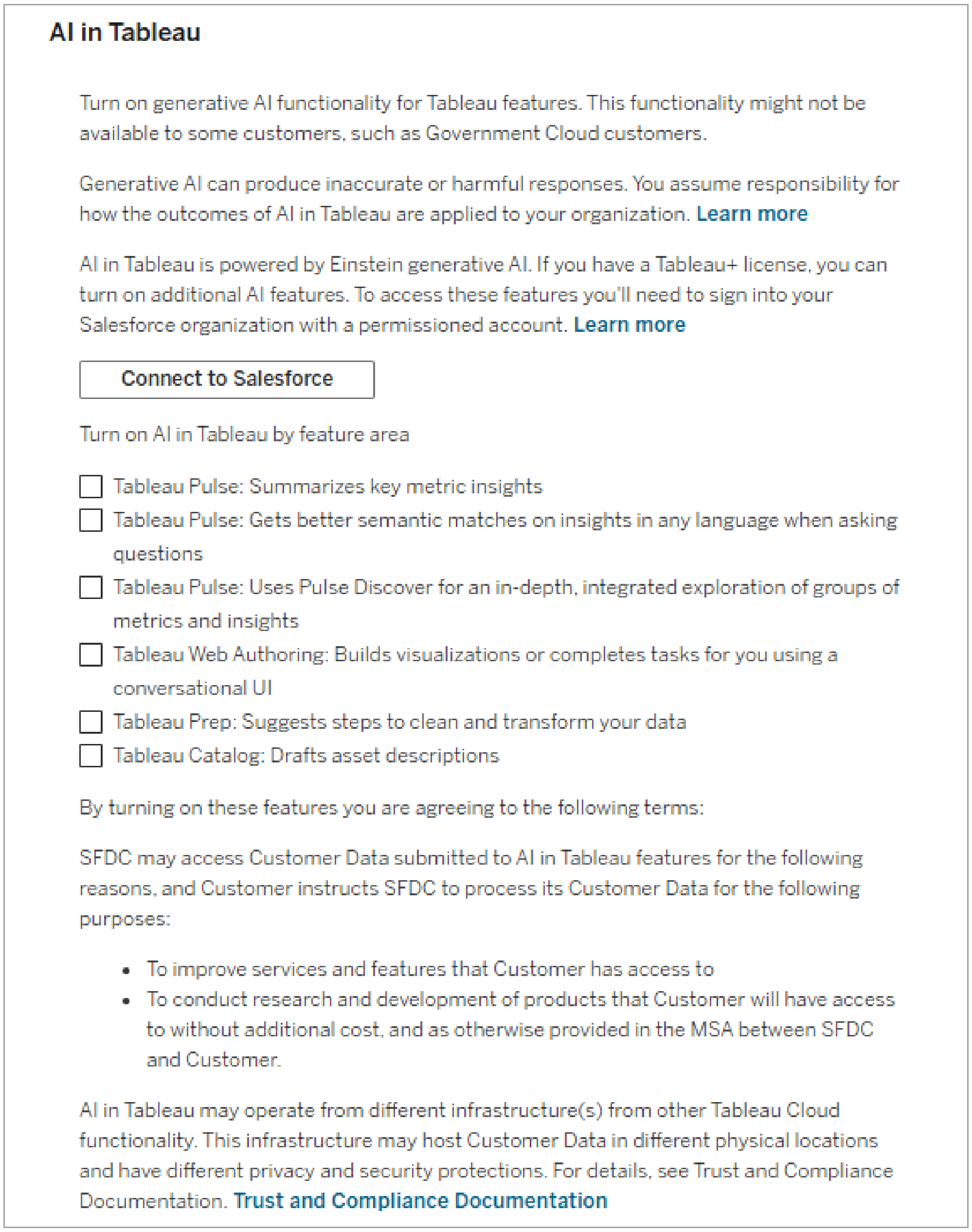
Turn on generative AI functionality for specific features in Tableau Cloud by following the procedures below.

Note: This feature uses generative AI, which is built on the Einstein Trust Layer. Your data stays safe and secure through data and privacy controls that are seamlessly integrated into the user experience. For more information, see Einstein Trust Layer.

1. Sign in to Tableau Cloud as a site administrator.
2. On the site where you want to turn on generative AI features, select **Settings**.
3. (Optional) Under AI in Tableau, turn on insight summaries and better semantic matching. These capabilities don't require a Salesforce org.
4. Log in to your Salesforce org.
    - Select **Connect to Salesforce**.
    - On the **Login|Salesforce** page, enter credentials for your Salesforce org.
        - Your User Id must be assigned the **Customize Application Profile** permission. For more information, see User capabilities with 'Customize Application' Profile permission in the Salesforce help.
        - Your Salesforce org must have Einstein generative AI turned on so that you have access to Einstein generative AI and Einstein Requests credits. For more information about Einstein Requests, see AI in Tableau Usage.


Login | Salesforce - Google Chrome
salesforce
Username
Password
Log In
☐ Remember me
Forgot Your Password?
Use Custom Domain
© 2024 Salesforce, Inc. All rights reserved. | Privacy

- On the **Allow Access** page, select **Allow**.
- After successfully connecting to your Salesforce org, the check boxes for the additional AI in Tableau features become enabled. You can also edit, test, or delete your connection as needed.



AI in Tableau

Turn on generative AI functionality for Tableau features. This functionality might not be available to some customers, such as Government Cloud customers.

Generative AI can produce inaccurate or harmful responses. You assume responsibility for how the outcomes of AI in Tableau are applied to your organization. Learn more

AI in Tableau is powered by Einstein generative AI. If you have a Tableau+ license, you can turn on additional AI features. To access these features you'll need to sign into your Salesforce organization with a permissioned account. Learn more

Turn on AI in Tableau by feature area

- ☐ Tableau Pulse: Summarizes key metric insights
- ☐ Tableau Pulse: Gets better semantic matches on insights in any language when asking questions
- ☐ Tableau Pulse: Uses Pulse Discover for an in-depth, integrated exploration of groups of metrics and insights
- ☐ Tableau Web Authoring: Builds visualizations or completes tasks for you using a conversational UI
- ☐ Tableau Prep: Suggests steps to clean and transform your data
- ☐ Tableau Catalog: Drafts asset descriptions

By turning on these features you are agreeing to the following terms:

SFDC may access Customer Data submitted to AI in Tableau features for the following reasons, and Customer instructs SFDC to process its Customer Data for the following purposes:

- To improve services and features that Customer has access to
- To conduct research and development of products that Customer will have access to without additional cost, and as otherwise provided in the MSA between SFDC and Customer.

AI in Tableau may operate from different infrastructure(s) from other Tableau Cloud functionality. This infrastructure may host Customer Data in different physical locations and have different privacy and security protections. For details, see Trust and Compliance Documentation. Trust and Compliance Documentation

5. Select **Tableau Pulse: Uses Pulse Discover for an in-depth, integrated exploration of groups of metrics and insights** to enable users to explore groups of metrics using Enhanced Q&A (Discover). Discover uses statistical algorithms to examine grouped metrics and surface insights that are relevant, interesting, and worth

investigating. For more information about this feature, see Turn on enhanced Q&A (Discover) in Tableau.

6. Select **Tableau Web Authoring: Builds visualizations or completes tasks for you using a conversational UI** to enable users to create visualizations and create and understand calculations with the assistance of Tableau Agent in Tableau Cloud web authoring and in Tableau Desktop (version 2025.1 and later). For more information about Tableau Agent, see Explore Your Data with Tableau Agent.

7. Select **Tableau Prep: Suggests steps to clean and transform your data**: Enables users to use Tableau Agent to help them clean their data, create calculated fields, and build flows. This feature is available in Tableau Prep web authoring in Tableau Cloud and in Tableau Prep Builder (version 2025.2 and later). For more information about Tableau Agent in Tableau Prep, see Build Tableau Prep flows with Tableau Agent.

8. Select **Tableau Catalog: Drafts asset descriptions** to enable users to automatically generate descriptions for data sources, workbooks, and tables. For more information about generative AI in Tableau Catalog, see Manage Web Content.

Trial Users

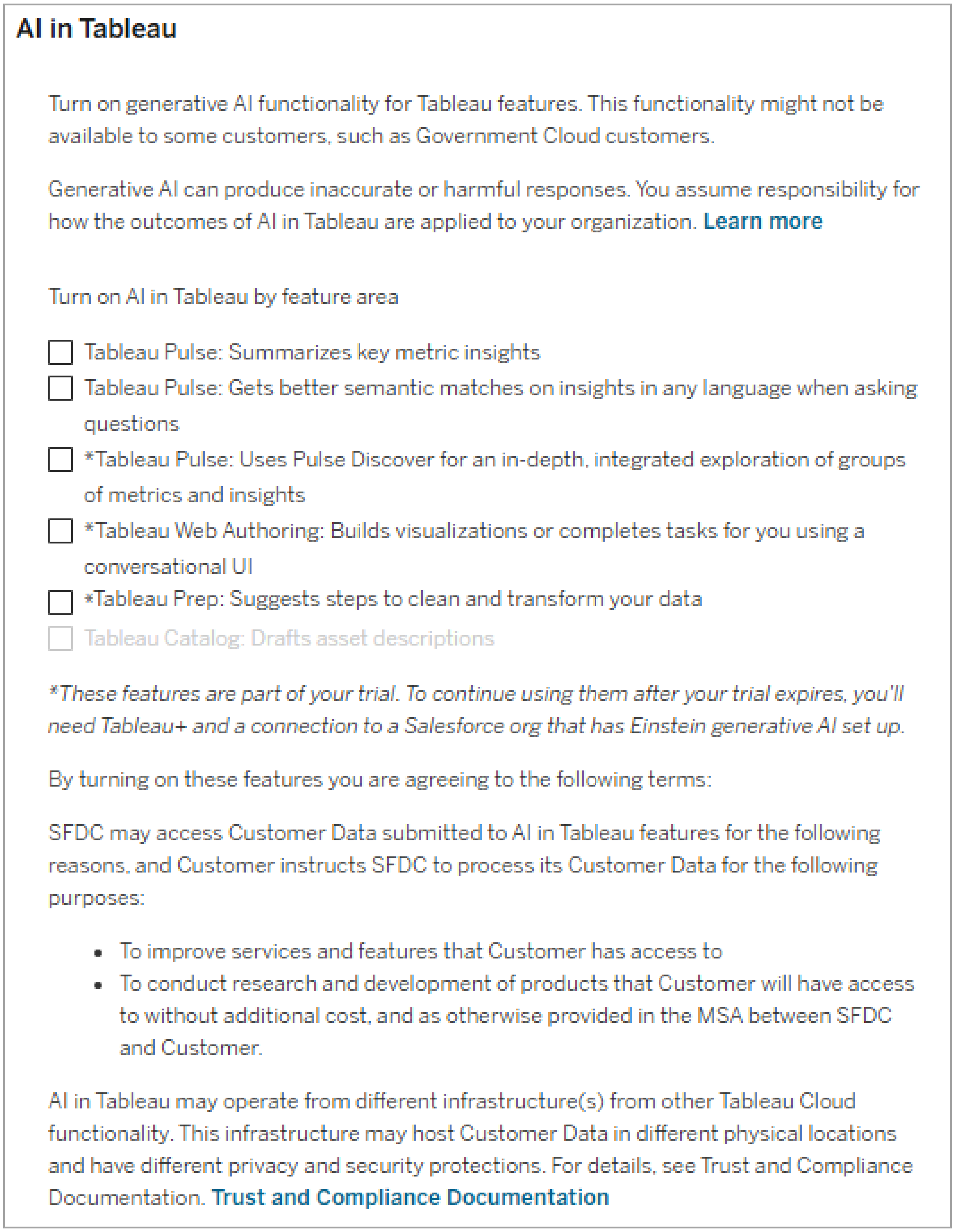
If you'd like to try AI in Tableau, you can sign up for a Tableau Cloud free trial. This includes Tableau Pulse insight summaries and enhanced Q&A (Discover), and the Tableau Agent features in web authoring, Tableau Desktop (version 2025.1 and later), and Tableau Prep Builder (version 2025.2 and later). Simply fill out this form, or contact your Account Executive to get started. Once you sign up, you will receive access to a new Tableau Cloud site. You can't add a trial of Tableau Agent to an existing site.

As a trial user, most of the configuration is taken care of for you and you can turn on AI features for Tableau Cloud Web Authoring and Tableau Prep. While requests are free with the trial, limits may apply to the number of requests you can make per hour. The following options are not available when using the trial experience:

- Tableau Agent in Tableau Catalog
- Customized data masking
- Audit trail in Data Cloud

To start using AI in Tableau complete the following steps:

1. Sign into your trial Tableau Cloud Site as a site administrator.
2. Select **Settings**.
3. In the **AI in Tableau** section, select the check boxes for the feature areas where you want generative AI turned on.



AI in Tableau

Turn on generative AI functionality for Tableau features. This functionality might not be available to some customers, such as Government Cloud customers.

Generative AI can produce inaccurate or harmful responses. You assume responsibility for how the outcomes of AI in Tableau are applied to your organization. **Learn more**

Turn on AI in Tableau by feature area

☐ Tableau Pulse: Summarizes key metric insights
☐ Tableau Pulse: Gets better semantic matches on insights in any language when asking questions
☐ *Tableau Pulse: Uses Pulse Discover for an in-depth, integrated exploration of groups of metrics and insights
☐ *Tableau Web Authoring: Builds visualizations or completes tasks for you using a conversational UI
☐ *Tableau Prep: Suggests steps to clean and transform your data
☐ Tableau Catalog: Drafts asset descriptions

These features are part of your trial. To continue using them after your trial expires, you'll need Tableau+ and a connection to a Salesforce org that has Einstein generative AI set up.

By turning on these features you are agreeing to the following terms:

SFDC may access Customer Data submitted to AI in Tableau features for the following reasons, and Customer instructs SFDC to process its Customer Data for the following purposes:

- To improve services and features that Customer has access to
- To conduct research and development of products that Customer will have access to without additional cost, and as otherwise provided in the MSA between SFDC and Customer.

AI in Tableau may operate from different infrastructure(s) from other Tableau Cloud functionality. This infrastructure may host Customer Data in different physical locations and have different privacy and security protections. For details, see Trust and Compliance Documentation. **Trust and Compliance Documentation**

4. Select from the following options:

- **Tableau Pulse: Summarizes key metric insights**: Enable users to see their personalized insights summaries and get a quick overview of important changes to their metrics. For more information about generative AI in Tableau Pulse, see AI in Tableau for Tableau Pulse.
- **Tableau Pulse: Uses Pulse Discover for an in-depth, integrated exploration of groups of metrics and insights**: Enable users to explore groups of metrics using Enhanced Q&A (Discover) and surface insights that are relevant, interesting, and worth investigating. For more information about this feature, see Turn on enhanced Q&A (Discover) in Tableau.
- **Tableau Web Authoring: Builds visualizations or completes tasks for you using a conversational UI**: Enable users to create visualizations and create and understand calculations with the assistance of Tableau Agent. For more information about Tableau Agent in Tableau Cloud web authoring, see Explore Your Data with Tableau Agent.
- **Tableau Prep: Suggests steps to clean and transform your data**: Enables users to use Tableau Agent to help them clean their data, create calculated fields, and build flows. This feature is available in Tableau Prep web authoring in Tableau Cloud and in Tableau Prep Builder (version 2025.2 and later). For more information about Tableau Agent in Tableau Prep, see Build Tableau Prep flows with Tableau Agent.

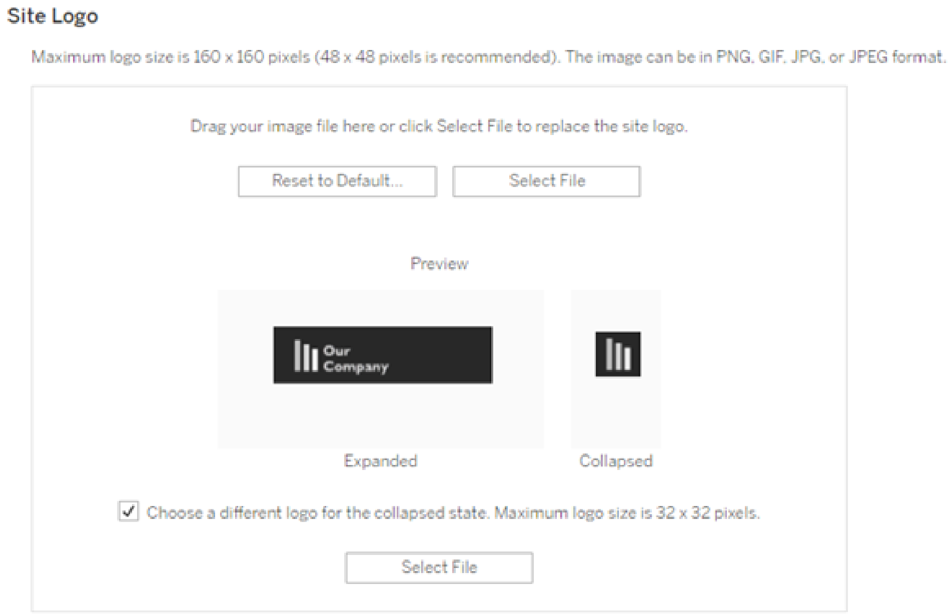
5. Navigate to a Tableau Prep flow or Tableau workbook and select the Tableau Agent icon to open the Tableau Agent pane and type a request. In Tableau Prep Builder, users must be signed into the Cloud site with AI in Tableau turned on to see the icon.

Important: To use AI in Tableau in your production site after your trial expires, you'll need to purchase Tableau+, connect to a Salesforce org that has Einstein generative AI set up, and complete the configuration steps described above in this topic.

Upload a Custom Logo for your Site

To incorporate brand identity into your site header, you can change the Tableau logo to your own logo.

1. Sign in to Tableau Cloud as a site administrator.
2. On the site you want to show your logo, click **Settings**.
3. In the **Site Logo** section, do either of the following:
    - Drag the image file from your computer to the area indicated on the **Settings** page.



Site Logo

Maximum logo size is 160 x 160 pixels (48 x 48 pixels is recommended). The image can be in PNG, GIF, JPG, or JPEG format.

Drag your image file here or click Select File to replace the site logo.

☑ Choose a different logo for the collapsed state. Maximum logo size is 32 x 32 pixels.

- Click **Select File** to open a dialog box where you can browse to and select the image file.

The preview area updates to show how your image will look in the space provided in the header.

4. (Optional) If your logo doesn’t fit quite right in the available space, and you want to make adjustments outside of Tableau before uploading it, you can do either of the following:
    - Click **Reset to Default** to show the original Tableau logo.
    - Click **Revert** to go back to the last saved settings. This is useful if you already have a custom logo in place but want to try a different one.
5. Click **Save**.

Image file tips

- The recommended image size is 48 x 48 pixels, up to 160 x 160 pixels (the maximum).
- Images that have a transparent background and light colors work best against the near-black background of the Tableau Cloud site.

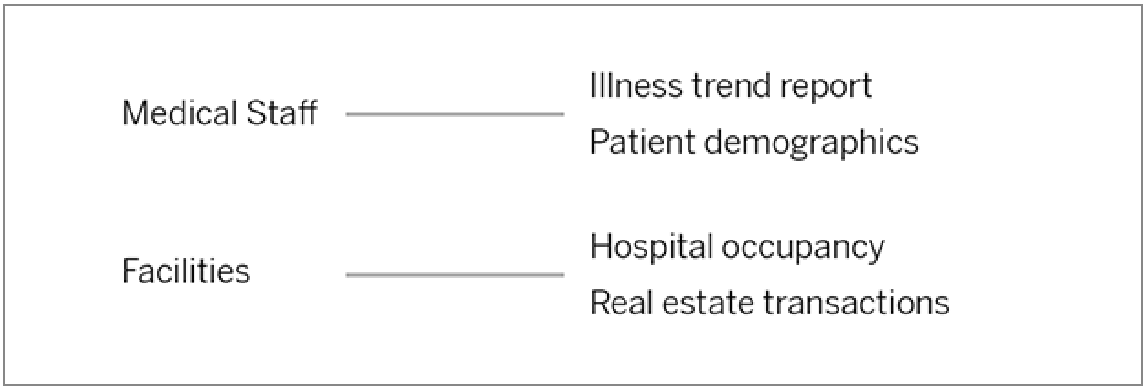
Dashboard-based Custom Portals

> **Note:** This overview was inspired by the work of Tableau Visionary Mark Jackson. For more details about the process, check out Mark's blog.

The standard Tableau Cloud or Tableau Server interface works great for many organizations, but if you want to create a company-branded experience and don't have API developer skills, consider creating a custom portal based on a Tableau dashboard. A custom portal lets you organize content around specific departments or job roles, and you can even incorporate training that helps people interact with data more fully. As the volume of Tableau content grows, a custom portal guides your users directly to the data they need, while providing ready access to related views and Tableau Cloud search so they can easily explore further.

Sketch out a portal design

Begin outside of Tableau, on paper or in a wireframing application. Consider the structure of your organization and the number of Tableau views that apply to each group of users. Do you simply need one level of navigation that points immediately to content? Or might you need to start with a main page that provides navigational links for separate groups of users or report types, followed by a second level with related dashboards and views?


Medical Staff
Illness trend report
Patient demographics
Facilities
Hospital occupancy
Real estate transactions

After you get buy-in on your design from key stakeholders and data consumers, you're ready to move on to the next phase.

Gather images for logos and navigation elements

Start thinking about images while refining your initial mockup, and then gather them from libraries of clip-art or approved brand graphics, or create them from scratch in an application like Photoshop or SnagIt. PowerPoint can also be a good source if you plan to create navigation thumbnails of common chart types.

Health Group

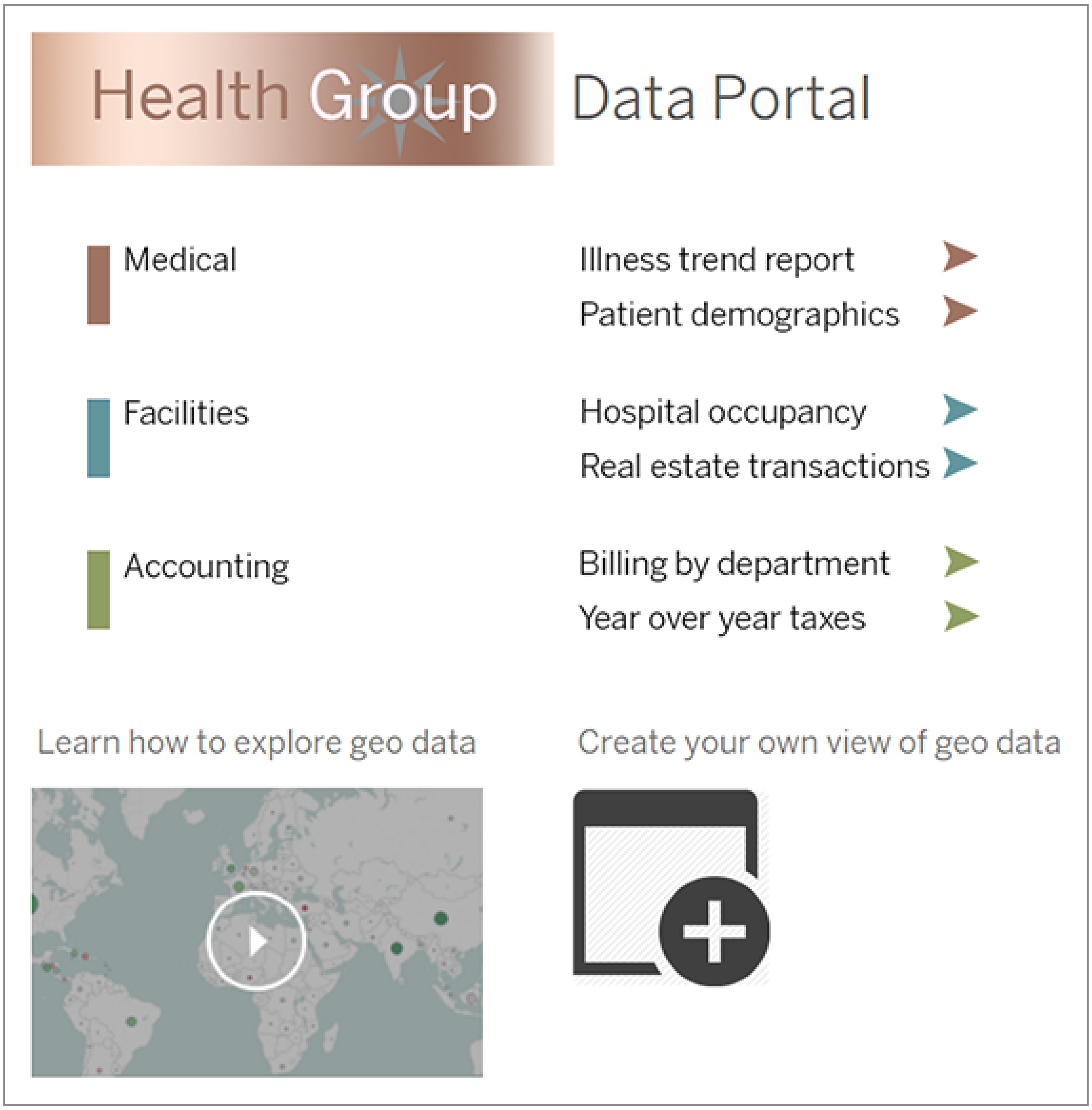
Lay out text, images, and selected sheets on a dashboard

Create a workbook with a dashboard for the portal, using a tiled layout for more predictable positioning and scaling of elements on different devices. Then start adding Text and Image objects, as well as any sheets for data views you want to highlight right up front in your portal. To refine spacing between these dashboard elements, insert Blank objects and adjust their size. For more information, see Create a Dashboard.

Link dashboard elements to content

If you have a second level of navigation in your portal, use filter actions to point to a secondary dashboard from the main one. To create links that directly open data views, right-click Image objects and choose Set URL. (In our example below, each colored arrow and accompanying text is an image that links to a view URL.) You can even point to empty views with preloaded data sources, encouraging users to create new Tableau content in the web-authoring workspace.

Tip: To add hyperlinks to text objects, include the full URL (for example, `http://www.tableau.com`).


Health Group
Data Portal
Medical
Illness trend report
Patient demographics
Facilities
Hospital occupancy
Real estate transactions
Accounting
Billing by department
Year over year taxes
Learn how to explore geo data
Create your own view of geo data

Publish, test, and refine your portal

Publish the workbook to your server and distribute the dashboard URL to your users. Portal design, like data analysis itself, is a cyclical process. Now that your portal is out in the wild, start gathering user feedback so you can continuously improve the experience

Tip: As a finishing touch, hide the Tableau toolbar to give your portal a custom feel. After the question mark at the end of the dashboard URL, add `:embed=y&amp;:toolbar=n`

Set the Default Start Page for All Users

In a new site, when users sign in to the Tableau Cloud web authoring environment, they are taken to the Home screen, which displays a role-based welcome banner. Home also displays recent views, favorites, and the site's most-viewed content. As the administrator, you can change users' default landing page at the site level. For example, you can show all workbooks, and when the user signs in, they see the workbooks they have access to.

To set the default start page for all users

1. Display the page or filtered view you want to be the default page users see when they sign in to the site.
2. Select your profile icon in the upper right area of the page.
3. To set the start page for all users on a site, click **Set as Start Page** and **For Users on this Site**.

User-set start pages and hierarchy

Users can set their own start pages from their profile icon, and can reset their start pages in their account settings (for information, search for "Access Your Profile and Account Settings" in the online Tableau Server Help for your operating system).

If a user sets their own start page, it will override any start page set for the site. The next time that user signs into Tableau Cloud, they will land on the start page that they've set. If neither a user or an administrator has set a start page, users will default to Home.

Change Time Settings

There are a couple of time-related configurations you might make when working with Tableau Cloud.

Set the site time zone for extracts

The default time zone for extract-based data sources in a site is Coordinated Universal Time (UTC). Site administrators can set a different time zone.

To set the site time zone for extracts:

1. Sign in to Tableau as an administrator.
2. On the site you want to configure, click `Settings`.
3. In the `Site Time Zone for Extracts` section, select a time zone and then click `Save`.

In calculated fields, functions such as NOW() or TODAY() look at the time zone. For more information about Extracts, see Extract Your Data in the Tableau Desktop help.

The timezone setting, in addition to being used for extract-based data sources, also affects internal extracts. For example, when Tableau connects to file-based data sources like text files, an extract is automatically created internally. Similarly, this happens where Tableau uses an internal extract to integrate data from different sources.

Synchronize your computer clock with UTC

Timestamps displayed across your Tableau Cloud site is in Coordinated Universal Time (UTC) of the pod that your site is deployed to. To ensure the time on your computer matches the time used by your site, you can synchronize your computer's system clock with UTC using one of the following suggestions:

- If your computer is deployed on Amazon Web Services (AWS), you can synchronize your computer's system clock using Network Time Protocol (NTP) sources as described in the Keeping Time With Amazon Time Sync Service blog post on the AWS website.

- If your computer is deployed outside of AWS, you can synchronize your computer's system clock using one of the National Institute of Standards and Technology (NIST) time servers as described in Set your computer clock via the Internet using tools built into the operating system page on the NIST website.

Tableau Mobile App Security Settings

Starting in December 2022, you can adjust Tableau Cloud security policies for the Tableau Mobile app. These policies help keep your data secure by checking to see if mobile devices are compromised, and by limiting certain interactions with the Tableau Mobile app.

The policies apply to only the standard version of Tableau Mobile, not the MAM versions of the app. If you have deployed an MAM app, use the specific to Tableau Mobile, in addition to your MAM system’s settings, to secure the app.

Security settings

Configure security settings for Tableau Mobile either on the site settings page for Tableau Cloud or using the REST API. For more information about the REST API, see Mobile Settings Reference in the Tableau REST API Help.

To access the site settings page:

1. Sign into your Tableau Cloud site as administrator.
2. From the navigation pane, select **Settings**.
3. Select the **Mobile** tab.

Starting in December 2022 settings related to mobile device security are available.

These settings include detecting the following conditions:

- **Jailbreak Detection**

  This setting is enabled by default at the **Critical** level and detects whether the app is running on a device that has been jailbroken or rooted.

- **Malware Detection** (Android devices only)

  This setting is enabled by default at the **Critical** level and detects whether the device has malware on it.

- **Maximum Days Offline Without a Policy Refresh**

  This setting is enabled by default at the **Critical** level with a default maximum of 14 days. It determines if the app can be used on a device that has been offline (and thus without a policy refresh) longer than the configured maximum.

- **Prevent Debugging**

  This setting is on by default and cannot be disabled. It detects whether the device has a debugger attached to it.

- **Screen Sharing and Screenshots** (Android devices only)

  This setting is enabled by default and determines whether a Tableau Mobile app user can share screenshots or use screen sharing with the app.

You can change the severity level for the Jailbreak Detection and Malware Detection settings:

- **Warn**: Enforce the policy and if it fails, show a dismissible blocking message.
- **Error**: Enforce the policy and if it fails, show a blocking message until the issue is resolved.
- **Critical**: Enforce the policy and if it fails, show a blocking message and the app decides how to handle the logout/clear session through the providers. This is the default.

Security in the Cloud

Tableau understands that data is among the most strategic and important assets an organization has. We put the highest priority on maintaining the security and privacy of our customers’ data. Tableau enterprise-level security features manage operational security, user security, application security, network security, and data security.

To learn more, see the following resources on Tableau's website (https://www.tableau.com):

- Tableau Cloud Security in the Cloud white paper.
- Tableau Cloud tips: A security checklist for publishing data to the cloud

If you sign in to Tableau Cloud using TableauID credentials, you can use them also to sign in to the Tableau website.

Operational Security

The Tableau Cloud infrastructure is hosted in a SAS-70 compliant data center that provides numerous controls and safeguards over customer data.

Your data is your own, even when stored in Tableau Cloud. Only your authorized users have access to data or workbooks stored in Tableau Cloud—Tableau employees and other Tableau customers do not.

Tableau does have access to and may monitor metrics that have to do with system utilization, account status, and performance.

User Security

The only people who have access to your site and content are the users that site administrators or cloud administrators explicitly add. If a user is no longer authorized in your system, simply remove that person’s user account to revoke access to Tableau Cloud and your content stored there.

Tableau Cloud enforces an idle user session timeout of 2 hours. This means that users must re-authenticate after not using Tableau Cloud for a period of 2 hours. The idle session timeout value is a system setting that can't be modified.

Tableau Account

Your Tableau Account provides secure, unified authentication to Tableau’s website and services.

Some of the security features of Tableau Accounts are:

- User sign-in is secured by HTTPS.
- Accounts are locked for a period of time after repeated unsuccessful sign-in attempts.
- Accounts are validated by user email to prove identity.
- Passwords are stored using cryptographic protection. Tableau employees and contractor do not have access to plain-text passwords.
- Multi-factor authentication (MFA) can be enabled for accounts that use Tableau authentication.

Tableau Cloud site administrators and cloud administrators have the option of using your organization’s identity provider for added control and convenience of users. For more information, see Authentication and Tableau Cloud Manager Authentication.

Roles and Permissions

A role is a set of permissions that is applied to a project, workbook, view, or data source to manage user interaction. A wide range of specific permissions is available for each asset: view, create, edit, modify, delete, and more.

Network Security

Important: Beginning in June 2025, Tableau will use OpenSSL 3.4.0 and Level-2 security. Level-2 security requires keys of 2048 bits or longer. Any existing Level-1 security keys will no longer work and you will need to generate and deploy a new key pair. If you have been generating at least 2048-bit length keys as recommended, no action is necessary. For more information on generating keys, see Generate an SSL Key in the Server Help.

All communication between users and Tableau Cloud is encrypted using SSL for secure transmission of data. Tableau Cloud supports TLS 1.2 and higher. For more information about TLS support, see the Tableau Community. A variety of encryption techniques ensure security from browser to server tier to repository and back. In addition, Tableau Cloud does not support HTTP/1.0 after the migration to Salesforce's Hyperforce; customers must use HTTP/1.1 or higher for enhanced performance and security. Finally, Tableau has many built-in security mechanisms to help prevent spoofing, hijacking, and SQL injection attacks, and it actively tests and responds to new threats with monthly updates.

Application Security

The Tableau Cloud environment is hosted in a multi-tenant configuration providing separation of users, data, and metadata across customers.

Email notifications

Tableau employs Domain-based Message Authentication, Reporting, and Conformance (DMARC) to enhance email security. DMARC, an email validation system that protects both email senders and recipients against spam, phishing, and spoofing, works with SPF (Sender Policy Framework) and DKIM (DomainKeys Identified Mail) protocols to instruct email servers on how to handle unauthenticated emails. For example, DMARC helps prevent unauthorized senders from sending emails that falsely claim to be from Tableau, thus protecting users while Tableau's email notifications are trusted and delivered reliably.

DMARC is enabled by default for all Tableau email notifications, including Tableau Cloud Manager and site invitations, metrics, data-driven alerts, refresh failures, and so on.

Data Security

Tableau Cloud eliminates the need to implement VPNs or tunnels into your corporate environment. Many data sources can be captured as extracts and then refreshed on a regular basis. To use automatic refreshes, you need to embed credentials in the connection information for the data source. For Google and Salesforce.com data sources, you can embed credentials in the form of OAuth 2.0 access tokens.

You can define additional security in your workbooks and data sources by adding user and data source filters. Tableau also provides a User Filter capability that can enable row-level data security using the user name, group, or full name of the current user. User filters allow you to set a filter on your data based on the identity of the person viewing the data. For example, the Western Sales Director could see results for sales in the West but not for other regions. You set user filters when you publish workbooks and data sources from Tableau Desktop.

For information on the alternatives you can use to implement row-level security in Tableau, see an Overview of Row-Level Security Options in Tableau.

HIPAA Compliance

Tableau Cloud is compliant with the Health Information and Portability Accountability Act (HIPAA) and can be provided in a HIPAA-compliant manner to meet the needs of health care and life sciences users. For more information, review the “Tableau Cloud and HIPAA Security Rule” white paper on the Salesforce Trust | Compliance site.

Data Location

Tableau Cloud is hosted on Salesforce's Hyperforce.

Tableau Cloud is structured so that you can choose the region where your site, and its data, is stored. As a new customer, you can select one of the following regions during the site setup process:

Territory		**Region**
Asia	Asia Pacific	Australia
		Indonesia
		Japan
		Singapore

Europe	Europe	Germany
		UK
North America	Canada	Quebec
	US-East	Virginia
	US-West	Oregon

If needed, you can migrate your existing site to a different region through the site migration process. Contact your Tableau Sales Account Manager to request this change.

Your site is backed up in the selected region on a regular basis. You can verify your site location by signing in to Tableau Cloud, noting the host name at the beginning of the URL, and then comparing it to the **Site Location** column in IP addresses for data provider authorization. For example, URLs that begin with **10ax**, **10ay**, **10az**, **us-west-2b**, **prod-uswest-c** correspond to the US West - Oregon region. Data corresponding to a site in the US-West Oregon region is stored and backed up in Oregon.

- To request a new site, see the Tableau Cloud product page.
- For more information about the Tableau Cloud maintenance schedule, see Tableau Cloud System Maintenance.

See also

Keep Data Fresh

OAuth Connections

Permissions

How SAML Authentication Works

User Filtering (Tableau Help)

Tableau Cloud Site Capacity

Your Tableau Cloud site comes with capacity to support all your users' analytic needs. A site's capacity includes capacity for storage and tasks that need to be performed on the site for extracts, metrics, subscriptions, and flows.

The capacity information discussed in this topic is specific to each site in your Tableau Cloud Manager (TCM) tenant, the top-level administrative layer that manages your organization's Tableau Cloud deployment. Depending on your license type, TCM includes up to 3 sites by default. The number of sites increases with different license types – up to 10 sites with an Enterprise license and a maximum of 50 with a Tableau+ license. For more information about TCM, see Use Tableau Cloud Manager.

Licensing capacity is managed at the tenant level and can be allocated to sites by cloud administrators using site role limits. For more information, see Manage Site Role Limits.

Summary

The following table summarizes the capacity allowances for your site by feature. You can find more capacity information by the features listed below.

	Capacity Type	Capacity Allowance
Storage	Site	1 TB 5 TB with an Advanced Management license. For more information, see Advanced Management capacity.
	Individual workbook, published data source, or flow size	15 GB 25 GB with an Advanced Management license. See Advanced

	Capacity Type	**Capacity Allowance**
		Management capacity.
Extract refreshes	Daily refreshes	Up to 8 backgrounder hours per Creator license
	Concurrent refreshes	Up to 10 jobs* Up to 25 jobs* with an Advanced Management license. See Advanced Management capacity.
	Individual refresh runtime	2 hours
Metrics	Daily refreshes	Up to 8 backgrounder hours per Creator license
	Concurrent refreshes	Up to 10 jobs
	Individual runtime	2 hours
	Retirement of the legacy metrics feature Tableau's legacy metrics feature was retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. In October 2023, Tableau retired the ability to embed legacy metrics in Tableau Cloud and in Tableau Server version 2023.3. With Tableau Pulse, we've developed an improved experience to track metrics and ask questions of your data. For more information, see Create Metrics with Tableau Pulse to learn about the new experience and Create and Troubleshoot Metrics (Retired) for the retired feature.	

	Capacity Type	Capacity Allowance
Subscriptions	Concurrent subscriptions	Up to 10 jobs
	Individual subscription runtime	30 minutes
	Individual email size	2 MB
Flows	Concurrent flows	1 per Resource Block
	Individual flow runtime	See Job runtime capacity.
	Flow memory usage size	19.5 GB
Visualizations	Load time	Up to 5 minutes
	Idle timeout	120 minutes
	User request rate	Up to 600 requests per hour per user
	Query usage size	20 GB
View Acceleration	Accelerated views	Minimum 30 accelerated views per site with an additional 20 views per Creator license. Maximum 750 accelerated views.
	Accelerated view refreshes	Up to 12 jobs per day per view
	Memory usage size	20 GB
	Individual acceleration runtime	Up to 30 minutes

***Note**: To ensure that system resources are equitably distributed across Tableau Cloud, each site has an upper limit on the number of jobs that can run at any point in time. However, this limit is not a guarantee of capacity. Tableau Cloud allocates system resources to optimize jobs and resources are adjusted to start a job within 15 minutes or less from the scheduled start time.

Note: The behavior of the capacity limits specific to each site within Tableau Cloud Manager is subject to change as we evolve our infrastructure.

Storage capacity

A Tableau Cloud site comes with site and individual content storage capacities.

- **Site storage:** A site comes with 1 TB of storage capacity. Workbooks, published data sources, and flows count toward this storage capacity.
- **Individual workbook, published data source, and flow size:** An individual workbook, data source (live or extract), or flow published to your site can have a maximum size of 15 GB.

  Note: If your extract data source exceeds 10 GB in size, we recommend that you consider either using live connection to the database or aggregate the data in the extract to reduce its size. Frequently republishing or refreshing large extracts can be time intensive and usually indicates that more efficient data freshness strategies should be considered.

Visualization capacity

Each site comes with designated capacity to load and query individual visualizations, also known as views. You can find more information about each capacity type below.

- **Load time:** A site has capacity to spend up to 5 minutes to load a view.
- **Idle timeout:** If the user hasn’t interacted with or edited a view for 120 consecutive minutes, the user must reload (for example, refresh the page or click the **Reconnect** button if a banner displays) the view or saved draft to interact with it again.

- **User request rate:** Each user on a site has the capacity to make up to 600 requests per hour to load and refresh views. When this capacity has been reached, the user can't interact with, edit, and save the view. After an hour, the view can be refreshed and new views can be loaded.

  Note: If the cumulative number of user requests exceeds the site-level request rate, users can’t interact with, edit, and save views.

- **Query usage size:** A site has capacity to use no more than 20 GB of memory to query a view that uses an extract data source. The amount of memory needed to query a view can vary depending on the complexity of the data manipulations that Tableau needs to perform to generate the marks in the view.

  Note: Only queries against extract data sources count toward query usage capacity. Queries against data sources that use live connections to the underlying data do not. However, queries against data sources that use live connections might be subject to other query usage capacity enforced by underlying databases.

Views that exceed these capacity types might be canceled to ensure enough system resources are available so that other views on the site can load.

Tips for optimizing visualization capacity

Views that exceed visualization capacity can indicate the queries that Tableau must run in order to generate the view might be too complex. In such cases, you can use the following tips to help optimize queries thereby minimizing the time it takes to load views on Tableau Cloud. Most tips require that you edit the data source or workbook and republish to Tableau Cloud for changes to take effect.

For more tips, see the Workbook Performance topic in the Tableau Help.

- **Use data source filters**: When you add a filter on a data source, you reduce the amount of data that needs to be generated in the view. Reducing the amount of data can help minimize load times of views. For more information, see Filter Data from Data Sources in the Tableau Help.

- **Use context filters**: Similar to data source filters, context filters reduce the data in the data source but at the sheet level. Context filters work independently of other filters and can significantly reduce the amount of data that needs to be generated in the view. Reducing the amount of data can help minimize load times of views. For more information, see Improve View Performance with Context Filters in the Tableau Help.
- **Decrease date ranges**: As a rule, dates require more computing power than other types of data like numbers and Booleans. If the view contains date filters, you can reduce the date ranges or the number of dates that need to be generated to help minimize the load times of views.
- **Reduce marks**: Because Tableau must calculate the marks in order to generate the view, the number of marks can impact how quickly the view can load. There are several ways you can reduce marks, including using some of the filters listed above or using sets to filter, custom SQL to aggregate data, and more. For more information, see Reduce the number of marks in the view.

View Acceleration capacity

Each Tableau site has the following View Acceleration capacity:

- **Accelerated views:** The default number of accelerated views per site is 30. For each additional Creator License, 20 more views can be accelerated. The maximum number of accelerated views is 750.
- **Accelerated refreshes:** Accelerated views are regenerated in alignment with the following four data update events:
  - Data freshness policy: The acceleration timestamp is out of sync with the data freshness policy.
  - Extract refreshes: An extract refresh completes, signaling fresher data.
  - Accelerated view update: An accelerated view is updated by the owner.
  - View opted-in: A view is originally opted in for acceleration.

Each unique event triggers a pre-computation job to be queued. Backgrounder jobs then pick up and complete the pre-computation, and then store query results as a materialized view. Views that belong to the same workbook are refreshed in one job. To limit resource consumption, the maximum number of pre-computation jobs that can be run is limited to 12 jobs per day. For more information, see Set a Data Freshness Policy.

- **Acceleration memory usage size**: A site has capacity to use no more than 20 GB of memory for pre-computing and fetching the workbook's data in a backgrounder job. The amount of memory needed varies depending on the complexity of the query(ies) that are associated with the view that is being accelerated.

Job runtime capacity

Job runtime capacity is the period of time that a job, or an instance of a task type, is allowed to run before it's canceled to help protect available system resources. Each site comes with job runtime capacities for the following job types:

- Extract refreshes
- Subscriptions
- Flows
- Metrics
- View Acceleration

Each extract refresh or metrics job type has a maximum runtime of two hours (120 minutes or 7,200 seconds). Subscription or view Acceleration has a maximum runtime of 30 minutes (1,800 seconds).

Note about flows: For sites that don’t have Data Management, the maximum runtime for flows jobs for a site is 60 minutes times the number of creator licenses up to a maximum of 24 hours. If your site has large flows workloads, consider purchasing Data Managementto get more capacity. For sites with Data Management, you can run flows for up to 24 hours per day per Resource Block. If you exceed the time limit no new jobs can be started until the next day. Additional capacity for concurrent flow jobs can be purchased. For more information, see Resource Blocks.

Note about extract refreshes: If a refresh job reaches its maximum runtime, you see a timeout error. For more information about the error and ways you can modify extracts to keep refresh jobs within the runtime capacity, see Time limit for extract refreshes.

Concurrent jobs capacity

Concurrent jobs capacity is the number of jobs, or instances of a task type that can run at the same time. Each site comes with concurrent capacities for the following job types:

- Extract refreshes
- Subscriptions
- Flows
- Metrics

You can find more information about the concurrent jobs capacity for each job type below.

- **Extract refreshes:** A site has an upper limit of 10 extracts that it can refresh at any given point in time. Depending on available system resources, the wait time (i.e., the time before a job starts) is adjusted to start a job within 15 minutes or less from the scheduled start time. Jobs that count toward refresh capacity include scheduled refreshes, manual refreshes, extract creation, and command line or API calls that trigger refreshes, including appending data incrementally.

- **Subscriptions:** A site has an upper limit of 10 subscriptions that it can run at any given point in time. Depending on available system resources, the wait time (i.e., the time before a job starts) is adjusted to start a job within 15 minutes or less from the scheduled start time. Jobs that count toward subscriptions capacity include generating emails from subscriptions created through Tableau Cloud directly or API calls that generate the email subscriptions.

- **Flows:** If licensed with Data Management, a site has a default capacity of 1 concurrent flow job per Resource Block. Resource Blocks support flow jobs. If not licensed with Data Management, a site has a default capacity of 1 concurrent flow job, which is the equivalent of having one Resource Block. If there are no Resource Blocks available when a flow job starts, the job goes into a queue to wait for a Resource Block to be available. A flow job might also go into a queue during busy hours even when there are available Resource Blocks to ensure that system resources remain available to support flow jobs across all of Tableau Cloud. Additional capacity for concurrent flow jobs can be purchased. For more information, see Resource Blocks. Each user can have a maximum of 4 active flow web editing sessions at one time. If more sessions are opened, the oldest session will be closed.

- **Metrics:** Each site has the capacity to refresh up to 10 metrics concurrently. For more information about how metrics refresh, see Create and Troubleshoot Metrics (Retired).

Note: If a site exhausts its concurrent capacity for a job, other jobs that are in the queue remain in a pending state until one or more jobs have completed.

Daily jobs capacity

Daily jobs capacity is the number of shared hours each site can spend per Creator license a day to perform all jobs on the site. A server process, called backgrounder, initiates and performs these jobs. A site with more Creator licenses gets more daily jobs (backgrounder) capacity to meet the needs of a larger site population.

Each site comes with daily jobs (backgrounder) capacity to perform both extract refresh and metric refresh jobs.

For example:

If your site has...	multiplied by the default time	Daily jobs capacity
10 Creator licenses	8 hours	Up to **80 hours/day**
50 Creator licenses	8 hours	Up to **400 hours/day**

Daily jobs capacity resets each day at 24:00:00 UTC (coordinated universal time).

About extract refreshes

Refresh jobs that count toward daily jobs capacity include full and incremental refreshes and extract creation, which can be initiated by scheduled refreshes, manual refreshes, and certain command line or API calls.

Notes:

- As long as your site has time remaining in its daily refresh capacity, a refresh job will start.
- Site admins receive email notifications when a site reaches 70%, 90%, and 100% of its daily refresh capacity.
- If a site exhausts its daily refresh capacity, any future extract refreshes are canceled and email notifications are sent to content owners alerting them of the refresh cancellation.

Tips for optimizing extract refreshes capacity

If you're managing an extract-heavy environment, Tableau recommends following some best practices to make the most efficient use of your site capacity.

- **Stop refreshing unused extracts**. One of the best ways to reclaim capacity for your site is to stop automatic refreshes, either through schedules on Tableau Cloud or through scripts of extracts that aren’t being used. For more information about deleting a refresh schedule, see Manage Refresh Tasks.

- **Reduce the frequency of refreshes**. Another method of reclaiming capacity for your site is to reduce the frequency of extract refreshes. For example, instead of refreshing an extract hourly, consider refreshing an extract daily or only during business hours when fresh data is most useful. For more information about changing a refresh schedule, see Manage Refresh Tasks.

- **Use incremental refreshes instead of full refreshes**. To decrease the amount of time an extract takes to refresh, consider performing an incremental refresh of the extract instead of a full refresh. For more information, see Schedule Refreshes on Tableau Cloud.

Note: Changing from a full to an incremental refresh can be done from Tableau Cloud only if the extract was configured for incremental refresh in Tableau Desktop before the extract was published. For more information about incremental refreshes, see Configure an incremental extract refresh in the Tableau User Help.

- **Use live connections instead of extract connections**. For views, dashboards, and workbooks whose data needs to be updated frequently, consider setting up the data source to use a live connection instead of an extract connection.
- **Optimize the data in the extract**. Improving the performance of an extract can also help reduce the amount of time an extract takes to refresh. There are a number of changes you can make to the extract's data to help its overall performance, such as removing unused fields, using filters to remove unused rows, changing date ranges, etc.

About metric refreshes

Metrics that rely on extract data sources refresh when their extract counterparts refresh and therefore count toward daily job capacity.

Note: Metrics that rely on live data sources refresh every 60 minutes and don't count toward daily job capacity.

Jobs initiated by command line and API calls

In addition to the capacity described above, a site comes with designated capacity for command line and API calls.

- **Initiate extract refresh jobs:** A site comes with designated capacity for tabcmd (refreshextracts), REST API (Run Extract Refresh Task), and Tableau Client (Python) library calls to initiate extract refresh jobs. A site allows 20 total calls per one-hour period.
- **Query or cancel jobs:** A site comes with a designated capacity for REST API (Query Job and Cancel Job), VizQL Data Service, and Tableau Client (Python) library calls

that query status information for asynchronous jobs, or cancel pending and in-progress jobs. A site allows 20000 calls per 24-hour period. VizQL Data Service allows an additional 100 calls each hour per Creator license.

- **Initiate publish, update, or refresh jobs:** A site comes with designated capacity for tabcmd (publish), REST API (Publish Workbook, Publish Data Source, Update Workbook, Update Data Source, Update Data Source Now, Tableau Prep flow runs), and Tableau Client (Python) library calls that initiate publish, update, or refresh jobs for workbooks and data sources. A site allows 600 calls per hour (14,400 per 24-hour period).

Note: If the number of calls exceed the command line or API calls capacity described above, you see one of the following errors: *Unknown 429* or *ApiCallError: 429000: Too Many Requests – Too many requests for <job type> 'api.rest.refresh_extracts'. Please retry after 146 second(s)*.

Monitor capacity

There are a few tools you can use to help you monitor your site's capacity: Jobs page and Admin views.

Jobs page

The Jobs page gives you detail about the unique instances of backgrounder tasks, called jobs, within the past 24 hours. You can use the jobs page to monitor extract refreshes, subscriptions, and flow jobs.

1. Sign in to Tableau Cloud using your site admin credentials.
2. In the left navigation pane, click **Jobs**.
3. From the filter drop-down menu, under **Task Type**, select the job type you want to monitor.

For more information on the Jobs page, see Managing Background Jobs in Tableau Cloud topic.

Admin views

Admin views help you monitor different types activity on your site. You can find more capacity usage information, using admin views, for the features listed below.

- **Storage:** You can monitor your site’s storage capacity and check which workbooks, data sources, and flows take up the most space on your site using the Admin Insights “Stats for Space Usage” dashboard. Select **Explore** > **Admin Insights** > **Admin Insights Starter** > **Stats for Space Usage**.

  For more information about Admin Insights, see Use Admin Insights to Create Custom Views.

- **Flows:** You can monitor the performance of flow runs. Select **Site Status** > **Flow Performance History**. Using the dashboard, under **Flow History**, click on a mark to see details about the flows job.

  For more information about this admin view, see Administrative Views for Flows.

- **Metrics:** You can monitor your site’s metrics jobs by using the “Background Tasks for Non Extracts” admin view. Select **Site Status** > **Background Tasks for Non Extracts**, and then from the **Tasks** filter drop-down, select **Update all metrics on a view** check box.

  For more information about this admin view, see Background Tasks for Non Extracts.

Advanced Management capacity

With Advanced Management, you get the following capacity increases for your site:

- Storage of 5 terabyte (TB)
- Maximum file size of 25 gigabytes (GB)
- Up to 25 concurrent extract refresh jobs*

For more information about Advanced Management, see About Tableau Advanced Management on Tableau Cloud.

***Note**: To ensure that system resources are equitably distributed across Tableau Cloud, each site has an upper limit on the number of jobs that can run at any point in time. However, this limit is not a guarantee of capacity. Tableau Cloud allocates system resources to optimize jobs and resources are adjusted to start a job within 15 minutes or less from the scheduled start time.

About Tableau Release Preview

Starting in April 2025, cloud administrators can create release preview sites to assess the functional changes in Tableau Cloud major releases before they are applied to production environments. This topic outlines scenarios where creating a release preview site is beneficial, such as for integration testing, compliance, and release readiness. It also provides detailed instructions on how to create a release preview site using Tableau Cloud Manager (TCM).

> **Note:** Release preview is available only for Tableau+ customers. For more information, see About Tableau+.

Getting started

A release preview site allows administrators and authorized users to assess new features and functional changes ahead of production upgrades in Tableau Cloud. These sites are hosted in dedicated limited-release preview environments and are updated separately from standard Tableau Cloud sites. Each preview site you create counts against the 50 sites granted to you as part of your Tableau+ edition.

Consider creating a release preview site for these scenarios:

- **Integration testing:** Test your unique configurations and integrations with the upcoming release. This helps you prepare for changes and make any necessary adjustments before they are applied to production sites.

- **Compliance:** Make sure that your organization's analytics practices and procedures comply with regulatory standards and internal policies, such as GxP and SOX.
- **Release readiness:** Understand what’s new and how it works to develop communication, training, and adoption plans for your end-users.

Release communication

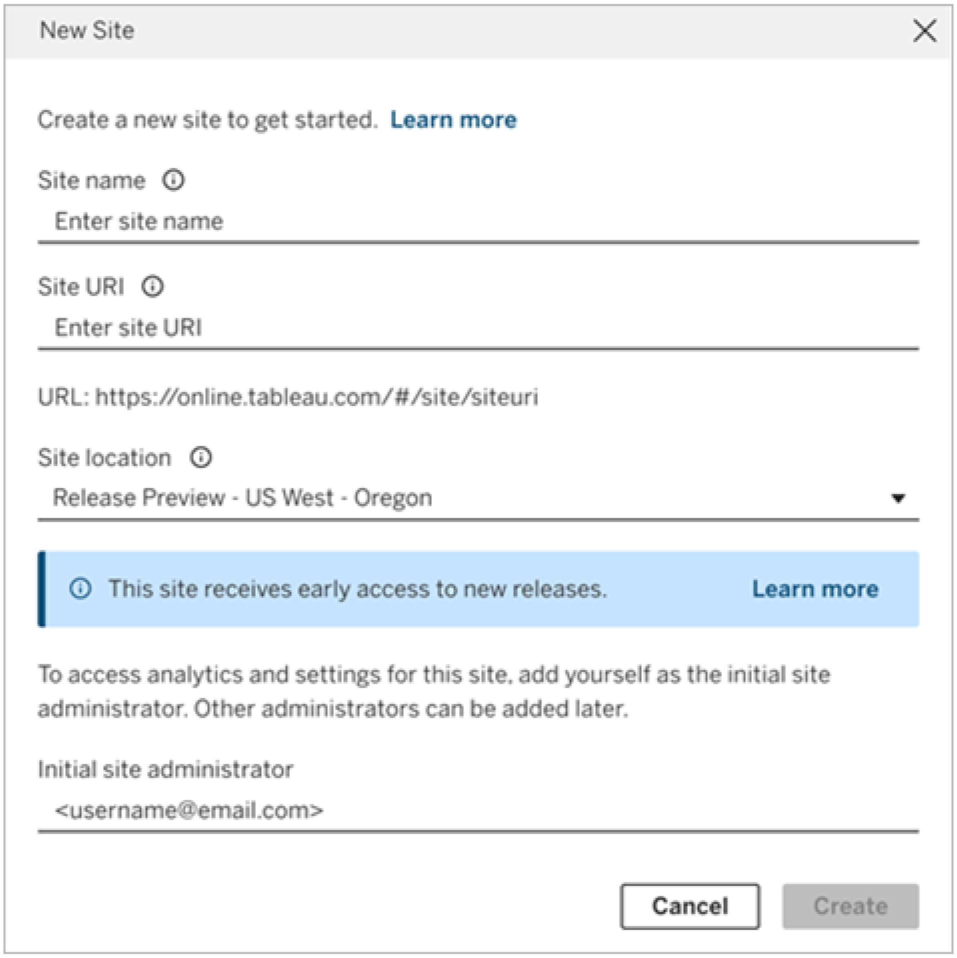
Cloud and site administrators of release preview sites will receive in-product notifications within the preview site two weeks before the release and after the update is complete. Notifications include the tentative release schedule and link to Tableau Cloud Help documentation.

Release deployment to release preview sites is separate from the standard Tableau release process. Release preview sites will be updated with major releases at least two weeks ahead of standard Tableau Cloud sites. For more information about Tableau Cloud maintenance communication and release cadence, see Tableau Cloud System Maintenance.

Create a release preview site

Similar to other sites in your tenant, cloud administrators can create a release preview site through Tableau Cloud Manager (TCM). To create a release preview site, follow these steps:

1. Sign in to Tableau Cloud Manager as a cloud administrator.
2. On the Sites page, select **New Site**.
3. In the New Site dialog, go to **Site location**, and select a location with a “Release Preview” prefix from the dropdown menu. For example, `Release Preview - US West - Oregon`.



New Site

Create a new site to get started. Learn more

Site name
Enter site name

Site URI
Enter site URI

URL: https://online.tableau.com/#/site/siteuri

Site location
Release Preview - US West - Oregon

This site receives early access to new releases. Learn more

To access analytics and settings for this site, add yourself as the initial site administrator. Other administrators can be added later.

Initial site administrator
<username@email.com>

4. Complete the remaining fields in the dialog, and then select **Create**.

For more information about managing sites in TCM, see Add, Delete, or Activate Sites.

Explore feature changes with Tableau Release Navigator

You can use the Tableau Release Navigator dashboard to explore changes deployed to release preview sites. The included features are visible in the dashboard until the changes are applied to production environments.

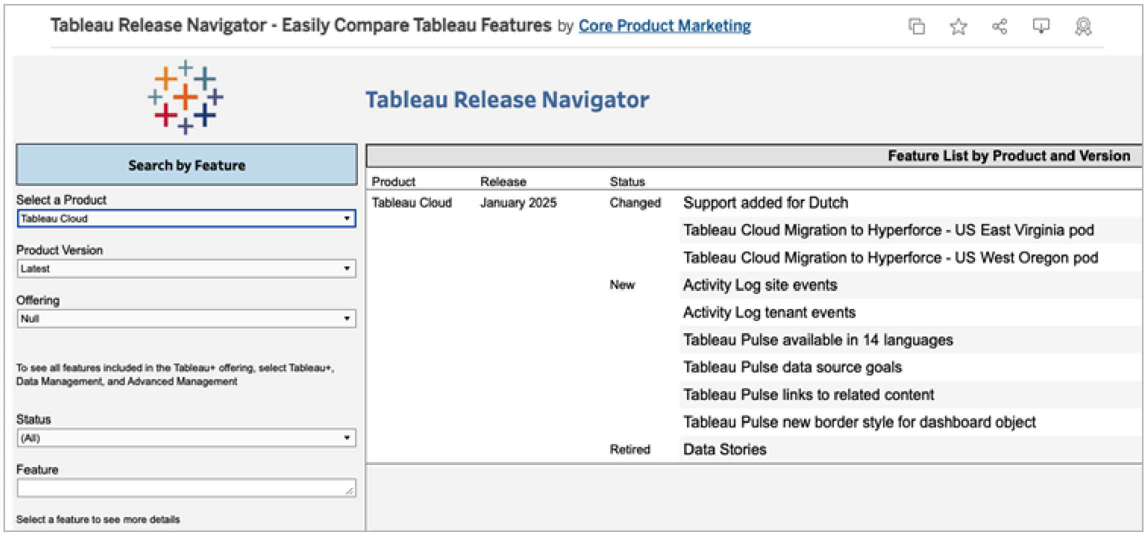


Tableau Release Navigator - Easily Compare Tableau Features by Core Product Marketing
Tableau Release Navigator
Search by Feature

Select a Product: Tableau Cloud

Product Version: Latest

Offering: Null

To see all features included in the Tableau+ offering, select Tableau+, Data Management, and Advanced Management

Status: (All)

Feature

Select a feature to see more details

Feature List by Product and Version

Product	Release	Status	
Tableau Cloud	January 2025	Changed	Support added for Dutch
			Tableau Cloud Migration to Hyperforce - US East Virginia pod
			Tableau Cloud Migration to Hyperforce - US West Oregon pod
		New	Activity Log site events
			Activity Log tenant events
			Tableau Pulse available in 14 languages
			Tableau Pulse data source goals
			Tableau Pulse links to related content
			Tableau Pulse new border style for dashboard object
		Retired	Data Stories

To see features included in release preview sites, follow these steps:

1. Go to Tableau Cloud Release Notes and scroll down to the **Tableau Release Navigator** dashboard. Keep in mind that the embedded table might look different depending on your browser's zoom level. For a better viewing experience, you can see the full dashboard on Tableau Public.

2. Find **[Release Preview]** at the beginning of each item's description to see the features available on your preview site. Release preview updates are at the top of the dashboard.

3. To access feature-specific documentation, select or hover over the feature. A tooltip will appear with a link to the Tableau Cloud Help topic.

> **Note:** Release preview links use a temporary URL, such as `https://help.tableau.com/`**`release-preview`**`/online/en-us/<feature_name>`. These topics describe upcoming features and are subject to change. See the current version of Tableau Help for final feature details after production upgrades. For

example: `https://help.tableau.com/`**`current`**`/online/en-us/<feature_name>`.

Tableau Cloud System Maintenance

Tableau Cloud undergoes periodic maintenance to sustain the infrastructure supporting Tableau Cloud services and deliver enhanced features and functionality. As a Tableau Cloud site administrator, you don't have to worry about managing updates to your site. But we recommend reviewing the reserved maintenance schedule to plan for scheduled downtime and to avoid service interruptions. For more information about releases, see Tableau Cloud release cadence.

Starting in April 2025, Tableau+ customers can create release preview sites to assess major Tableau Cloud releases before they go live in production environments. These sites are hosted in dedicated limited-release preview environments and are updated separately from standard Tableau Cloud sites. For more information, see About Tableau Release Preview.

Maintenance communication

Tableau communicates system maintenance through the Salesforce Trust Status page and notification emails to site administrators.

Salesforce Trust notifications

Salesforce Trust is where all Tableau Cloud status updates are posted. Status updates include system maintenance, as well as reported incidents that might affect the use of Tableau Cloud. You can quickly check the status of your Tableau Cloud instance by visiting the trust page, or by subscribing to Trust to stay informed.

To subscribe to Trust, go to https://status.salesforce.com/products/tableau, and click the **Subscribe to Notifications** button. You can receive updates by email or notifications whenever

Tableau Cloud creates, updates, or resolves an incident. For detailed instructions, see the Salesforce Trust Status Notification Guide.

Important: On July 15, 2024, Tableau Trust (https://trust.tableau.com) moved to Salesforce Trust (https://status.salesforce.com/products/tableau). If you were subscribed to Tableau Trust email and RSS notifications before July 15, 2024, both email and RSS notifications were migrated to Salesforce Trust so that you can continue getting status updates for Tableau Cloud. To resubscribe to SMS notifications or for new subscriptions, go to Salesforce Trust to subscribe to Tableau Cloud updates.

Site Administrator emails

Tableau Cloud users with the Site Administrator role will automatically receive notification emails about their site. Emails include system maintenance and reported incidents that might affect the use of Tableau Cloud.

Notification emails will include the date and time, name of the Tableau Cloud instance, type of maintenance scheduled, impact to users, and estimated time to completion.

Reserved system maintenance schedule

Tableau has reserved system maintenance windows for sustaining the security, availability, and performance of the infrastructure supporting Tableau Cloud services. The reserved maintenance schedule will help you plan for scheduled downtime and avoid service interruptions to your Tableau Cloud site. While there is a pre-defined window in which maintenance can occur, there might be months when maintenance is not required.

When maintenance is scheduled, we publish the dates and times of the maintenance windows on the Salesforce Trust page. For maintenance that impacts an entire Tableau Cloud instance, Trust Status notifications are sent to subscribers and site administrators via email. Notifications are sent when the maintenance schedule is posted to Trust Status and 14-days before the maintenance will occur. Trust Status notifications will also be sent at the start and end of each maintenance and 48 hours prior as a reminder.

In the event that we need to reschedule maintenance, the maintenance record will be updated on the Trust Status page, and an email will be sent to Trust Status subscribers.

Note: If priority maintenance is required, Trust Status subscribers and Tableau Cloud site administrators may be notified less than one week in advance.

Whenever possible, and only as maintenance is necessary, Tableau will schedule system maintenance the **first and third weekends of the calendar month** during the windows listed in the table below. Plan the maintenance activities for your organization (software upgrades, integration changes, etc.) outside of the Tableau system maintenance windows for your instances. In extreme circumstances, there may be times when system maintenance is scheduled outside of these windows to maintain system availability, performance, and security of the Tableau Cloud infrastructure.

Reserved System Maintenance Windows

Region	Pod	Interval	Local Time	UTC
United States - West	10AY, 10AZ, UW2B, prod-uswest-c	1st monthly weekend 3rd monthly weekend	Saturday, 08:00 - 14:00 PST	Saturday, 16:00 – 22:00
United States - East	prod-useast-a, prod-useast-b, useast-1, prod-useast-c	1st monthly weekend 3rd monthly weekend	Sunday, 11:00 - 17:00 EST	Sunday, 16:00 – 22:00
Europe	DUB01, EW1A, prod-uk-a	1st monthly weekend 3rd monthly weekend	Saturday, 02:00 - 08:00 CET	Saturday, 01:00 – 07:00

Canada - Quebec	prod-ca-a	1st monthly weekend 3rd monthly weekend	Sunday, 11:00 - 17:00 EST	Sunday, 16:00 – 22:00
Asia Pacific - Japan	prod-apnortheast-a	1st monthly weekend 3rd monthly weekend	Sunday, 01:00 - 07:00 JST	Saturday, 16:00 – 22:00
Asia Pacific - Australia	prod-apsoutheast-a	1st monthly weekend 3rd monthly weekend	Sunday, 03:00 - 09:00 AEST	Saturday, 16:00 – 22:00
Asia Pacific - Singapore	prod-apsoutheast-b	1st monthly weekend 3rd monthly weekend	Sunday, 00:00 - 06:00 SGT	Saturday, 16:00 – 22:00
Asia Pacific - Indonesia	prod-apsoutheast-c	1st monthly weekend 3rd monthly weekend	Sunday, 23:00 - Monday, 05:00 WIB	Saturday, 16:00 – 22:00

Note: Local maintenance windows use standard time. The local time might change +/- 1 hour seasonally during daylight savings.

Tableau Cloud release cadence

To ensure our products continue to help people use data to solve problems every day, Tableau is constantly innovating. We ship new features and functionality three times a year (Winter, Spring, Summer).

Release communication

Releases are communicated through in-product notifications to let you know when your site is scheduled to be upgraded, and then again once the upgrade is complete. Sites can be accessed during the upgrade, meaning that all features and functionality are available to users. There's no downtime associated with release upgrades.

Release schedule

Major releases are rolled out across Tableau Cloud’s worldwide infrastructure over several weeks before upgrading our on-premises software. Because our releases are rolled out worldwide in sequence, exact dates and times are not pre-announced. Instead, in-product notifications are there to inform users and administrators when releases are upcoming.

You'll see an in-product notification approximately two weeks before your site is scheduled to upgrade.

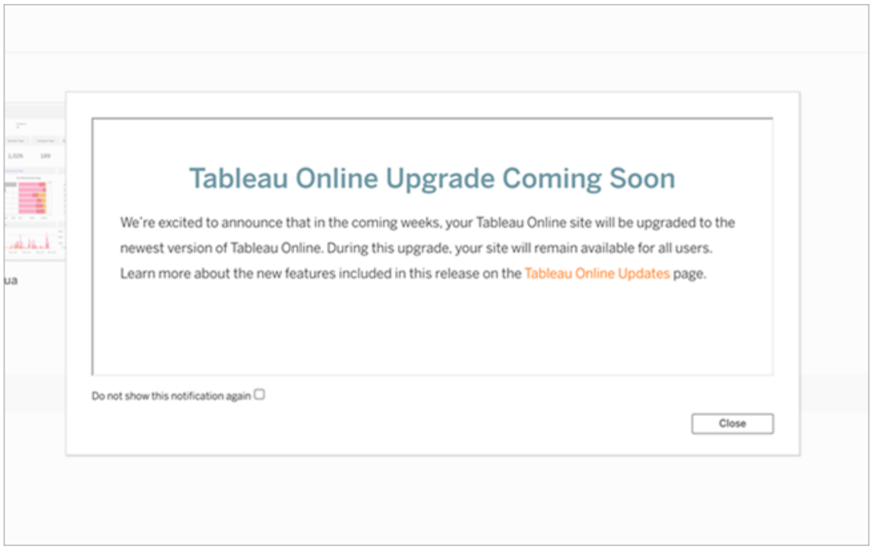


Tableau Online Upgrade Coming Soon

We’re excited to announce that in the coming weeks, your Tableau Online site will be upgraded to the newest version of Tableau Online. During this upgrade, your site will remain available for all users. Learn more about the new features included in this release on the Tableau Online Updates page.

Learn about new features

For more information about the new features on your site, see Coming Soon. The Coming Soon page offers information about upcoming and in-progress Tableau releases. As a Tableau Cloud customer, you might already have access to the features listed on this page. Broader website updates happen once customers across all of our products can upgrade and take advantage of the new features.

Authentication

Authentication refers to the options for how users can sign in to their Tableau Cloud site, and how they access it after signing in the first time. Authentication verifies a user’s identity.

Tableau Cloud supports multiple authentication types, which you can configure on the **Authentication** page.

This topic is intended for site administrators configuring authentication to a site. For cloud administrators configuring authentication for Tableau Cloud Manager, see Tableau Cloud Manager Authentication.

Regardless of the authentication type you configure for your site, multi-factor authentication (MFA) is required when accessing Tableau Cloud. This contractual requirement went into effect February 1, 2022. For more information, see About multi-factor authentication and Tableau Cloud below.

- **Tableau with MFA:** This is the built-in and default authentication type. It requires users to provide a combination of 1) Tableau credentials (also called TableauID), consisting of a username and password that are stored with Tableau Cloud, and 2) an MFA verification method, such as an authenticator app or security key, to confirm a user's identity. For more information, see Multi-Factor Authentication and Tableau Cloud.
    - **Tableau:** If Tableau hasn't updated your site to require Tableau with MFA yet, you can continue to use this authentication type on a temporary basis. Users

enter their TableauID credentials directly on the Tableau Cloud sign-in page.

- **Google:** If your organization uses Google applications, you can enable Tableau Cloud to use Google accounts for single sign-on (SSO) with MFA using OpenID Connect (OIDC). When you enable Google authentication, users are directed to the Google sign-in page to enter their credentials, which are stored by Google.

- **OIDC:** Another way to use SSO is through generic OpenID Connect (OIDC). To do this, you use a third-party identity provider (IdP) with MFA, and configure the site to establish a trust relationship with the IdP. When you enable OIDC, users are directed to the IdP’s sign-in page, where they enter their SSO credentials, already stored with the IdP.

- **Salesforce:** If your organization uses Salesforce, you can enable Tableau Cloud to use Salesforce accounts for single sign-on (SSO) with MFA using OpenID Connect (OIDC). When you enable Salesforce authentication, users are directed to the Salesforce sign-in page to enter their credentials, which are stored and managed in Salesforce. Minimal configuration may be required. For more information, see Salesforce Authentication.

- **SAML:** Another way to use SSO is through Security Assertion Markup Language (SAML). To do this, you use a third-party identity provider (IdP) with MFA, and configure the site to establish a trust relationship with the IdP. When you enable SAML, users are directed to the IdP’s sign-in page, where they enter their SSO credentials, already stored with the IdP.

Notes:

- Access and management permissions are implemented through site roles. Site roles define which users are admins, and which users are content consumers and publishers on the site. For more information about admins, site roles, groups, Guest User, and user-related administrative tasks, see Manage Users and Groups and Set Users’ Site Roles.
- In the context of authentication, it’s important to understand that users are not authorized to access external data sources through Tableau Cloud by virtue of having an account. In other words, in the default configuration, Tableau Cloud does not act as a proxy to external data sources. Such access requires additional configuration of the

data source on Tableau Cloud or authentication at the data source when a user connects from Tableau Desktop.

About multi-factor authentication and Tableau Cloud

To get ahead of the rise and constantly evolving security threats that can cripple an organization, MFA authentication became a Tableau Cloud requirement beginning February 1, 2022. MFA is an effective tool for enhancing sign-in security and protecting your organization and its data against security threats. For more information, see the Salesforce Multi-Factor Authentication FAQ in Salesforce Help.

To enhance account security, multi-factor authentication (MFA) is an authentication method that must be used in conjunction with one of the other authentication methods described above. MFA can be implemented in one of two ways:

- **SSO and MFA (recommended method):** To satisfy the MFA requirement, enable MFA with your SSO identity provider (IdP).
- **Tableau with MFA (alternative method):** If you don’t work directly with an SSO IdP, you can instead enable a combination of 1) TableauID credentials, which are stored with Tableau Cloud, and 2) an additional verification method before you and your users can access the site. We also recommend that users set up recovery codes as a backup verification method for emergency cases only. For more information, see Multi-Factor Authentication and Tableau Cloud.

About Google, OIDC, Salesforce, or SAML configurations

If you enable Google, OIDC, Salesforce, or SAML authentication on your site, you can select which users you want to sign in using external credentials and which to use Tableau credentials (Tableau ID). You can allow Tableau and one or more external providers configured for a site, but each user must be set to use one or the other type. You can configure user authentication options on the **Users** page.

Important: In addition to these authentication requirements described above, we recommend that you dedicate a site administrator account that is configured for **Tableau with MFA**

authentication. In the event of an issue with SAML or the IdP, a dedicated **Tableau with MFA** account helps ensure that you have access to your site.

Notes about configuring additional authentication methods

Beginning in January 2025 (Tableau 2024.3), you can configure one or more authentication methods for your site.

Each authentication configuration requires a name. Existing configurations that were created before January 2025 will be given a name automatically. For example, if SAML was configured for your site before January 2025, the configuration name is "Initial SAML". Names for existing configurations can't be changed.

The maximum number of configurations that a site can have depends on when the site was created and if SAML or OIDC was configured.

- For sites created before January 2025 upgrade:
  - If you configured SAML only or OIDC only before the January 20205 upgrade, you can create up to 19 configurations.
  - If you configured SAML and then OIDC or OIDC then SAML before the January 2025 upgrade, you can create up to 18 configurations.
- For sites created after the January 2025 upgrade, you can create up to 20 configurations.

Note: Configurations can be enabled, disabled, and deleted. However, the SAML configuration associated with SCIM can't be disabled or deleted until the SCIM capability is turned off. For more information about SCIM, see SCIM.

Allow direct access from Tableau connected clients

By default, after users provide their credentials to sign in to a site, they can subsequently access the Tableau Cloud site directly from a *connected* Tableau client. To learn more, see Access Sites from Connected Clients.

Note: Optionally, you might need to add `*.salesforce.com` if MFA with Tableau authentication is enabled for your site and your environment is using proxies that prevent clients from accessing other necessary services.

Other authentication scenarios: Embedding and integration

You can put analytics directly in your users' workflows by integrating and embedding Tableau into custom web portals, applications, and customer-facing products. For integration of external applications with Tableau Cloud and embedding Tableau Cloud content, there are additional mechanisms to authenticate users who access Tableau depending on the intended workflow:

- **Embedding with Tableau connected apps:**
    - **Direct trust**—Tableau connected apps enable a seamless and secure authentication experience by facilitating an explicit trust relationship between your Tableau Cloud site and external applications where Tableau content is embedded. The trust relationship provides your users with a single sign-on (SSO) experience without having to integrate with an identity provider. Using connected apps also enables a programmatic way to authorize access to the Tableau REST API using JSON Web Tokens (JWTs). For more information, see Configure Connected Apps with Direct Trust.
    - **OAuth 2.0 trust**— You can register an external authorization server (EAS) with Tableau Cloud to establish a trust relationship between your site and the EAS using the OAuth 2.0 standard protocol. The trust relationship provides your users with a single sign-on experience (SSO), through your IdP, to embedded Tableau content. In addition, registering an EAS enables a programmatic way to authorize access to the Tableau REST API using JSON Web Tokens (JWTs). For more information, see Configure Connected Apps with OAuth 2.0 Trust.
- **Salesforce integration:** Augment your data analysis through machine learning models and comprehensive statistical analysis using Einstein Discovery. For more

information, see Configure Einstein Discovery Integration.

- **Slack integration:** Make Tableau notifications available to licensed Tableau users in their Slack workspace. For more information, see Integrate Tableau with a Slack Workspace.

Multi-Factor Authentication and Tableau Cloud

As part of the broader Salesforce ecosystem, we require you, the site owners, to configure account security mechanisms for you and your users. The way you can enable account security depends on which technologies are available to you in your organization. MFA authentication became a Tableau Cloud requirement beginning February 1, 2022. MFA is an effective tool for enhancing sign-in security and protecting your organization and its data against security threats. For more information, see the Salesforce Multi-Factor Authentication FAQ in Salesforce Help.

To meet the MFA requirement, you can use your single sign-on (SSO) identity provider (IdP). If you don’t work directly with an IdP, you can enable MFA for Tableau authentication using the **Tableau with MFA** capability.

Important: If you decide to use **Tableau with MFA**, review this topic in its entirety, especially Regain site access after being locked out.

User accounts and multi-factor authentication

Multi-factor authentication (MFA) is a secure account authentication method that requires users to prove their identity by providing two or more pieces of information (factors) when they sign in to Tableau Cloud. The first factor is the unique information your users know—their usernames and passwords. Other factors are verification methods that users have in their possession, such as an authenticator app, security key, or built-in authenticator.

By enforcing multiple factors when users sign in to Tableau Cloud, MFA makes it more difficult for common threats like phishing attacks and account takeovers to succeed. MFA is an effective tool for enhancing sign-in security and protecting your organization and its data against security threats.

Recommended method - SSO with MFA: If you’re currently using your organization’s SSO IdP with MFA to enhance your security, continue to do so. If not, to satisfy the MFA requirement, configure your site to use SSO and enable MFA with your SSO IdP. You can configure your site users to authenticate with Google, Salesforce, or SAML provider.

Alternative method - Tableau with MFA: If you don’t work directly with an SSO IdP, or if you use TableauID, you can satisfy the MFA requirement by enabling MFA with Tableau authentication. This capability enables an additional step of using a verification method before being successfully authenticated to the site.

Tableau with MFA supports the following verification methods:

- Salesforce Authenticator app
- Third-party time-based one-time passcode (TOTP) authenticator apps, including Google Authenticator, Microsoft Authenticator, and Authy
- Security keys that support WebAuthn or U2F, such as Yubico YubiKey or Google Titan Security Key
- Built-in authenticators, including Touch ID, Face ID, and Windows Hello
- Recovery codes (as backup only)

Important: Security keys that support WebAuthn or U2F and built-in authenticators can't be used when authenticating to Tableau Cloud from Tableau Desktop, Tableau Prep Builder, Tableau Bridge, and Tableau Content Migration Tool. If one of these verification methods have been registered, you (and your users) can register an additional verification method from your **My Account Settings** page in Tableau Cloud.

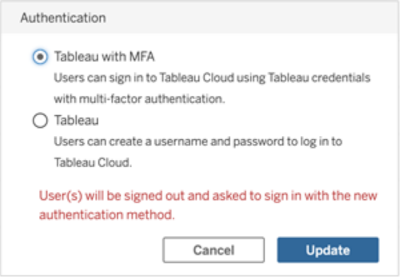
To compare supported verification methods and review usage requirements, see Verification Methods for Multi-Factor Authentication topic in Salesforce Help.

Enable MFA with Tableau authentication

If your organization doesn't work directly with an SSO IdP, you can satisfy the MFA requirement with the default Tableau with MFA authentication. For more information, see About multi-factor authentication and Tableau Cloud.

If Tableau hasn't updated your site to require Tableau with MFA yet, follow these steps to enable MFA. You can also see an overview of this process in the Multi-Factor Authentication Enforcement | Tableau Cloud video on YouTube.

1. Sign in to Tableau Cloud using your site admin credentials and go to the **Users** page.
2. Next to the first user listed, do the following:
   a. Click the Actions menu, select Authentication, and then select **Tableau with MFA**.



Authentication

● Tableau with MFA
Users can sign in to Tableau Cloud using Tableau credentials with multi-factor authentication.

○ Tableau
Users can create a username and password to log in to Tableau Cloud.

User(s) will be signed out and asked to sign in with the new authentication method.

   b. Click **Update** to save changes.
3. Repeat step 2 for each user listed, including site admins.

After users sign in to Tableau Cloud with their Tableau username and password, they're prompted to choose a supported verification method. For more information about the user process for registering and managing a verification method, see Register for multi-factor authentication.

For an overview of the MFA sign-in experience for Tableau Bridge, tabcmd 2.0, and Tableau REST API, see the Multi-Factor Authentication: Post Enforcement | Tableau Cloud video on YouTube.

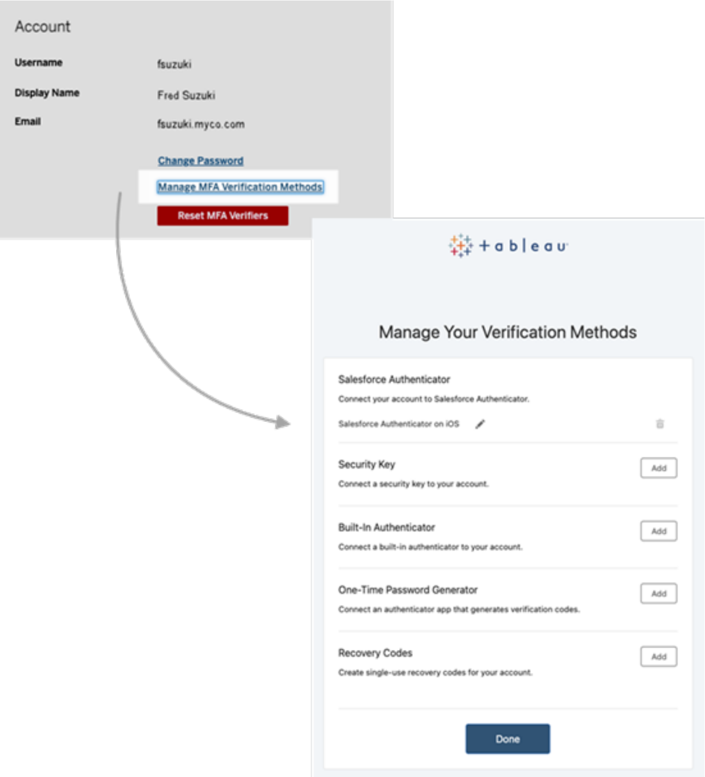
Best practices for site admin accounts

When enabling MFA for your users, we recommended the following best practices for your site admin accounts:

- **Register a minimum of two verification methods:** For each site admin account, register at least two verification methods to reduce the risk of being locked out of the site. For example, after you've registered a primary verification method, we recommend you add the **Recovery Codes** option to generate a set of recovery codes as backup.
- **Designate at least one site admin account to manage users and MFA:** Designate at least one site admin-level account (Site Administrator Creator or Site Administrator Explorer) that has permissions to manage users and MFA settings. This redundancy can help prevent admin access delays if another admin is locked out of the site.

Manage verification methods

You (and your users) can manage verification methods from your **My Account Settings** page. After clicking the **Manage MFA Verification Methods** link, you can add or remove additional verification methods, including adding recovery codes.



Account

Username fsuzuki
Display Name Fred Suzuki
Email fsuzuki.myco.com

Manage Your Verification Methods

Salesforce Authenticator
Connect your account to Salesforce Authenticator.
Salesforce Authenticator on iOS

Security Key
Connect a security key to your account.

Built-In Authenticator
Connect a built-in authenticator to your account.

One-Time Password Generator
Connect an authenticator app that generates verification codes.

Recovery Codes
Create single-use recovery codes for your account.

About recovery codes - emergency cases only

To help reduce the risk of a locked-out scenario, we recommend you (and your users) add the **Recovery Codes** option as backup after registering for MFA. Recovery codes, to be used in emergency cases only, allow you to sign in to Tableau Cloud if you don't have access to your usual MFA verification methods. If you add the Recovery Codes option, a list of ten one-time use codes are generated that you can use to sign in to Tableau Cloud.

Important:

- Because the list of codes isn't accessible after you've added the Recovery Codes option, immediately copy and store these codes in a safe and secure location for use in emergency situations.
- Recovery codes aren't intended to be a primary verification method and should only be used as **backup only**. Instead, recovery codes are intended for emergency cases only when you don’t have access to your usual MFA verification methods.

Regain site access after being locked out

Important: We strongly recommend that you (and your users) register the Recovery Codes option to help avoid being locked out of your site. Recovery codes should be used in emergency cases only.

If you lose all your usual verification methods, contact another site admin to help you regain site access by using the following procedure. You can use this procedure to enable site access for your users as well.

Reset verification methods

To enable site access, reset the MFA verification methods from the Users page in Tableau Cloud.

Important: For security purposes, a site admin can only reset the MFA verifiers of a user that belongs to a single site. If you don't meet this requirement, contact Tableau Support to file a support case to reset a user's MFA verifiers. For more information, see How To Create a Case on Salesforce Help in the knowledge base.

1. Sign in to Tableau Cloud as a site admin.
2. Navigate to the Users page and select the user who needs to regain access to the site.
3. Click the Actions menu, and select **Reset MFA Verifiers**.
4. On the user's profile page, click the Settings tab, and then click the **Reset MFA Verifiers** button.
   Note: To see the **Reset MFA Verifiers** button, the user's authentication method must be set to **Tableau with MFA**.

After the MFA verification methods have been reset, contact the user and request that they follow the procedure described in Register for multi-factor authentication to register for MFA again.

Reset MFA as the only site admin

If you're the only site admin and you lose all your usual verification methods, you must contact your account manager. To regain access to Tableau Cloud, Tableau must manually confirm your identity and then reset the methods of verification. To help ensure a smooth account recovery process, keep the following in mind:

- Tableau might use information from your TableauID profile (on Tableau.com) to validate who you are. Therefore, it’s important to keep your profile information, such as phone number, up to date. For more information about editing your TableauID profile, see the Changing your Name, Title or Email Address in the Tableau Community on the Tableau Community site.
- If you have Premium Support and require assistance on a weekend, you can file a Tableau Support case. For more information, see Submitting a Case from the Webform in the Tableau knowledge base.

For more information, see Tableau Cloud Reset Authenticator for Tableau ID with Multi-Factor Authentication in the Tableau knowledge base.

Google Authentication

If your organization uses Google, you can enable Tableau Cloud or TCM to use Google accounts for single sign-on (SSO) with multi-factor authentication (MFA) using OpenID Connect. Tableau supports Google authentication as an authentication type. When you enable Google authentication, users are directed to the Google sign-in page to enter their credentials, which are stored and managed by Google.

Configure authentication type

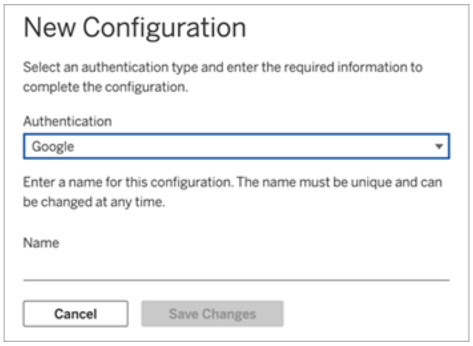
If your organization already uses Google, then set the authentication type to Google in Tableau Cloud or TCM.

For Tableau Cloud

1. Sign in to Tableau Cloud as a site admin.
2. Select **Settings** > **Authentication**, click the **New Configuration** button, and select **Google** from the Authentication drop-down.

Note: If Google is not on the list of available options, then Google authentication is already enabled for your site.

3. Enter a name for the configuration, and click **Save Changes**.



New Configuration

Select an authentication type and enter the required information to complete the configuration.

Authentication: Google

Enter a name for this configuration. The name must be unique and can be changed at any time.

Name

Note: Configurations created before January 2025 (Tableau 2024.3) can't be renamed.

4. Add new users (or update any previous users) to use Google as their configured authentication type.
    - To add users, see Add Users to a Site.
    - To update a user's authentication method, see Set the User Authentication Type.

For TCM

1. Sign in to TCM as a cloud admin.
2. Select **Settings** > **Authentication** and select the **Enable an additional authentication method** check box.
3. From the Authentication drop-down menu, select **Google**.
4. Add new users (or update any previous users) to use Google as their configured authentication type.

- To add users, see Manage Users With Tableau Cloud Manager.
- To update a user's authentication method, see Set the User Authentication Type.

OpenID Connect

You can configure Tableau Cloud or Tableau Cloud Manager (TCM) to support OpenID Connect (OIDC) for single sign-in (SSO). OIDC is a standard authentication protocol that lets users sign in to an identity provider (IdP) such as Google or Salesforce. After they've successfully signed in to their IdP, they are automatically signed in to Tableau Cloud or TCM.

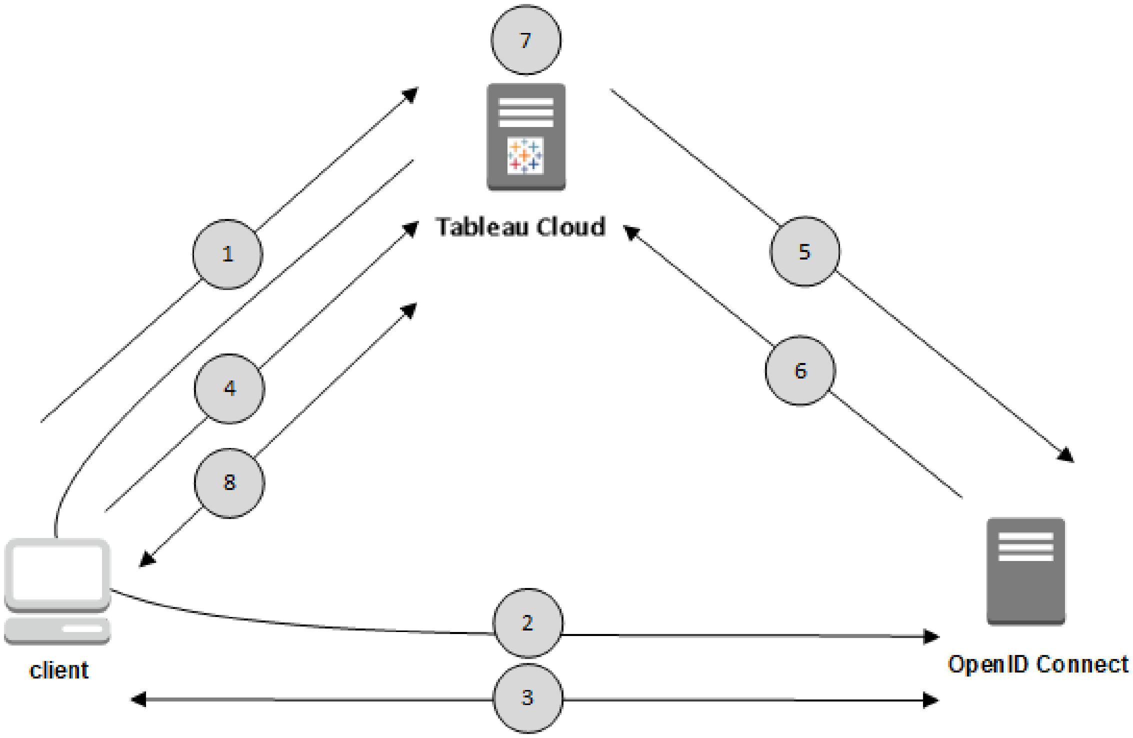
Configuring OIDC involves several steps. The topics in this section provide general information about using Tableau Cloud or TCM with OIDC, and provide a sequence for configuring the IdP and Tableau Cloud or TCM.

Note: Separate setup and app integration is required to enable OIDC authentication for Tableau Cloud and TCM.

To configure OIDC using the Tableau REST API, see OpenID Connect Authentication Methods in the Tableau REST API Help. **Note:** Applies to Tableau Cloud only.

Authentication overview

This section describes the OpenID Connect (OIDC) authentication process with Tableau Cloud or TCM.



1. A user attempts to log in to Tableau Cloud or TCM from a client computer.

2. Tableau Cloud redirects the request for authentication to the IdP gateway.

3. The user is prompted for credentials and successfully authenticates to the IdP. The IdP responds with a redirect URL back to Tableau Cloud or TCM. The redirect URL includes an authorization code for the user.

4. The client is redirected to Tableau Cloud or TCM and presents the authorization code.

5. Tableau Cloud or TCM presents the client's authorization code to the IdP along with its own client credentials. Tableau Cloud or TCM is also a client of the IdP. This step is intended to prevent spoofing or man-in-the-middle attacks.

6. The IdP returns an access token and an ID token to Tableau Cloud or TCM.

- JSON Web Token (JWT) validation: By default Tableau performs a validation of the IdP JWT. During discovery, Tableau retrieves the public keys specified by the `jwks_uri` in the IdP configuration discovery document. Tableau validates the ID token for expiry and then verifies the JSON web signature (JWS), the issuer (IdP), and the client ID. You can learn more about the JWT process in the OIDC documentation, 10. Signatures and Encryption, and the IETF proposed standard, JSON Web Token. We recommend leaving JWT validation enabled, unless your Idp does not support it.

- The ID token is a set of attribute key-pairs for the user. The key-pairs are called *claims*. Here is an example IdP claim for a user:

```
"sub"                        :
"7gYhRR3HiRRCaRcgvY50ubrtjGQBMJW4rXbpPFp-
g2cptHP62m2sqowM7G1LwjN5"
"email"                      : "alice@example.com",
"email_verified"             : true,
"name"                       : "Alice Adams",
"given_name"                 : "Alice",
"family_name"                : "Adams",
```

7. Tableau Cloud or TCM identifies the user from the IdP claims and completes the authentication request from step 1. Tableau Cloud can be configured to use different claims for this process. See Requirements.

8. Tableau Cloud or TCM authorizes the user.

How Tableau works with OpenID Connect

OpenID Connect (OIDC) is a flexible protocol that supports many options for the information that's exchanged between a service provider (here, Tableau Cloud or TCM) and an IdP. The following list provides details about the Tableau Cloud and TCM implementation of OIDC. These details can help you understand what types of information Tableau Cloud or TCM sends and expects, and how to configure an IdP.

- Tableau Cloud and TCM supports only the OpenID Authorization Code Flow as described in the OpenID Connect final specification in the OpenID Connect documentation.

- Tableau Cloud and TCM relies on using discovery or a provider URL to retrieve the IdP metadata.
- Tableau Cloud and TCM supports the `client_secret_basic` (default) and `client_secret_post` client authentication, and other parameters specified in the OpenID Connect specification. These can only be configured using the Tableau REST API.

Dynamic group membership using OIDC assertions

Note: Applies to Tableau Cloud only.

Beginning in June 2024, if OIDC authentication is configured and the capability’s setting enabled, you can dynamically control group membership through custom claims included in the JSON Web Token (JWT) sent by the identity provider (IdP).

When configured, during user authentication, the IdP sends the OIDC assertion that contains two custom group membership claims: group (`https://tableau.com/groups`) and group names (for example, "Group1" and "Group2") to assert the user into. Tableau validates the assertion and then enables access to the groups and the content whose permissions are dependent on those groups.

For more information, see Dynamic group membership using assertions.

Example JWK

```
"sub"                      :
"7gYhRR3HiRRCaRcgvY50ubrtjGQBMJW4rXbpPFpg2cptHP62m2sqowM7G1LwjN5"
"email"                    : "alice@example.com",
"email_verified"           : true,
"name"                     : "Alice Adams",
"given_name"               : "Alice",
"family_name"              : "Adams",
"https://tableau.com/groups": ["Group1", "Group2"]
```

Configure the Identity Provider for OpenID Connect

This topic provides information about configuring an identity provider (IdP) to use OpenID Connect (OIDC) with Tableau Cloud or Tableau Cloud Manager (TCM). This is one step in a multi-step process. The following topics provide information about configuring and using OIDC with Tableau.

1. OpenID Connect Overview
2. Configure the Identity Provider for OpenID Connect (you are here)
3. Configure Tableau Cloud or TCM for OpenID Connect

Before you can use OpenID Connect with Tableau Cloud and TCM, you must have an account with an identity provider (IdP) and a project or application with the IdP. When you configure Tableau Cloud and TCM, you will need to be able to provide the following information:

- **Client ID:** This is the identifier that the IdP assigned to your application.
- **Client secret:** This is a token that is used by Tableau to verify the authenticity of the response from the IdP. This value is a secret and should be kept securely.
- **Configuration URL:** This is the URL of the provider configuration discovery document that contains the OpenID provider metadata.

Note: Enabling OIDC authentication for TCM requires a separate setup and app integration from Tableau Cloud.

Redirect URL

Some IdPs will require a redirect URL for Tableau Cloud site or TCM tenant.

Signing algorithm

Tableau Cloud supports RS256 (RSA using SHA-256).

Configure Tableau Cloud or TCM for OpenID Connect

This topic describes how to configure Tableau Cloud or Tableau Cloud Manager (TCM) to use OpenID Connect (OIDC) for single-sign on (SSO). This is one step in a multi-step process. The following topics provide information about configuring and using OIDC with Tableau Cloud or TCM.

1. OpenID Connect Overview
2. Configure the Identity Provider for OpenID Connect
3. Configure Tableau Cloud or TCM for OpenID Connect (you are here)

Notes:

- Before you perform the steps described here, you must configure the OpenID provider as described in Configure the Identity Provider for OpenID Connect. Separate setup and app integration is required to enable OIDC authentication for Tableau Cloud and TCM.
- Alternatively, you can configure OIDC authentication for Tableau Cloud using the Tableau REST API using the OpenID Connect methods. **Note:** Applies to Tableau Cloud only.
- For Tableau Cloud, the Tableau REST API and tabcmd do not support OIDC single-sign (SSO). To use tabcmd or the Tableau REST API, users must sign in to Tableau Cloud using a personal access token (PAT).
- For TCM, the Tableau Cloud Manager REST API does not support OIDC SSO. To use the TCM REST API, users must sign in to TCM using a PAT.

Requirements

Parameters

- **Client ID:** This value is issued by the IdP and specifies an identifier for the registered Tableau Cloud or TCM. This enables the IdP to know where the authentication request is coming from.

- **Client secret:** This is a token that is used by Tableau Cloud or TCM to verify the authenticity of the response from the IdP. This value should be kept securely.
- **Configuration URL:** This value specifies the URL that the IdP redirects to after the user has authenticated. The URL must include the host and protocol (for example, `https://admin.okta.com/oauth2/default/.well-known/openid-configuration`), but Tableau provides the URL endpoint. This URL specifies the location of the provider configuration discovery document that contains the OpenID provider metadata.

  Note: If your IdP does not provide a configuration URL, use a URL that ends with `.well-known/openid-configuration`. For Tableau Cloud, consider using the OpenID Connect Authentication Methods in the Tableau REST API to configure OIDC.

Optional parameters

Note: Applies to Tableau Cloud only.

The following optional parameters can be configured using the OpenID Connect Authentication Methods in the Tableau REST API.

- **Prompt:** Prompts the user for re-authentication and consent. By default, user consent is turned on.
- **Custom scope:** Custom scope user-related value to query the IdP.
- **Client authentication:** Token endpoint authentication method. Default value is `'client_secret_basic'`. The value `'client_secret_post'` is supported.
- **Essential ACR values:** List of essential Authentication Context Reference Class values used for authentication.
- **Voluntary ACR values:** List of voluntary Authentication Context Reference Class values used for authentication.

Claims

To sign in successfully to Tableau Cloud or TCM, a given user must be provisioned in OpenID Connect (OIDC) IdP and then mapped to a user account on Tableau Cloud or TCM. OIDC uses a method that relies on claims to share user account attributes with other applications. Tableau Cloud or TCM relies on the IdP claim to map user accounts from the IdP to those hosted on Tableau Cloud or TCM. Claims include user account attributes such as email, given name, etc. To understand how Tableau Cloud or TCM maps IdP claims to user accounts, see Authentication overview.

Note: Claims are case sensitive.

- **Username:** By default, Tableau expects the IdP to pass the username claim. Depending on your IdP, you may need to configure Tableau Cloud to use a different IdP claim. **Note:** The username in Tableau is immutable and cannot be updated at any time.
- **Name claim:** You can specify name or given and family name to retrieve DisplayName for the user.
- **Email claim:** Optionally, beginning in July 2025, you can specify an email address that is different from the username. The email address claim is used for notifications purposes only and not used for sign-in.

Step 1: Configure OpenID Connect

For Tableau Cloud

1. Sign in to Tableau Cloud as a site admin and select **Settings** > **Authentication**.
2. On the Authentication tab, click the **New Configuration** button, select **OpenID Connect (OIDC)**, and enter a name for the configuration.
3. Follow the steps to configure Tableau Cloud for OIDC authentication by doing the following:

    1. In step 1, enter the required information from your IdP, including client ID, client secret, and configuration URL.

    2. In step 2, copy the Tableau Cloud redirect URL that you will paste into your IdP's portal to redirect users after they authenticate.

    3. In step 3, enter the claims to ensure the correct mapping of users' username and display name.

    4. In step 4, optionally enable single logout (SLO) if your IdP supports it.

    5. In step 5, optionally choose how users authenticate when accessing embedded view: in a separate pop-up window or using an inline iFrame.

       Note: You can select the authentication type for embedded views under the **Default Authentication Type for Embedded Views** section on the Authentication page (below the OIDC configuration steps).

4. When finished, click the **Save Changes** button.

Note: When editing the OIDC configuration, the client secret is hidden and needs to be reentered before any changes can be saved.

For TCM

1. Sign in to TCM as a cloud admin and select **Settings** > **Authentication**.

2. On the Authentication tab, select the **Enable an additional authentication method** check box.

3. Select **OpenID Connect (OIDC)** from the drop-down menu and click the **Configuration (required)** drop-down arrow.

4. Follow the steps to configure TCM for OIDC authentication by doing the following:

    1. In step 1, enter the required information from your IdP, including client ID, client secret, and configuration URL.
    2. In step 2, copy the TCM redirect URL that you will paste into your IdP's portal to redirect users after they authenticate.
    3. In step 3, enter the claims to ensure the correct mapping of users' username and display name.
    4. In step 4, optionally enable single logout (SLO) if your IdP supports it.

5. When finished, click the **Save Changes** button.

Note: When editing the OIDC configuration, the client secret is hidden and needs to be reentered before any changes can be saved.

Step 2: Test the configuration

We highly recommend you test the configuration to avoid any locked out scenarios. Testing the configuration helps ensure that you have configured OIDC correctly before changing the authentication type of your users to OIDC. To test the configuration successfully, make sure that there is at least one user who you can sign in as who is already provisioned in the IdP and added to Tableau Cloud or TCM with OIDC authentication type configured.

Note: If you’re not sure what the claims are, complete the configuration and test the configuration. Testing the configuration will produce a new window with the claim mappings details, including the username and display name claims. Some IdPs may map email address to the Tableau username.

For Tableau Cloud

1. On the Authentication tab while OpenID Connect (OIDC) is selected, under step 6, click the **Test Configuration** button. A new window displays with details about the configuration.

2. When finished, complete the OIDC setup by adding users to your site by following the step below.

For TCM

1. On the Authentication tab while OpenID Connect (OIDC) is selected, under step 5, click the **Test Configuration** button. A new window displays with details about the configuration.
2. When finished, complete the OIDC setup by adding users to your tenant by following the step below.

Step 3: Add users to the OpenID Connect-enabled Tableau site or TCM

The steps described in this section are performed on the Tableau Cloud’s or TCM's **Users** page.

1. After you complete the steps above, return to your Tableau Cloud site or TCM.
2. From the left pane, select the **Users** page.
3. Follow the procedure described in one of the following topics:
    - For Tableau, see Add Users to a Site
    - For TCM, see Manage Users With Tableau Cloud Manager

Troubleshoot

Use the following sections to troubleshoot OpenID Connect (OIDC) issues in Tableau Cloud or TCM.

OIDC protocol is supported by many identity providers. The OIDC protocol is an open and flexible standard, and as such, not all implementations of the standard are identical. Most issues that administrators encounter when configuring Tableau Cloud or TCM for OIDC are the result of how different identity providers implement OIDC. If you encounter errors as you set up OIDC with Tableau, we recommend that you work with your IdP to resolve them.

Signing in from the command line

For Tableau Cloud

Even if Tableau Cloud is configured to use OIDC, OIDC authentication isn’t used when you sign in to Tableau Cloud using tabcmd, the Tableau REST API, or the Tableau Data Extract command line utility (provided with Tableau Desktop).

For TCM

Similarly, even if TCM is configured to use OIDC, OIDC authentication isn’t used when you sign in to Tableau Cloud Manager REST API.

Sign-in failed

In some cases, sign-in to Tableau Cloud or TCM can fail with the following message:

Login failure: Identity Provider authentication unsuccessful for user <username_from_IdP>. Failed to find the user in Tableau Cloud.

This error typically means that there’s a mismatch between a username stored in Tableau and the username provided by the IdP. To resolve this, make sure the username values match. For example, if Jane Smith's username is stored in the IdP as "jsmith@example.com" it must be stored in Tableau Cloud or TCM as "jsmith@example.com" as well.

Salesforce Authentication

If your organization uses Salesforce, you can enable Tableau Cloud or Tableau Cloud Manager (TCM) to use Salesforce accounts for single sign-on (SSO) with multi-factor authentication (MFA) using OpenID Connect. As of spring 2021, Tableau supports Salesforce authentication as an authentication type. As of October 2024, TCM supports Salesforce authentication.

When you enable Salesforce authentication, users are directed to the Salesforce sign-in page to enter their credentials, which are stored and managed by Salesforce. This scenario also supports scenarios where Salesforce federates authentication with another IdP.

Username requirement

The username that is used within your Salesforce Org must match the username field in Tableau Cloud or TCM. Both of these usernames are in email format, though they may not be used as email addresses. Verify that that these attributes match. If the do not, configure the Salesforce authentication type, and then see the section below, Mismatched usernames.

Change and configure authentication type

If your organization already uses Salesforce, then setting the authentication type to Salesforce in Tableau Cloud or TCM is a three-step process.

For Tableau Cloud

1. In Salesforce, install the Tableau Cloud connected app package. To allow users to sign in to Tableau Cloud from your organization, manage access to your connected app by assigning the appropriate profiles or permission sets. Additionally, set the connected app to **Admin pre-approved**. For more information, see Manage Other Access Settings for a Connected App.

2. In Tableau Cloud, change to Salesforce authentication by doing the following:

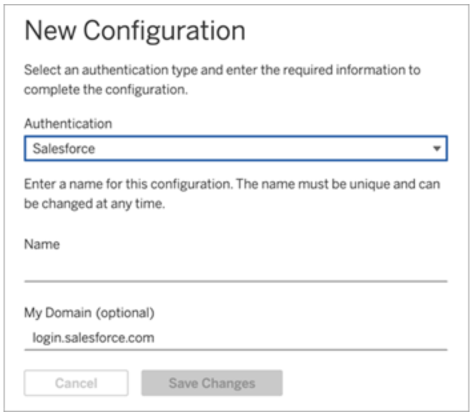
   1. In Tableau Cloud, sign in as a site admin.

   2. Select **Settings** > **Authentication**, click the **New Configuration** button, and select **Salesforce** from the Authentication drop-down menu.

   3. Enter a name for the configuration.

      Note: Configurations created before January 2025 (Tableau 2024.3) can't be renamed.

   4. (Optional) If you have configured your Salesforce organization to use a custom domain for user sign-in, then you will need to configure Tableau Cloud to redirect users to the sign-in page. Click **Edit My Domain** to enter your Salesforce My Domain. Tableau Cloud will verify the domain and then add it as a sign-in URL.



New Configuration

Select an authentication type and enter the required information to complete the configuration.

Authentication: Salesforce

Enter a name for this configuration. The name must be unique and can be changed at any time.

Name

My Domain (optional): login.salesforce.com

3. Add new users (or update any previous users) to use Salesforce as their configured authentication type.
   - To add users, see Add Users to a Site.
   - To update a user's authentication method, see Set the User Authentication Type.

For TCM

1. In Salesforce, install the Tableau Cloud connected app package in Salesforce. To allow users to sign in to TCM from your organization, manage access to your connected app by assigning the appropriate profiles or permission sets. Additionally, set the connected app to **Admin pre-approved**. For more information, see Manage Other Access Settings for a Connected App.
2. In TCM, change to Salesforce authentication by doing the following:
   1. In TCM, sign in as a cloud admin.
   2. Select **Settings** > **Authentication** and select the **Enable an additional authentication method** check box.
   3. From the Authentication drop-down menu, select **Salesforce**.

4. (Optional) If you have configured your Salesforce organization to use a custom domain for user sign-in, then you will need to configure TCM to redirect users to the sign-in page. Click **Edit My Domain** to enter your Salesforce My Domain. TCM will verify the domain and then add it as a sign-in URL.

3. Add new users (or update any previous users) to use Salesforce as their configured authentication type.

    - To add users, see Manage Users With Tableau Cloud Manager.

    - To update a user's authentication method, see Set the User Authentication Type.

Troubleshooting

Mismatched usernames

If existing users in Tableau Cloud are using usernames that do not match their corresponding usernames in Salesforce, follow this procedure:

1. Change the existing Tableau Cloud user to an Unlicensed site role to prevent license consumption.
2. Add the new Tableau Cloud user for Salesforce authentication, ensuring the username matches the username in your Salesforce organization.
3. If necessary, migrate previous content owned by the old username in Tableau Cloud to the new user.

Unsuccessful login with OAUTH_APP_BLOCKED in return URL

This issue is surfaced when a user who is configured with Salesforce authentication attempts to sign in and is not redirected. Tableau Cloud will display a message:

The sign-in was unsuccessful. Try again.

If you continue to get this message, capture the status information below, and send it to Customer Support.

Additionally, return URL in the user's browser includes the following string:

```
/public/oidc/login?error=OAUTH_APP_BLOCKED&error_descrip-
tion=this+app+is+blocked+by+admin&state=...
```

This indicates that the connected application within Salesforce is being blocked by your organization. Some security conscious Salesforce customers block all connected applications and implement API allowlist functionality that will prevent the connected application from working.

To fix this, ensure that the Tableau Cloud - Salesforce User Login via OIDC connected application is installed and has the appropriate user profiles and permission sets applied.
For more information, see:

- Manage Access to a Connected App
- Manage Other Access Settings for a Connected App

Can't edit configuration name

Configurations created before January 2025 (Tableau 2024.3) can't be renamed..

SAML

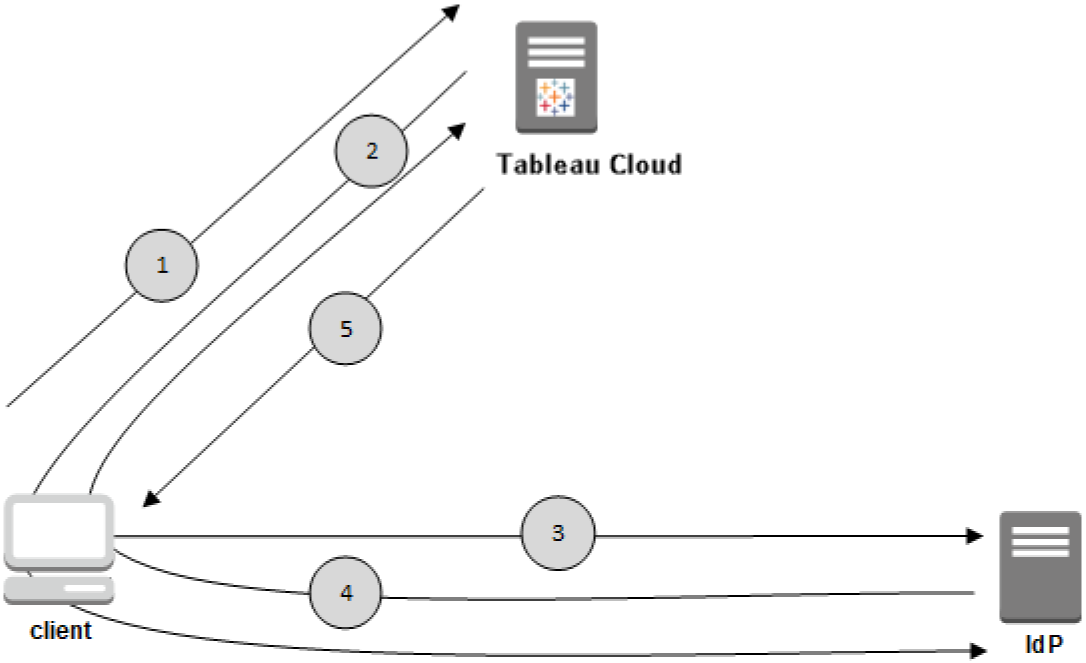
SAML (Security Assertion Markup Language) is an XML standard that allows secure web domains to exchange user authentication and authorization data. You can configure Tableau Cloud or Tableau Cloud Manager (TCM) to use an external identity provider (IdP) to authenticate users over SAML 2.0. No user credentials are stored with Tableau, and using SAML enables you to add Tableau to your organization’s single sign-on environment.

User authentication through SAML does not apply to permissions and authorization for Tableau Cloud content, such as data sources and workbooks. It also does not control access to underlying data that workbooks and data sources connect to.

Note: Tableau Cloud supports both service provider initiated and IdP initiated SAML in browsers and in the Tableau Mobile app. SAML connections from Tableau Desktop must be service provider initiated.

Authentication overview

The following image shows the steps to authenticate a user with single sign-on in a typical service provider initiated flow:



1. User navigates to the Tableau Cloud or TCM sign-in page, or clicks a published workbook URL.
2. Tableau starts the authentication process by redirecting the client to the configured IdP.
3. The IdP requests the user’s username and password from the user. After the user submits valid credentials, the IdP authenticates the user.
4. The IdP returns the successful authentication in the form of a SAML Response to the client. The client passes the SAML Response to Tableau Cloud or TCM.
5. Tableau Cloud or TCM verifies that the username in the SAML Response matches a licensed user stored in the Tableau Cloud repository. If a match is verified, then Tableau Cloud or TCM responds to the client with the requested content or information.

SAML Requirements for Tableau Cloud

Before you configure SAML for Tableau Cloud or Tableau Cloud Manager (TCM), obtain what you need to meet the requirements.

- Identity provider (IdP) requirements for Tableau configuration
- SAML compatibility notes and requirements
- Using SAML SSO in Tableau client applications
- Effects of changing authentication type on Tableau Bridge
- XML data requirements

Note: Separate setup and app integration is required to enable SAML authentication for Tableau Cloud and TCM.

Identity provider (IdP) requirements for Tableau configuration

To configure Tableau Cloud or TCM for SAML, you need the following:

- **SSO with MFA is enabled.** As of February 2022, multi-factor authentication (MFA) through your SAML SSO identity provider (IdP) is a Tableau requirement.

  Important: In addition to these requirements, we recommend that you dedicate a site administrator account that is always configured for TableauID with MFA. In the event of an issue with SAML or the IdP, a dedicated Tableau with MFA account ensures that you always have access to your site.

- **Administrator access to your Tableau Cloud site or tenant.** You must have administrator access to the Tableau Cloud site or tenant on which you want to enable SAML.

- **List of users who will use SSO to access Tableau Cloud or TCM.** You should gather the usernames (in email address format) for the users you want to allow single sign-on (SSO) access to Tableau.

- **IdP account that supports SAML 2.0.** You need an account with an external identity provider. Some examples include PingFederate, SiteMinder, and Open AM. The IdP must support SAML 2.0. You must have administrator access to that account.

- **SHA256 is used as signing algorithm.** As of May 2020, Tableau blocks IdP assertions and certificates that are signed with the SHA-1 algorithm.
- **IdP provider that supports import and export of XML metadata.** Although a manually created metadata file might work, Tableau Technical Support cannot assist with generating the file or troubleshooting it.
- **IdP provider that enforces a maximum token age of 24 days or less (2073600 seconds).** If the IdP allows a maximum age of tokens that is a greater length of time than the maximum age setting on Tableau (2073600 seconds), then Tableau will not recognize the token as valid. In this scenario, users will receive error messages (*The sign-in was unsuccessful. Try again.*) when attempting to sign in to Tableau Cloud or TCM.

SAML compatibility notes and requirements

- **SP or IdP initiated:** Tableau supports SAML authentication that begins at the identity provider (IdP) or service provider (SP).
- **Single Log Out (SLO):** Tableau supports both service provider (SP)-initiated SLO and identity provider (IdP)-initiated SLO.

  Note: To obtain the SLO URL for your site or tenant, download and refer to the metadata XML file your Tableau Cloud site or tenant generates. You can find this file by going to *one* of the following places:

  - In Tableau Cloud, **Settings** > **Authentication** > **New Configuration** or **Edit Configuration**.
  - In TCM, **Settings** > **Authentication**.
- **tabcmd and REST API:** To use tabcmd or the Tableau REST API, users must sign in to Tableau Cloud using a personal access token (PAT). To use the Tableau Cloud Manager REST API, users must sign in to TCM using a personal access token (PAT).
- **Encrypted assertions:** Tableau supports either cleartext or encrypted assertions.

- **Tableau Bridge reconfiguration required:** Tableau Bridge supports SAML authentication, but an authentication change requires reconfiguring the Bridge client. For information, see Effects of changing authentication type on Tableau Bridge.
- **Required signature algorithm:** For all new SAML certificates, Tableau Cloud or TCM requires the SHA256 (or greater) signature algorithm.
- **RSA key and ECDSA curve sizes:** The IdP certificate must have either an RSA key strength of 2048 or ECDSA curve size of 256.
- **NameID attribute:** Tableau requires the NameID attribute in the SAML response.

Using SAML SSO in Tableau client applications

Note: Applies to Tableau Cloud only.

Tableau Cloud users with SAML credentials can also sign in to their site from Tableau Desktop or the Tableau Mobile app. For best compatibility, we recommend that the Tableau client application version matches that of Tableau Cloud.

Connecting to Tableau Cloud from Tableau Desktop or Tableau Mobile uses a service provider initiated connection.

Redirecting authenticated users back to Tableau clients

When a user signs in to Tableau Cloud (using a SP-initiated workflow), Tableau Cloud sends a SAML request (`AuthnRequest`) to the IdP, which includes the Tableau application's **RelayState** value. If the user has signed in to Tableau Cloud from a Tableau client such as Tableau Desktop or Tableau Mobile, it's important that the RelayState value is returned within the IdP's SAML response back to Tableau to direct users to a specific Tableau resource.

When the user initiates the sign in process to Tableau Cloud directly from the IdP (using an IdP-initiated workflow), the IdP can include a **RelayState** value in the SAML response to direct users to a specific Tableau resource. For example, the RelayState value could be set to `/#/site/[site-url]/views/[view-name]/[workbook-tab-name]`.

When the RelayState value is not returned properly in these scenarios, the user is taken to their Tableau Cloud home page in the web browser, rather than being redirected back to the application they signed in from.

Work with your identity provider and internal IT team to confirm that this value will be included as part of the IdP’s SAML response.

Effects of changing authentication type on Tableau Bridge

When you change the site’s authentication type or modify the IdP, publishers who use Tableau Bridge for scheduled extract refreshes will need to unlink and relink the client, and re-authenticate using the new method or IdP configuration.

For legacy schedules, unlinking the Bridge client removes all data sources, therefore you must set up the refresh schedules again. For online schedules, after relinking the client you must reconfigure the Bridge client pool.

The change in authentication type does not affect Bridge live queries or refreshes that run directly from the Tableau Cloud site (such as for underlying data in the cloud).

We recommend that you alert Bridge users to changes in their site authentication before you make it. Otherwise, they will become aware through authentication errors they get from the Bridge client, or when the client opens with a blank data source area.

XML data requirements

You configure SAML using XML metadata documents that are generated by Tableau Cloud or TCM and by the IdP. During the authentication process, the IdP and Tableau exchange authentication information using these XML documents. If the XML does not meet the requirements, errors can occur when you configure SAML or when users try to sign in.

HTTP POST and HTTP REDIRECT: Tableau Cloud or TCM supports HTTP POST and REDIRECT requests for SAML communications. In the SAML metadata XML document that is exported by the IdP, the `Binding` attribute can be set to:

- **HTTP-POST**
- **HTTP-REDIRECT**
- **HTTP-POST-SimpleSign**

Dynamic group membership using SAML assertions in Tableau Cloud:

Note: Applies to Tableau Cloud only.

Beginning in June 2024 (Tableau 2024.2), if SAML is configured and the capability's setting enabled, you can dynamically control group membership through custom claims included in the SAML XML response sent by the identity provider (IdP).

When configured, during user authentication, the IdP sends the SAML assertion that contains two custom group membership claims: group (`https://tableau.com/groups`) and group names (for example, "Group1" and "Group2") to assert the user into. Tableau validates the assertion and then enables access to the groups and the content whose permissions are dependent on those groups.

For more information, see Dynamic group membership using assertions.

Example SAML XML response

```
<saml2p:Response
  xmlns:saml2p="urn:oasis:names:tc:SAML:2.0:protocol"
    .....
    .....
  <saml2:Assertion
    .....
    .....
    xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion"
    <saml2:AttributeStatement
               xmlns:saml2="urn:oasis:names:tc:SAML:2.0:assertion">
               <saml2:Attribute
               Name="https://tableau.com/groups"
                         NameFormat="urn:oasis:names:tc:SAML:2.0:attrname-
```

```
format:unspecified">
                    <saml2:AttributeValue
                           xmlns:xs="http://www.w3.org/2001/XMLSchema"
                           xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance
                           xsi:type="xs:string">Group1
                    </saml2:AttributeValue>
                    <saml2:AttributeValue
                           xmlns:xs="http://www.w3.org/2001/XMLSchema"
                           xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance
                           xsi:type="xs:string">Group2
                    </saml2:AttributeValue>
      <saml2:Attribute>
    </saml2:AttributeStatement>
  </saml2:Assertion>
</saml2p:Response>
```

Enable SAML Authentication on a Site or TCM

This topic explains how to enable SAML on the site or Tableau Cloud Manager (TCM) and select single sign-on (SSO) users. It also provides steps for switching from SAML to the default Tableau authentication. Before you enable SAML, we recommend that you review the SAML Requirements for Tableau Cloud, including Effects of changing authentication type on Tableau Bridge.

Note: Enabling SAML authentication for TCM requires a separate setup and app integration from Tableau Cloud.

This topic assumes you are familiar with the information in Authentication and How SAML Authentication Works.

IdP-specific configuration information

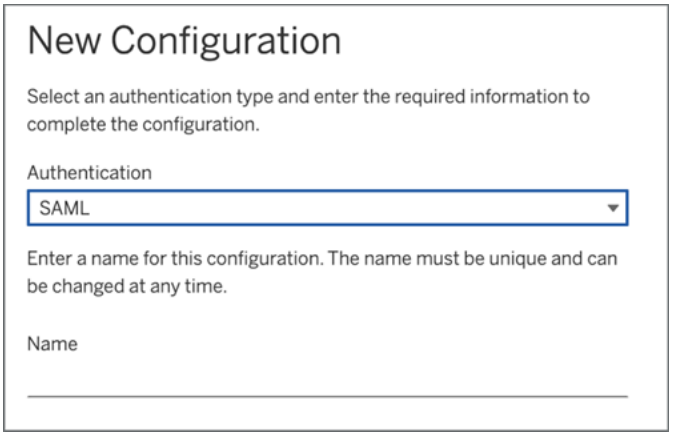
The steps in the sections later in this topic provide basic steps that you can use with your IdP’s documentation to configure SAML for your Tableau Cloud site or TCM. You can get IdP-specific configuration steps for the following IdPs:

- Configure SAML with Microsoft Entra ID
- Configure SAML with AD FS
- Configure SAML with OneLogin
- Configure SAML with PingOne
- Configure SAML with Okta
- Configure SAML with Salesforce

Enable SAML

For Tableau Cloud

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.
2. On the **Authentication** tab, click the **New Configuration** button, select **SAML** from the Authentication drop-down, and then enter a name for the configuration.



New Configuration

Select an authentication type and enter the required information to complete the configuration.

Authentication: SAML

Enter a name for this configuration. The name must be unique and can be changed at any time.

Name

Note: Configurations created before January 2025 (Tableau 2024.3) can't be renamed.

For TCM

Alternatively, in TCM, do the following:

1. Sign in to TCM as a cloud administrator, and select **Settings** > **Authentication**.
2. Select the **Enable an additional authentication method** check box, and select **SAML** from the Authentication drop-down.
3. Click the **Configuration (required)** drop-down arrow.

SAML configuration steps

This section takes you through the configuration steps that appear on the **Authentication** tab in the Tableau Cloud or TCM Settings page.

> **Note:** To complete this process, you will also need the documentation your IdP provides. Look for topics that refer to configuring or defining a service provider for a SAML connection, or adding an application.

Step 1: Export metadata from IdP

Go to your IdP, sign in to your IdP account, and use the instructions provided by the IdP’s documentation to download your IdP's metadata. The IdP's metadata enables Tableau Cloud or TCM to connect to your IdP.

For step 1, the IdP’s documentation will guide you also in how to provide metadata to a service provider. It will instruct you to download a SAML metadata file, or it will display XML code. If it displays XML code, copy and paste the code into a new text file, and save the file with a .xml extension.

Step 2: Upload metadata to Tableau

For Tableau Cloud, in the New Configuration page in Tableau Cloud, import the metadata (.xml) file that you downloaded from the IdP or configured manually from the XML it provided.

For TCM, in the Authentication page in TCM, import the metadata (.xml) file that you downloaded from the IdP or configured manually from the XML it provided.

Notes:

- After uploading the IdP metadata, both the **IdP entity ID** and **IdP SSO service URL** fields populate automatically.
- If editing the configuration, you will need to upload the metadata file so Tableau knows to use the correct IdP entity ID and SSO service URL.
- You can use the **Clear IdP Metadata** button if you need to upload a new metadata file.

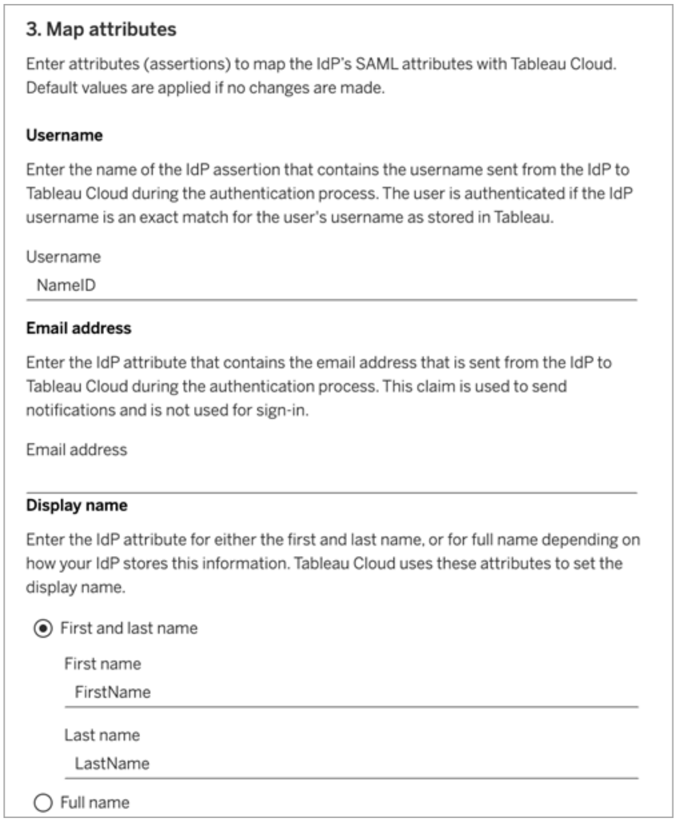
Step 3: Map attributes

Attributes contain authentication, authorization, and other information about a user.

> **Note:** Tableau Cloud or TCM requires the **NameID** attribute in the SAML response. You can provide other attributes to map user names in Tableau, but the response message must include the **NameID** attribute.

- **Username:** (Required) Enter the name of the attribute that stores users' usernames (email addresses).
- **Email address:** (Optional) Enter the name of the attribute that contains the email address that the IdP uses during the authentication process to enable users to receive notifications at an email address that is different from the username. The email address attribute is used for notifications purposes only and not used for sign-in.
- **Display name:** (Optional but recommended) Some IdPs use separate attributes for first and last names, and others store the full name in one attribute.

Select the button that corresponds to the way your IdP stores the names. For example, if the IdP combines first and last name in one attribute, select **Display name**, and then enter the attribute name.



3. Map attributes

Enter attributes (assertions) to map the IdP's SAML attributes with Tableau Cloud. Default values are applied if no changes are made.

Username

Enter the name of the IdP assertion that contains the username sent from the IdP to Tableau Cloud during the authentication process. The user is authenticated if the IdP username is an exact match for the user's username as stored in Tableau.

Username: NameID

Email address

Enter the IdP attribute that contains the email address that is sent from the IdP to Tableau Cloud during the authentication process. This claim is used to send notifications and is not used for sign-in.

Email address:

Display name

Enter the IdP attribute for either the first and last name, or for full name depending on how your IdP stores this information. Tableau Cloud uses these attributes to set the display name.

● First and last name

First name: FirstName

Last name: LastName

○ Full name

Step 4: Choose default for embedded views

Note: Applies to Tableau Cloud only.

Select the method by which users sign in to embedded views. The options are to open a separate pop-up window that displays the IdP’s sign-in form, or to use an inline frame (iframe).

Important: Because iframes can be vulnerable to *clickjacking* attacks, not all IdPs support signing in through an iframe. With clickjacking, the attacker tries to lure users into clicking or entering content. They do this by displaying the page to attack in a transparent layer over an unrelated page. For Tableau Cloud, an attacker might try to capture user credentials or to get an authenticated user to change settings. For more information, see Clickjacking on the Open Web Application Security Project website.

If your IdP doesn’t support signing in through an iframe, select **Authenticate in a separate pop-up window**.

Step 4: Get Tableau metadata (TCM)

To create the SAML connection between TCM and your IdP, you need to exchange required metadata between the two services. To get metadata from TCM, choose one of the following methods. See the IdP’s SAML configuration documentation to confirm the correct option.

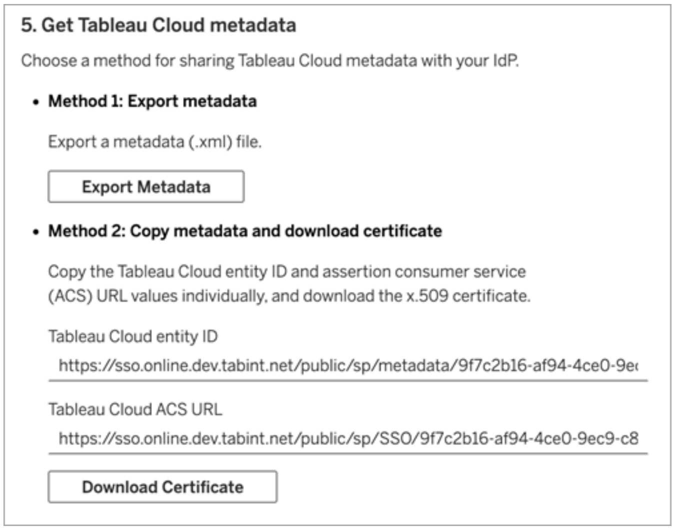
- Select **Export Metadata** button to download an XML file that contains the Tableau Cloud SAML entity ID, Assertion Consumer Service (ACS) URL, and X.509 certificate.
- Select **Download Certificate** if your IdP expects the required information in a different way. For example, if it wants you to enter the Tableau Cloud entity ID, ACS URL, and X.509 certificate in separate locations.

Step 5: Get Tableau metadata (Tableau Cloud)

To create the SAML connection between Tableau Cloud and your IdP, you need to exchange required metadata between the two services. To get metadata from Tableau Cloud, choose one of the following methods. See the IdP’s SAML configuration documentation to confirm the correct option.

- Select **Export Metadata** button to download an XML file that contains the Tableau Cloud SAML entity ID, Assertion Consumer Service (ACS) URL, and X.509 certificate.

- Select **Download Certificate** if your IdP expects the required information in a different way. For example, if it wants you to enter the Tableau Cloud entity ID, ACS URL, and X.509 certificate in separate locations.



5. Get Tableau Cloud metadata

Choose a method for sharing Tableau Cloud metadata with your IdP.

- **Method 1: Export metadata**

  Export a metadata (.xml) file.

- **Method 2: Copy metadata and download certificate**

  Copy the Tableau Cloud entity ID and assertion consumer service (ACS) URL values individually, and download the x.509 certificate.

  Tableau Cloud entity ID
  https://sso.online.dev.tabint.net/public/sp/metadata/9f7c2b16-af94-4ce0-9e

  Tableau Cloud ACS URL
  https://sso.online.dev.tabint.net/public/sp/SSO/9f7c2b16-af94-4ce0-9ec9-c8

Step 5: Configure IdP (TCM)

For step 5, use the instructions provided by the IdP’s documentation to submit the TCM metadata.

Step 6: Configure IdP (Tableau Cloud)

For step 6, use the instructions provided by the IdP’s documentation to submit the Tableau Cloud metadata.

Step 6: Test configuration and troubleshoot SAML (TCM)

We highly recommend that you test the SAML configuration to avoid any locked out scenarios. Testing the configuration helps ensure that you have configured SAML correctly before changing the authentication type of your users to SAML. To test the configuration successfully, make sure that there is at least one user who you can sign in as who is already provisioned in the IdP and added to your Tableau Cloud or TCM with SAML authentication type configured.

If you can't successfully sign in to TCM, start with the troubleshooting steps suggested on the Authentication page. If those steps do not resolve the issue, see Troubleshoot SAML.

Step 7: Test configuration and troubleshoot SAML (Tableau Cloud)

We highly recommend that you test the SAML configuration to avoid any locked out scenarios. Testing the configuration helps ensure that you have configured SAML correctly before changing the authentication type of your users to SAML. To test the configuration successfully, make sure that there is at least one user who you can sign in as who is already provisioned in the IdP and added to your Tableau Cloud or TCM with SAML authentication type configured.

If you can't successfully sign in to Tableau Cloud, start with the troubleshooting steps suggested on the New Configuration page. If those steps do not resolve the issue, see Troubleshoot SAML.

Manage users

Select existing Tableau Cloud or TCM users, or add new users you want to approve for single sign-on.

When you add or import users, you also specify their authentication type. On the Users page, you can change users’ authentication type any time after adding them.

- Manage Users With Tableau Cloud Manager topic for TCM

Default authentication type for embedded views

Note: Applies to Tableau Cloud only.

- **Let users to choose their authentication type**

  When this option is selected, only a pop-up window will be supported. In this pop-up window, two sign-in options appear where a view is embedded: a sign-in button that uses single sign-on (SSO) authentication and a link to use Tableau credentials as the alternative.

  > **Tip:** With this option, users need to know which sign-in option to choose. As part of notification you send your users after you add them to the single sign-on site, let them know which type of authentication to use for a variety of sign-in scenarios. For example, embedded views, Tableau Desktop, Tableau Bridge, Tableau Mobile, and so on.

- **Tableau with MFA**

  This option requires users to sign in using Tableau credentials with multi-factor authentication even if SAML is enabled on the site. Signing in with Tableau with MFA requires users to set a verification method to confirm the identity each time the user signs in to Tableau Cloud. For more information, see Multi-Factor Authentication and Tableau Cloud.

- List of authentication configurations

When a specific configuration option is selected, the way users can sign in to embedded views is determined by the setting you configured in step 6 above for the named configuration.

Use Tableau authentication

If a site or tenant is configured for SAML, you can change the settings to require some or all users to sign in using Tableau credentials.

- If you no longer want an identity provider to handle authentication , or require all users to sign in with their Tableau credentials, you can change authentication type at the site or tenant level. See Change the site’s authentication type section, below.
- If you want to keep SAML enabled for some users, but require others to use Tableau, you can change authentication type at the user level. For more information, see Set the User Authentication Type.

Change the site’s authentication type

For Tableau Cloud

Beginning in January 2025 (Tableau 2024.3), you can enable multiple authentication types and methods on a site. To change what authentication you want available on the site, enable or disable the authentication configurations.

1. Sign in to the Tableau Cloud site as a site administrator.
2. Select **Settings** > **Authentication**.
3. Disable or enable authentication configurations for the site by clicking the Actions menu and selecting **Disable** or **Enable**.

After you make the SAML configuration inactive, the metadata and IdP information are preserved so that if you want to enable it again, you do not need to set up the SAML connection with the IdP again.

For TCM

1. Sign in to the TCM as a cloud administrator.
2. Select **Settings** > **Authentication**.
3. Remove the selection from the **Enable an additional authentication method** check box.

Update SAML certificate

The certificate used for Tableau site metadata is provided by Tableau and not configurable. To update the certificate for SAML, you must upload a new certificate to your IdP and re-exchange the metadata with Tableau Cloud.

For Tableau Cloud

1. Sign in to the site as a site administrator, and select **Settings** > **Authentication**.
2. Under Authentication types, go to the SAML configuration you want to update, and click the Actions menu and select **Edit**.
3. Open a new tab or window, and sign in to your IdP account.
4. Use the instructions provided by the IdP’s documentation to upload a new SAML certificate.
5. Download the new XML metadata file to provide to Tableau Cloud.
6. Return to the **Edit Configuration** page in Tableau Cloud, and in step 2, upload the metadata file that you downloaded from the IdP.
7. Scroll down the page and click the **Save and Continue** button.

For TCM

1. Sign in to the TCM as a cloud administrator, and select **Settings** > **Authentication**.
2. From the Authentication drop-down, select **SAML** > **Configuration (required)**.
3. Open a new tab or window, and sign in to your IdP account.

4. Use the instructions provided by the IdP’s documentation to upload a new SAML certificate.

5. Download the new XML metadata file to provide to TCM.

6. Return to the Authentication page in TCM, and in step 2, upload the metadata file that you downloaded from the IdP.

7. Scroll down the page and click the **Save and Continue** button.

See also

Access Sites from Connected Clients

Configure SAML with Microsoft Entra ID

If you’ve configured Microsoft Entra ID (also known as Microsoft Azure Active Directory (Azure AD)) as your SAML identity provider (IdP), use the information in this topic alongside the Microsoft Entra documentation to add Tableau Cloud or Tableau Cloud Manager (TCM) to your single sign-on applications.

Notes:

- These steps reflect a third-party application and are subject to change without our knowledge. If the steps described here do not match the screens you see in your IdP account, you can use the general SAML configuration steps, along with the IdP’s documentation.
- Beginning February 2022, multi-factor authentication (MFA) through your SAML SSO identity provider (IdP) is a Tableau requirement.
- The configuration steps in the IdP may be in a different order than what you see in Tableau.

Prerequisites

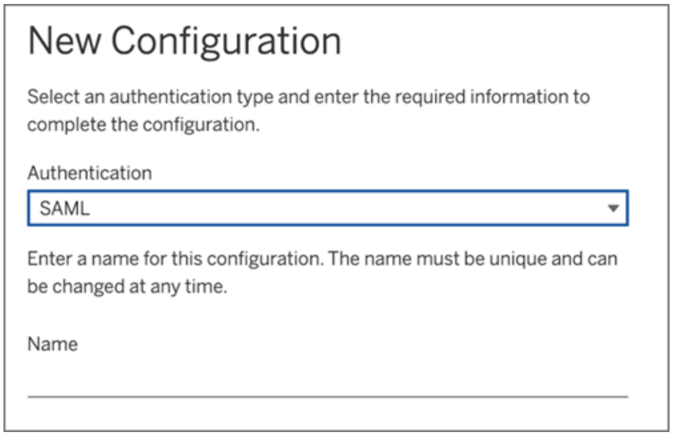
Before you can configure Tableau and SAML with Entra ID, your environment must have the following:

- Meet the Prerequisites as described in the Tutorial: Microsoft Entra SSO integration with Tableau Cloud documentation
- Create a Microsoft Entra test user as described in the Tutorial: Microsoft Entra SSO integration with Tableau Cloud documentation

Step 1: Get started

In Tableau Cloud, do the following:

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.
2. On the **Authentication** tab, click the **New Configuration** button, select **SAML** from the Authentication drop-down, and then enter a name for the configuration.



New Configuration

Select an authentication type and enter the required information to complete the configuration.

Authentication: SAML

Enter a name for this configuration. The name must be unique and can be changed at any time.

Name

Note: Configurations created before January 2025 (Tableau 2024.3) can't be renamed.

Alternatively, in TCM, do the following:

1. Sign in to TCM as a cloud administrator, and select **Settings** > **Authentication**.
2. Select the **Enable an additional authentication method** check box, and select **SAML** from the Authentication drop-down.
3. Click the **Configuration (required)** drop-down arrow.

In Entra, do the following:

Note: For TCM, you use the "Tableau Cloud application" in the IdP to configure TCM authentication.

1. Sign in to the Microsoft Entra admin center as at least a Cloud Application Administrator.
2. Navigate to **Enterprise applications** > **New application**.
3. On the **Browse Microsoft Entra Gallery** page, enter "Tableau Cloud" in the search box.
4. Select **Tableau Cloud** from the search results, and in the right panel, optionally change the default name of the application instance and then click **Create**.
   Notes:
   - Adding the instance of Tableau Cloud application might take a few moments.
   - When creating an instance of the Tableau Cloud application through the gallery, SAML is the only configuration type supported for integration with Tableau.
5. In the left pane, navigate to **Single sign-on**.
6. On the Select a single sign-on method page, select **SAML**.
7. On the Set up Single Sign-On with SAML page, next to **Basic SAML Configuration**, click **Edit**, and do the following:
   a. In the **Identifier (Entity ID)** text box, enter the following placeholder URL that you will edit again in step 3: `https://sso.online.tableau.com/public/sp/metadata?alias=<entityid>`

   b. In the **Reply URL** text box, enter the following placeholder URL that you will edit again in step 3: `https://sso.online.tableau.com/public/sp/`

   c. Select **Save**.

8. Next, next to **SAML Signing Certificate**, click **Edit**.
9. Click **Download** to download the **Federation Metadata XML**.
10. Finally, next to **Attributes & Claims**, select **Edit** to prepare for step 2.2, below.

Step 2: Configure SAML in Tableau Cloud or TCM

Complete the following procedure after you save the SAML metadata file from Entra, as described in the section above.

For Tableau Cloud

1. Back in Tableau Cloud, on the New Configuration page, under **2. Upload metadata to Tableau**, click the **Choose a file** button and navigate to the SAML metadata file you saved from Entra. This automatically fills the IdP entity ID and SSO Service URL values.
2. Under **3. Map attributes** copy the corresponding attribute names (assertions) from the Entra's **Attributes & Claims** section:
    a. For the **Username** field, enter the correct assertion value used by your organization. For example, your organization might use `nameID`, `mail`, `userprincipalName`, the `http://schemas.xmlsoap.org/ws/2005/05/identity/claims/name` URL, or other assertion value.
    b. For the remaining optional fields, copy the URL claim names.
3. Under **4. Choose default for embedding views (optional)**, select the experience you want to enable when users access embedded Tableau content.
4. Select the **Save and Continue** button.
5. Go to **5. Get Tableau Cloud metadata** to prepare for step 3.1 below.

For TCM

1. Back in TCM, on the Authentication page, under **2. Upload metadata to Tableau**, click the **Choose a file** button and navigate to the SAML metadata file you saved from Entra. This automatically fills the IdP entity ID and SSO Service URL values.

2. Under **3. Map attributes** copy the corresponding attribute names (assertions) from the Entra's **Attributes & Claims** section:

    a. For the **Username** field, enter the correct assertion value used by your organization. For example, your organization might use `nameID`, `mail`, `userprincipalName`, the `http://schemas.xmlsoap.org/ws/2005/05/identity/claims/name` URL, or other assertion value.

    b. For the remaining optional fields, copy the URL claim names.

3. Select the **Save and Continue** button.

4. Go to **4. Get Tableau Cloud metadata** to prepare for step 3.1 below.

Step 3: Configure "Tableau Cloud application" in your IdP

1. Back in the Entra, on the Set up Single Sign-On with SAML page, next to **Basic SAML Configuration**, click **Edit**, and do the following:

    a. For **Identifier (Entity ID)**, do one of the following:

        - Under Tableau Cloud's **5. Get Tableau Cloud metadata**, copy the **Tableau Cloud entity ID** URL.

        - Under TCM's **4. Get Tableau Cloud metadata**, copy the **Tableau Cloud entity ID** URL.

    b. For **Reply URL**, do one of the following:

        - Under Tableau Cloud's **5. Get Tableau Cloud metadata**, copy the **Tableau Cloud ACS URL**.

        - Under TCM's **4. Get Tableau Cloud metadata**, copy the **Tableau Cloud ACS URL**.

    c. Select **Save**.

Step 4: Test the SAML configuration

In Entra, do the following:

- Assign the Microsoft Entra test user as described in the Tutorial: Microsoft Entra SSO integration with Tableau Cloud documentation.

In Tableau Cloud or TCM, do the following:

1. Add that Entra user to Tableau Cloud or TCM to test the SAML configuration.
    - To add users in Tableau Cloud, see the Add Users to a Site topic.
    - To add users in TCM, see Manage Users With Tableau Cloud Manager topic.
2. Do *one* of the following:
    - In Tableau Cloud, on the New Configuration page, under **7. Test configuration**, click the **Test Configuration** button.
    - In TCM, on the Authentication page, under **6. Test configuration**, click the **Test Configuration** button.

We highly recommend that you test the SAML configuration to avoid any locked out scenarios. Testing the configuration helps ensure that you have configured SAML correctly before changing the authentication type of your users to SAML. To test the configuration successfully, make sure that there is at least one user who you can sign in as who is already provisioned in the IdP and added to your Tableau Cloud or TCM with SAML authentication type configured.

Additional notes for SAML support with Microsoft Entra ID

- To avoid enabling SP-initiated single logout (SLO), ensure that the IdP metadata uploaded to Tableau Cloud or TCM SAML settings does not contain the SLO endpoint. Alternatively, in the IdP metadata that you upload to Tableau Cloud or TCM SAML settings, you can replace the existing “SingleLogoutService” value with "https://sso.online.tableau.com/public/idp/SSO”.

- If using IdP-initiated SSO for your application, do not provide a “Sign On URL” value in the Tableau Cloud or TCM application from the gallery in Entra. Providing a value for this field will bypass IdP-initiated SSO.

Configure SAML with AD FS

You can configure Active Directory Federation Services (AD FS) as a SAML identity provider, and add Tableau Cloud or Tableau Cloud Manager (TCM) to your supported single sign-on applications. When you integrate AD FS with SAML and Tableau Cloud or TCM, your users can sign in to Tableau Cloud or TCM using their standard network credentials.

Notes:

- These steps reflect a third-party application and are subject to change without our knowledge. If the steps described here do not match the screens you see in your IdP account, you can use the general SAML configuration steps, along with the IdP’s documentation.
- Beginning February 2022, multi-factor authentication (MFA) through your SAML SSO identity provider (IdP) is a Tableau requirement.
- The configuration steps in the IdP may be in a different order than what you see in Tableau.

Prerequisites

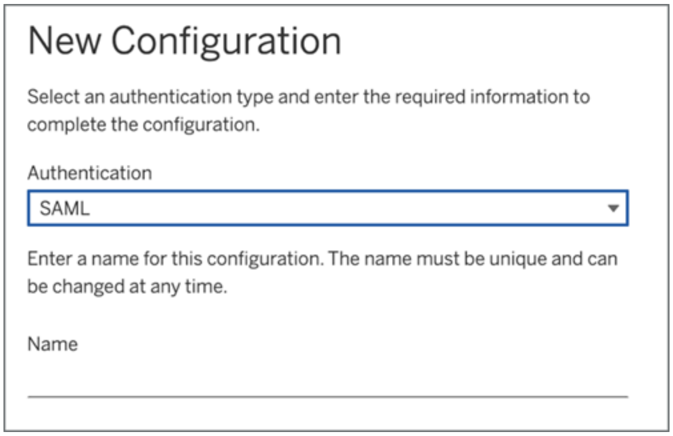
Before you can configure Tableau Cloud or TCM and SAML with AD FS, your environment must have the following:

- A server running Microsoft Windows Server 2008 R2 (or later) with AD FS 2.0 (or later) and IIS installed.
- We recommend that you secure your AD FS server (for example, using a reverse proxy). When your AD FS server is accessible from outside your firewall, Tableau can redirect users to the sign in page hosted by AD FS.
- For Tableau Cloud, a site administrator account that uses Tableau with MFA authentication. If SAML single sign-on fails, you can still sign in to Tableau Cloud as a site administrator.
- For TCM, a cloud administrator account that uses Tableau with MFA authentication. If SAML single sign-on fails, you can still sign in to TCM.

Step 1: Get started

In Tableau Cloud, do the following:

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.
2. On the **Authentication** tab, click the **New Configuration** button, select **SAML** from the Authentication drop-down, and then enter a name for the configuration.



New Configuration

Select an authentication type and enter the required information to complete the configuration.

Authentication: SAML

Enter a name for this configuration. The name must be unique and can be changed at any time.

Name

Note: Configurations created before January 2025 (Tableau 2024.3) can't be renamed.

Alternatively, in TCM, do the following:

1. Sign in to TCM as a cloud administrator, and select **Settings** > **Authentication**.
2. Select the **Enable an additional authentication method** check box, and select **SAML** from the Authentication drop-down.
3. Click the **Configuration (required)** drop-down arrow.

In AD FS, do the following:

The procedure below exports AD FS metadata that you'll import to Tableau Cloud or TCM. You will also make sure the metadata is configured and encoded properly for Tableau, and verify other AD FS requirements for your SAML configuration.

1. Export AD FS Federation metadata to an XML file, and then download the file from **https://<*adfs server name*>/federationmetadata/2007-06/FederationMetadata.xml**.
2. Open the metadata file in a text editor like Sublime Text or Notepad++, and verify that it is correctly encoded as UTF-8 without BOM.

   If the file shows some other encoding type, save it from the text editor with the correct encoding.
3. Verify that AD FS uses forms-based authentication. Sign-ins are performed in a browser window, so you need AD FS to default to this type of authentication.

   Edit **c:\inetpub\adfs\ls\web.config**, search for the tag **,** and move the line so it appears first in the list. Save the file so that IIS can automatically reload it.

   > **Note:** If you don't see the **c:\inetpub\adfs\ls\web.config** file, IIS is not installed and configured on your AD FS server.
4. Configure an additional AD FS relying party identifier. This allows your system to work around any AD FS issues with SAML logout.

Do one of the following:

Windows Server 2008 R2:

a. In **AD FS 2.0**, right-click on the relying party you created for Tableau Cloud or TCM earlier, and click **Properties**.

b. On the **Identifiers** tab, in the **Relying party identifier** box, enter **https://<tableauservername>/public/sp/metadata** and then click **Add**.

Windows Server 2012 R2:

a. In **AD FS Management**, in the **Relying Party Trusts** list, right-click on the relying party you created for Tableau Cloud or TCM earlier, and click **Properties**.

b. On the **Identifiers** tab, in the **Relying party identifier** box, enter **https://<tableauservername/public/sp/metadata** and then click **Add**.

Step 2: Configure SAML in Tableau Cloud or TCM

Complete the following procedure after you save the SAML metadata file from AD FS, as described in the section above.

For Tableau Cloud

1. Back in Tableau Cloud, on the New Configuration page, under **2. Upload metadata to Tableau**, click the **Choose a file** button and navigate to the SAML metadata file (FederationMetadata.xml) you exported from AD FS. This automatically fills the IdP entity ID and SSO Service URL values.

2. Skip **3. Map attributes** because you will create a claim rule in AD FS to match the attribute names that Tableau Cloud expects in the section below.

3. Under **4. Choose default for embedding views (optional)**, select the experience you want to enable when users access embedded content.

4. Click the **Save and Continue** button.

5. Under **5. Get Tableau Cloud metadata**, click the **Export Metadata** button and save the Tableau metadata file to your computer.

   By default, the file name is **saml_sp_metadata.xml**.

For TCM

1. Back in TCM, on the Authentication page, under **2. Upload metadata to Tableau**, click the **Choose a file** button and navigate to the SAML metadata file (FederationMetadata.xml) you exported from AD FS. This automatically fills the IdP entity ID and SSO Service URL values.

2. Skip **3. Map attributes** because you will create a claim rule in AD FS to match the attribute names that TCM expects in the section below.

3. Click the **Save and Continue** button.

4. Under **4. Get Tableau Cloud metadata**, click the **Export Metadata** button and save the Tableau metadata file to your computer.

   By default, the file name is **saml_sp_metadata.xml**.

Step 3: Configure "Tableau Cloud application" in your IdP

Configuring AD FS to accept Tableau Cloud or TCM sign-in requests is a multi-step process, starting with importing the Tableau Cloud or TCM metadata file to AD FS.

1. Do one of the following to open the **Add Relying Party Trust Wizard**:

   Windows Server 2008 R2:

   a. Select **Start menu**> **to Administrative Tools**> **AD FS 2.0**.

   b. In **AD FS 2.0**, under **Trust Relationships**, right-click the **Relying Party Trusts** folder, and then click **Add Relying Party Trust**.

   Windows Server 2012 R2:

   a. Open **Server Manager**, and then on the **Tools** menu, click **AD FS Management**.

   b. In **AD FS Management**, on the **Action** menu, click **Add Relying Party Trust**.

2. In the **Add Relying Party Trust Wizard**, click **Start**.

3. On the **Select Data Source** page, select **Import data about the relying party from a file**, and then click **Browse** to locate your Tableau Cloud or TCM metadata file.

   By default, the file name is **saml_sp_metadata.xml**.

4. Click **Next**, and on the **Specify Display Name** page, type a name and description for the relying party trust in the **Display name** and **Notes** boxes.

5. Click Next to skip the **Configure Multi-factor Authentication Now** page.

6. Click Next to skip the **Choose Issuance Authorization Rules** page.

7. Click Next to skip the **Ready to Add Trust** page.

8. On the **Finish** page, select the **Open the Edit Claim Rules dialog for this relying party trust when the wizard closes** check box, and then click **Close**.

Next, you'll work in the **Edit Claim Rules** dialog, to add a rule that makes sure the assertions sent by AD FS match the assertions Tableau Cloud or TCM expects. At a minimum, Tableau Cloud or TCM needs a username (in email address format). However, including first and last names in addition to email will ensure the user names displayed in Tableau Cloud or TCM are the same as those in your AD account.

1. In the **Edit Claim Rules** dialog box, click **Add Rule**.

2. On the **Choose Rule Type** page, for **Claim rule template**, select **Send LDAP Attributes as Claims**, and then click **Next**.

3. On the **Configure Claim Rule** page, for **Claim rule name**, enter a name for the rule that makes sense to you.

4. For **Attribute store**, select **Active Directory**, complete the mapping as shown below, and then click **Finish**.

   The mapping is case sensitive and requires exact spelling, so double-check your entries. The table here shows common attributes and claim mappings. Verify attributes with your specific Active Directory configuration.

   > **Note:** Tableau Cloud or TCM requires the **NameID** attribute in the SAML response. You can provide other attributes to map user names in Tableau Cloud or TCM, but the response message must include the **NameID** attribute.

LDAP Attribute	**Outgoing Claim Type**
Depending on the version of AD FS: User-Principal-Name *or* E-Mail-Addresses	 email *or* E-Mail Address
Given-Name	firstName
Surname	lastName

If you are running AD FS 2016 or later, then you must add a rule to pass through all claim values. If you are running an older version of AD FS, skip to the next procedure to export AD FS metadata.

1. Click **Add Rule**.
2. Under **Claim rule template,** choose **Pass Through or Filter an Incoming Claim.**
3. Under **Claim rule name**, enter Windows.
4. On the **Edit Rule - Windows** pop-up:
   - Under **Incoming claim type**, select **Windows account name**.
   - Select **Pass through all claim values**.
   - Click **OK**.

In Tableau Cloud, do the following:

1. Go back to Tableau Cloud, on the New Configuration page, under **3. Map attributes**, populate the claim values from AD FS in Tableau Cloud.

2. Click the **Save and Continue** button.

Alternatively, in TCM do the following:

1. Go back to TCM, on the Authentication page, under **3. Map attributes**, populate the claim values from AD FS in TCM.

2. Click the **Save and Continue** button.

Step 4: Test the SAML configuration in Tableau Cloud or TCM

1. In Tableau Cloud or TCM, add a sample user to both AD FS and Tableau Cloud or TCM to test the SAML configuration.

    - To add users in Tableau Cloud, see Add Users to a Site topic.

    - To add users in TCM, see Manage Users With Tableau Cloud Manager topic.

Step 3. Configure Tableau Cloud application in your IdP

Configuring AD FS to accept Tableau Cloud sign-in requests is a multi-step process, starting with importing the Tableau Cloud metadata file to AD FS.

1. Do one of the following to open the **Add Relying Party Trust Wizard**:

    Windows Server 2008 R2:

    a. Select **Start menu**> **to Administrative Tools**> **AD FS 2.0**.

    b. In **AD FS 2.0**, under **Trust Relationships**, right-click the **Relying Party Trusts** folder, and then click **Add Relying Party Trust**.

    Windows Server 2012 R2:

   a. Open **Server Manager**, and then on the **Tools** menu, click **AD FS Management**.

   b. In **AD FS Management**, on the **Action** menu, click **Add Relying Party Trust**.

2. In the **Add Relying Party Trust Wizard**, click **Start**.

3. On the **Select Data Source** page, select **Import data about the relying party from a file**, and then click **Browse** to locate your Tableau Cloud metadata file.

   By default, the file name is **saml_sp_metadata.xml**.

4. Click **Next**, and on the **Specify Display Name** page, type a name and description for the relying party trust in the **Display name** and **Notes** boxes.

5. Click Next to skip the **Configure Multi-factor Authentication Now** page.

6. Click Next to skip the **Choose Issuance Authorization Rules** page.

7. Click Next to skip the **Ready to Add Trust** page.

8. On the **Finish** page, select the **Open the Edit Claim Rules dialog for this relying party trust when the wizard closes** check box, and then click **Close**.

Next, you'll work in the **Edit Claim Rules** dialog, to add a rule that makes sure the assertions sent by AD FS match the assertions Tableau Cloud expects. At a minimum, Tableau Cloud needs a username (in email address format). However, including first and last names in addition to email will ensure the user names displayed in Tableau Cloud are the same as those in your AD account.

1. In the **Edit Claim Rules** dialog box, click **Add Rule**.

2. On the **Choose Rule Type** page, for **Claim rule template**, select **Send LDAP Attributes as Claims**, and then click **Next**.

3. On the **Configure Claim Rule** page, for **Claim rule name**, enter a name for the rule that makes sense to you.

4. For **Attribute store**, select **Active Directory**, complete the mapping as shown below, and then click **Finish**.

   The mapping is case sensitive and requires exact spelling, so double-check your entries. The table here shows common attributes and claim mappings. Verify attributes with your specific Active Directory configuration.

   > **Note:** Tableau Cloud requires the **NameID** attribute in the SAML response. You can provide other attributes to map user names in Tableau Cloud, but the response message must include the **NameID** attribute.

LDAP Attribute	Outgoing Claim Type
Depending on the version of AD FS: User-Principal-Name *or* E-Mail-Addresses	email *or* E-Mail Address
Given-Name	firstName
Surname	lastName

If you are running AD FS 2016 or later, then you must add a rule to pass through all claim values. If you are running an older version of AD FS, skip to the next procedure to export AD FS metadata.

1. Click **Add Rule**.
2. Under **Claim rule template,** choose **Pass Through or Filter an Incoming Claim.**
3. Under **Claim rule name**, enter Windows.
4. On the **Edit Rule - Windows** pop-up:
   - Under **Incoming claim type**, select **Windows account name**.
   - Select **Pass through all claim values**.
   - Click **OK**.

In Tableau Cloud, do the following:

1. Go back to Tableau Cloud, on the New Configuration page, under **3. Map attributes**, populate the claim values from AD FS in Tableau Cloud.

2. Click the **Save and Continue** button.

Step 4: Test the SAML configuration in Tableau Cloud

1. In Tableau Cloud, add a sample user to both ADFS and Tableau Cloud to test the SAML configuration. To add users in Tableau Cloud, see Add Users to a Site topic.

2. Go back to the New Configuration page, under **7. Test configuration**, click the **Test Configuration** button.

We highly recommend that you test the SAML configuration to avoid any locked out scenarios. Testing the configuration helps ensure that you have configured SAML correctly before changing the authentication type of your users to SAML. To test the configuration successfully, make sure that there is at least one user who you can sign in as who is already provisioned in the IdP and added to your Tableau Cloud or TCM with SAML authentication type configured.

Step 5: Add additional users to the SAML-enabled Tableau Cloud site

Use the steps below to add additional users to your site. The procedure described in this section is performed on the Tableau Cloud’s **Users** page.

1. After you complete the steps above, from the left pane, navigate to the **Users** page.

2. Follow the procedure described in Add Users to a Site topic. Alternatively, you can add users using a .csv file by following the procedure described in Import Users topic.

We highly recommend that you test the SAML configuration to avoid any locked out scenarios. Testing the configuration helps ensure that you have configured SAML correctly before changing the authentication type of your users to SAML. To test the configuration successfully, make sure that there is at least one user who you can sign in as who is already provisioned in the IdP and added to your Tableau Cloud or TCM with SAML authentication type configured.

Step 5: Add additional users to the SAML-enabled Tableau Cloud site or TCM

Use the steps below to add additional users to your site. The procedure described in this section is performed on the Tableau Cloud’s or TCM's **Users** page.

1. After you complete the steps above, from the left pane, navigate to the **Users** page.
2. Follow the procedure described in one of the following topics:
    - For Tableau Cloud, see Add Users to a Site topic. Alternatively, you can add users using a .csv file by following the procedure described in Import Users topic.
    - For TCM, see Manage Users With Tableau Cloud Manager topic. Alternatively, you can add users using a .csv file by following the procedure described in Manage Users With Tableau Cloud Manager section in the same topic.

Additional requirements and tips for SAML support with AD FS

- After you set up SAML integration between AD FS and Tableau Cloud or TCM, you must update Tableau to reflect particular user changes you make in Active Directory. For example, adding or removing users.

  You can add users automatically or manually:

    - **To add users automatically:** Create a script (using PowerShell, Python, or batch file) to push AD changes to Tableau Cloud or TCM. The script can use tabcmd or the Tableau REST API to interact with Tableau Cloud. The script can use Tableau Cloud Manager REST API to interact with TCM.
    - **To add users manually:** Sign in to the Tableau Cloud or TCM UI, go to the **Users** page, click **Add Users**, select **Add Users by Username**, and enter users’ username or upload a .csv file that contains their information.

> **Note:** If you want to remove a user but keep content assets they own, change the owner of the content before you remove the user. Deleting a user also deletes content they own.

- In Tableau Cloud or TCM, a user’s username is their unique identifier. As described in the steps for configuring AD FS to accept sign-in requests from Tableau Cloud or TCM, users’ Tableau Cloud or TCM usernames must match the username stored in AD.
- In Step 3: Configure "Tableau Cloud application" in your IdP, you added a claim rule in AD FS to match the first name, last name, and username attributes between AD FS and Tableau Cloud. Alternatively, you can use step **3. Map attributes** in Tableau Cloud to do the same.

Configure SAML with OneLogin

If you use OneLogin as your SAML identity provider (IdP), you can use the information in this topic to set up SAML authentication for Tableau Cloud or Tableau Cloud Manager (TCM).

These steps assume that you have permissions for modifying your organization’s OneLogin portal, and you are comfortable reading XML and pasting values into attributes.

Notes:

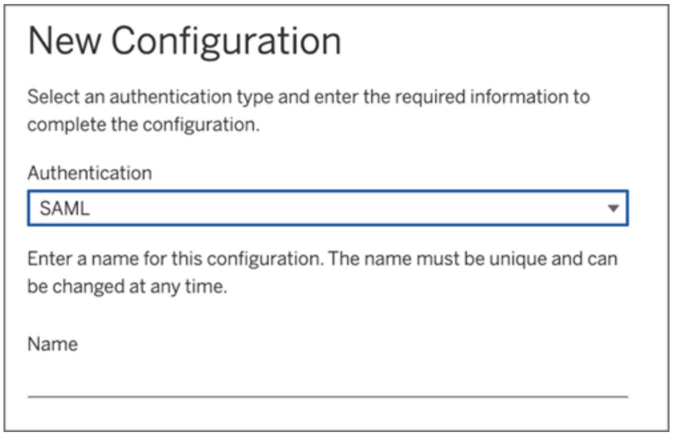
- These steps reflect a third-party application and are subject to change without our knowledge. If the steps described here do not match the screens you see in your IdP account, you can use the general SAML configuration steps, along with the IdP’s documentation.
- Beginning February 2022, multi-factor authentication (MFA) through your SAML SSO identity provider (IdP) is a Tableau requirement.
- The configuration steps in the IdP may be in a different order than what you see in Tableau.

Step 1: Get started

In Tableau Cloud, do the following:

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.

2. On the **Authentication** tab, click the **New Configuration** button, select **SAML** from the Authentication drop-down, and then enter a name for the configuration.



New Configuration

Select an authentication type and enter the required information to complete the configuration.

Authentication

SAML

Enter a name for this configuration. The name must be unique and can be changed at any time.

Name

Note: Configurations created before January 2025 (Tableau 2024.3) can't be renamed.

Alternatively, in TCM, do the following:

1. Sign in to TCM as a cloud administrator, and select **Settings** > **Authentication**.

2. Select the **Enable an additional authentication method** check box, and select **SAML** from the Authentication drop-down.

3. Click the **Configuration (required)** drop-down arrow.

In OneLogin, do the following:

1. Open a new browser tab or window, sign in to your OneLogin admin portal, and then do the following:

2. On the **Applications** page, select **Add Apps**. Search for Tableau, and in the results, select **Tableau Cloud SSO**. In this area you configure the SAML connection.

   Note: The Tableau Cloud SSO option for OneLogin does not work with Tableau Server.

3. On the **Info** page, set up your portal preferences. If you have more than one Tableau Cloud site, include the site name in the **Display Name** field to help users know which site to select.

4. On the **SSO** page, select and copy the URI shown in the **SLO Endpoint (HTTP)** field.

   Note: Although the label indicates HTTP, the URI provided is an **https** address, because the SLO (single logout) endpoint uses SSL/TLS encryption.

5. On the same page, select **More Actions** > **SAML Metadata**, and save the OneLogin metadata file to your computer.

Step 2: Configure SAML in Tableau Cloud or TCM

Complete the following steps after you download the SAML metadata file from OneLogin, as described in the section above.

For Tableau Cloud

1. Back in Tableau Cloud, on the New Configuration page, under **2. Upload metadata to Tableau**, click the **Choose a file** button and navigate to the SAML metadata file you downloaded from OneLogin.

   Important: If you encounter any issues with uploading the OneLogin metadata file, consider using a non-default certificate with OneLogin. To create a new certificate, from the Onelogin admin portal, select **Security** > **Certificates**. If you create a new certificate, ensure the Tableau Cloud application in OneLogin uses this new certificate.

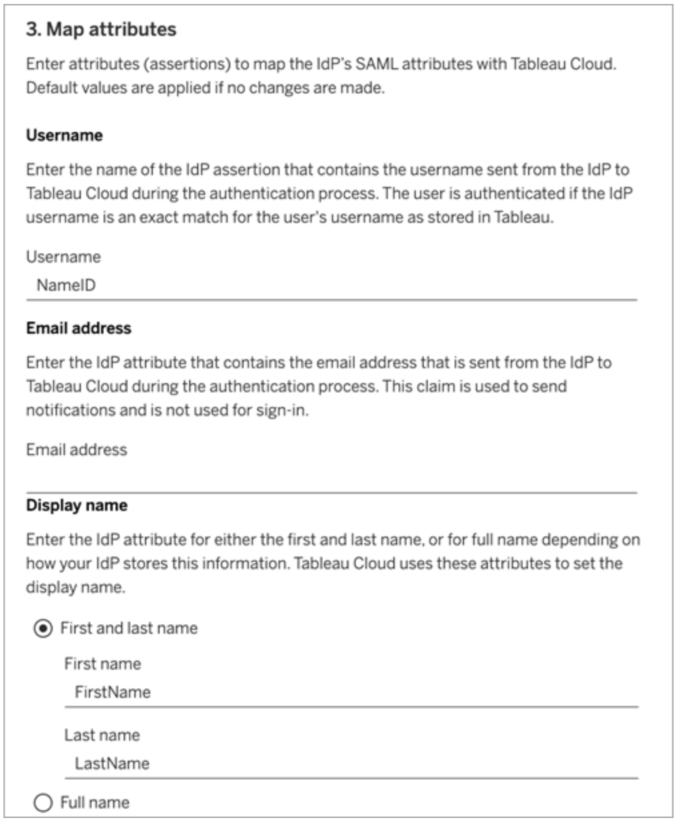
2. Continue to **3. Map attributes** and set the values as follows:

   1. For **Username**, enter Email. This is the email address the users use to sign in to Tableau Cloud.

   2. For **Email address**, enter the optional attribute value according to the IdP's documentation. This attribute is the email address where the user should receive

notifications if different from username. The email address attribute is used for notifications purposes only and not used for sign-in.

3. For **Display name**, select the **First and last name** radio button.
    a. For **First name**, enter FirstName.
    b. For **Last name**, enter LastName.



3. Map attributes

Enter attributes (assertions) to map the IdP's SAML attributes with Tableau Cloud. Default values are applied if no changes are made.

Username

Enter the name of the IdP assertion that contains the username sent from the IdP to Tableau Cloud during the authentication process. The user is authenticated if the IdP username is an exact match for the user's username as stored in Tableau.

Username: NameID

Email address

Enter the IdP attribute that contains the email address that is sent from the IdP to Tableau Cloud during the authentication process. This claim is used to send notifications and is not used for sign-in.

Email address:

Display name

Enter the IdP attribute for either the first and last name, or for full name depending on how your IdP stores this information. Tableau Cloud uses these attributes to set the display name.

● First and last name

First name: FirstName

Last name: LastName

○ Full name

3. Under **4. Choose default for embedding views (optional)**, select the experience you want to enable when users access embedded content. For more information, see the About enabling iFrame embedding section below.

4. Click the **Save and Continue** button.

For TCM

1. Back in TCM, on the Authentication page, under **2. Upload metadata to Tableau**, click the **Choose a file** button and navigate to the SAML metadata file you downloaded from OneLogin.

   Important: If you encounter any issues with uploading the OneLogin metadata file, consider using a non-default certificate with OneLogin. To create a new certificate, from the Onelogin admin portal, select **Security** > **Certificates**. If you create a new certificate, ensure the TCM application in OneLogin uses this new certificate.

2. Continue to **3. Map attributes** and set the values as follows:

   1. For **Username**, enter Email. This is the email address the users use to sign in to TCM.

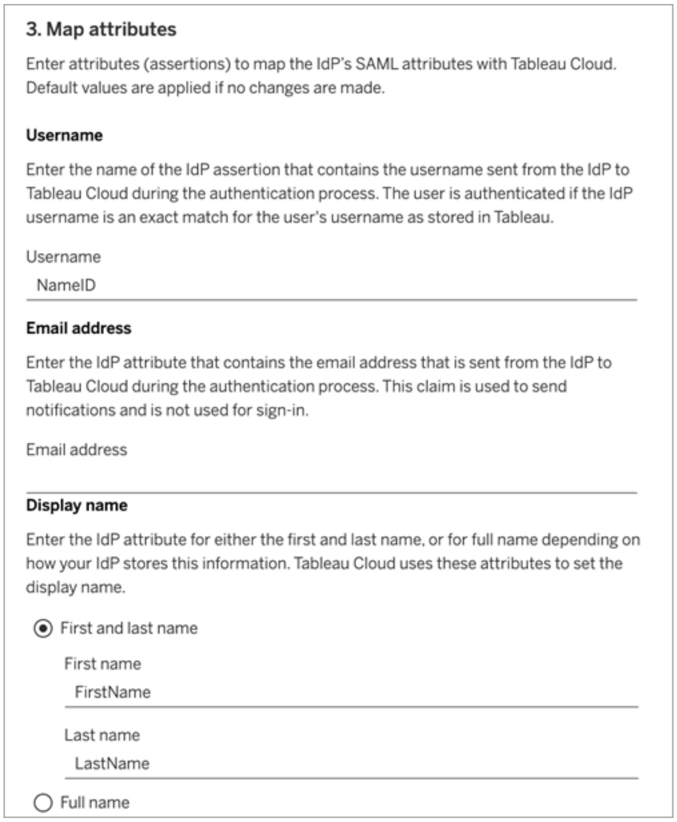
      Note: The **Email address** field shown above will not appear for TCM.

   2. For **Email address**, enter the optional attribute value according to the IdP's documentation. This attribute is the email address where the user should receive notifications if different from username. The email address attribute is used for notifications purposes only and not used for sign-in.

   3. For **Display name**, select the **First and last name** radio button.

      a. For **First name**, enter FirstName.

      b. For **Last name**, enter LastName.



3. Map attributes

Enter attributes (assertions) to map the IdP's SAML attributes with Tableau Cloud. Default values are applied if no changes are made.

Username

Enter the name of the IdP assertion that contains the username sent from the IdP to Tableau Cloud during the authentication process. The user is authenticated if the IdP username is an exact match for the user's username as stored in Tableau.

Username: NameID

Email address

Enter the IdP attribute that contains the email address that is sent from the IdP to Tableau Cloud during the authentication process. This claim is used to send notifications and is not used for sign-in.

Email address:

Display name

Enter the IdP attribute for either the first and last name, or for full name depending on how your IdP stores this information. Tableau Cloud uses these attributes to set the display name.

● First and last name

First name: FirstName

Last name: LastName

○ Full name

3. Click the **Save and Continue** button.

Step 3. Configure "Tableau Cloud application" in your IdP

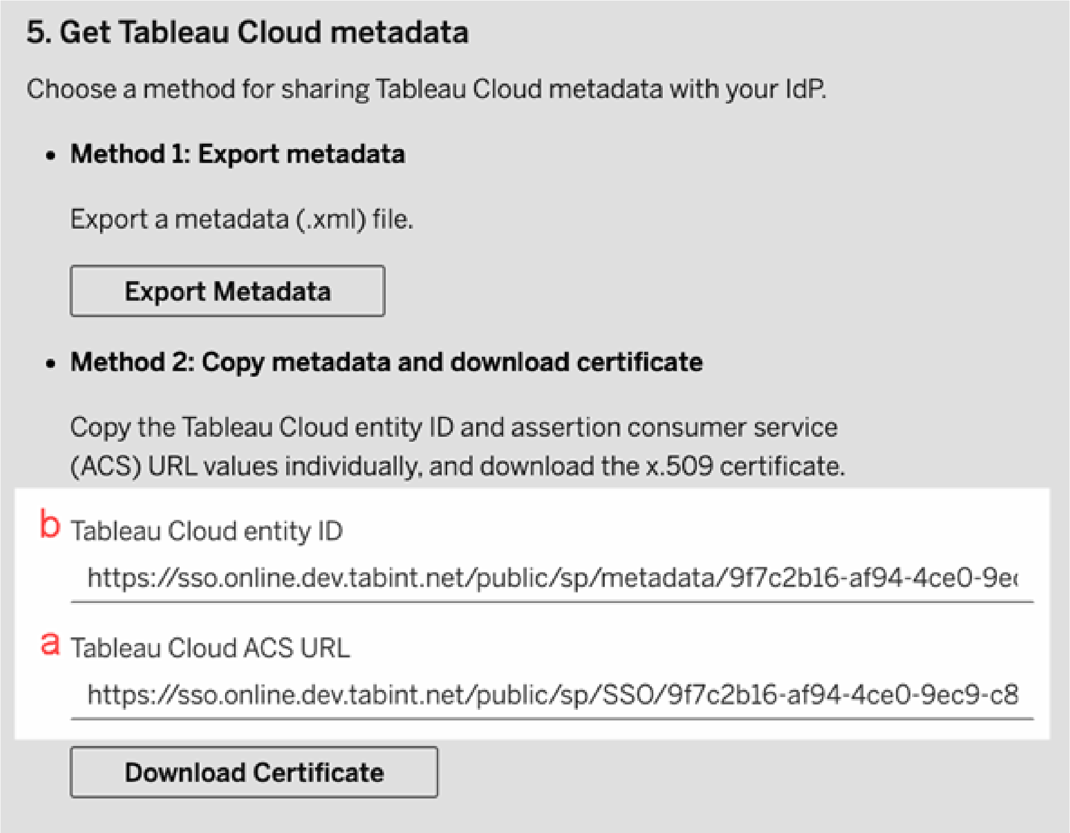
For Tableau Cloud, the procedure in this section will use the information from **5. Get Tableau Cloud Metadata**, under **Method 2: Copy metadata and download certificate** on the **New Configuration** page in Tableau Cloud.

For TCM, the procedure in this section will use the information from **4. Get Tableau Cloud Metadata**, under **Method 2: Copy metadata and download certificate** on the **Authenticaiton** page in TCM.

1. Back in the OneLogin portal, in the Tableau Cloud or TCM application, on the **Configuration** page, do the following:

a. For **Consumer URL** in the OneLogin portal, paste the **Tableau Cloud ACS URL** value from Tableau Cloud or TCM.

b. For **Audience** in the OneLogin portal, paste the **Tableau Cloud entity ID** value from Tableau Cloud or TCM.



5. Get Tableau Cloud metadata

Choose a method for sharing Tableau Cloud metadata with your IdP.

- **Method 1: Export metadata**

  Export a metadata (.xml) file.

  Export Metadata

- **Method 2: Copy metadata and download certificate**

  Copy the Tableau Cloud entity ID and assertion consumer service (ACS) URL values individually, and download the x.509 certificate.

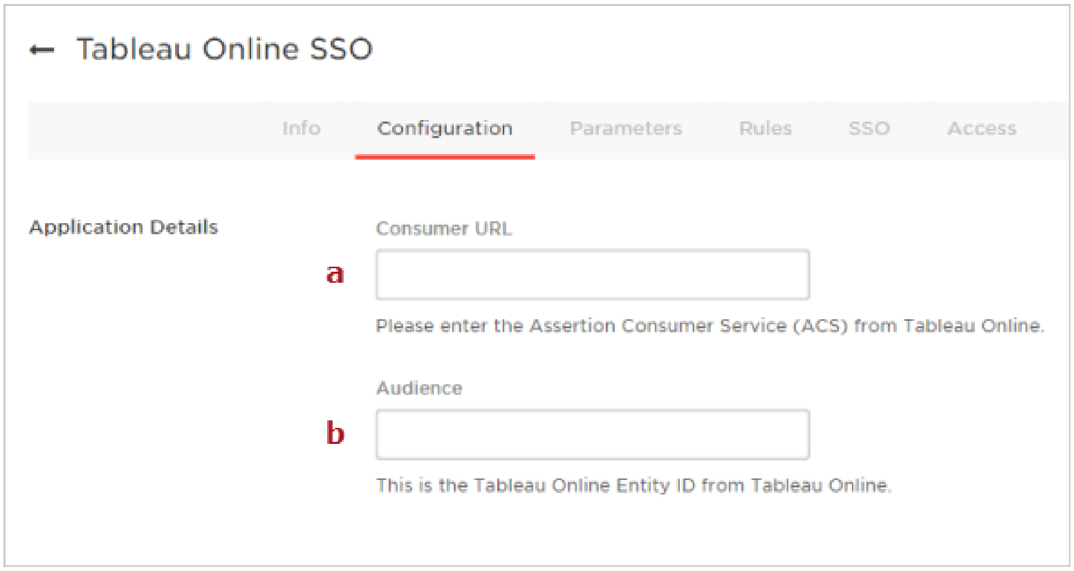
b Tableau Cloud entity ID

https://sso.online.dev.tabint.net/public/sp/metadata/9f7c2b16-af94-4ce0-9e

a Tableau Cloud ACS URL

https://sso.online.dev.tabint.net/public/sp/SSO/9f7c2b16-af94-4ce0-9ec9-c8

Download Certificate



← Tableau Online SSO

Info | Configuration | Parameters | Rules | SSO | Access

Application Details

Consumer URL

a

Please enter the Assertion Consumer Service (ACS) from Tableau Online.

Audience

b

This is the Tableau Online Entity ID from Tableau Online.

2. Navigate to the **SSO** page, select **SHA-256** for the **SAML Signature Algorithm**.

3. Navigate to the **Parameters** and make sure the values appear as follows:

Tableau Cloud or TCM field	**Value**
Username	Email
First Name	First Name
Last Name	Last Name

Step 4: Test the SAML configuration

In OneLogin, do the following:

- Add a sample user to OneLogin and assign them to the "Tableau Cloud application".

In Tableau Cloud or TCM, do the following:

1. Add that OneLogin user to Tableau to test the SAML configuration.
    - To add users in Tableau Cloud, see the Add Users to a Site topic.
    - To add users in TCM, see Manage Users With Tableau Cloud Manager topic.
2. Do *one* of the following:
    - In Tableau Cloud, on the New Configuration page, under **7. Test configuration**, click the **Test Configuration** button.
    - In TCM, on the Authentication page, under **6. Test configuration**, click the **Test Configuration** button.

We highly recommend that you test the SAML configuration to avoid any locked out scenarios. Testing the configuration helps ensure that you have configured SAML correctly before changing the authentication type of your users to SAML. To test the configuration successfully, make sure that there is at least one user who you can sign in as who is already provisioned in the IdP and added to your Tableau Cloud or TCM with SAML authentication type configured.

Step 5: Add additional users to the SAML-enabled Tableau Cloud site or TCM

Use the steps below to add additional users to your site. The procedure described in this section is performed on the Tableau Cloud's or TCM's **Users** page.

1. After you complete the steps above, from the left pane, navigate to the **Users** page.
2. Follow the procedure described in:
   - Add Users to a Site topic for Tableau Cloud
   - Manage Users With Tableau Cloud Manager topic for TCM

About enabling iFrame embedding

Note: Applies to Tableau Cloud only.

When you enable SAML on your site, you need to specify how users sign in to access views embedded in web pages. These steps configure OneLogin to allow your OneLogin dashboard to be embedded into an inline frame (iFrame) on another site. Inline frame embedding may provide a more seamless user experience when signing-on to view embedded visualizations. For example, if a user is already authenticated with your identity provider and iFrame embedding is enabled, the user would seamlessly authenticate with Tableau Cloud when browsing to pages that contain embedded visualizations.

> **Caution:** Inline frames can be vulnerable to a clickjack attack. *Clickjacking* is a type of attack against web pages in which the attacker tries to lure users into clicking or entering content by displaying the page to attack in a transparent layer over an unrelated page. In the context of Tableau Cloud, an attacker might try to use a clickjack attack to capture user credentials or to get an authenticated user to change settings. For more information about clickjack attacks, see Clickjacking on the Open Web Application Security Project website.

1. Open a new browser tab or window, and sign in to your OneLogin admin portal.
2. On the **Settings** menu, click **Account Settings**.
3. On the **Basic** page, in **Framing Protection**, select the **Disable Framing Protection (X-Frame-Options)** check box.

Configure SAML with PingOne

If you use PingOne as your SAML identity provider (IdP), you can use the information in this topic to set up SAML authentication for Tableau Cloud or Tableau Cloud Manager (TCM).

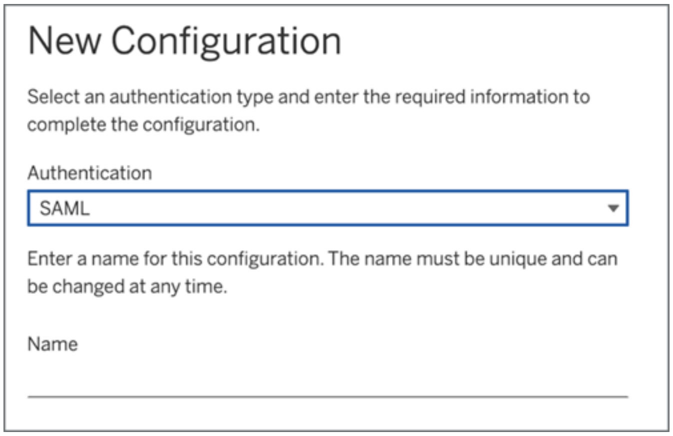
Notes:

- These steps reflect a third-party application and are subject to change without our knowledge. If the steps described here do not match the screens you see in your IdP account, you can use the general SAML configuration steps, along with the IdP’s documentation.
- Beginning February 2022, multi-factor authentication (MFA) through your SAML SSO identity provider (IdP) is a Tableau requirement.
- The configuration steps in the IdP may be in a different order than what you see in Tableau.

Step 1: Get started

In Tableau Cloud, do the following:

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.
2. On the **Authentication** tab, click the **New Configuration** button, select **SAML** from the Authentication drop-down, and then enter a name for the configuration.



New Configuration

Select an authentication type and enter the required information to complete the configuration.

Authentication: SAML

Enter a name for this configuration. The name must be unique and can be changed at any time.

Name

Note: Configurations created before January 2025 (Tableau 2024.3) can't be renamed.

Alternatively, in TCM, do the following:

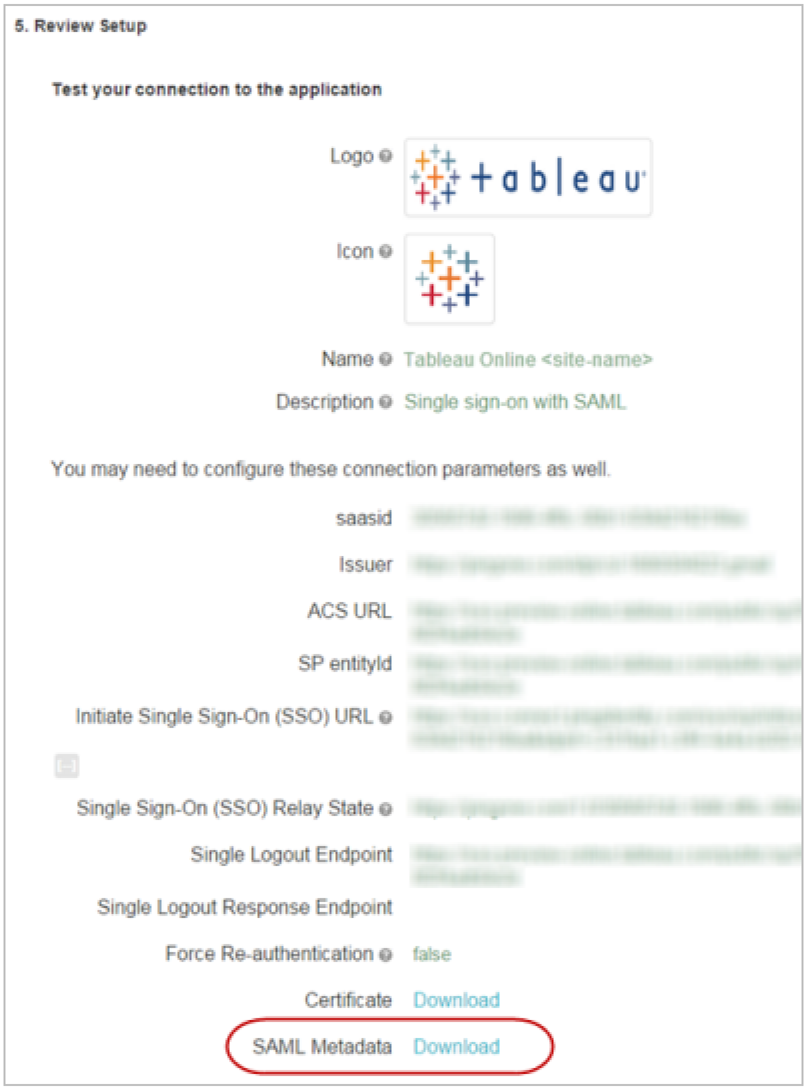
1. Sign in to TCM as a cloud administrator, and select **Settings** > **Authentication**.
2. Select the **Enable an additional authentication method** check box, and select **SAML** from the Authentication drop-down.
3. Click the **Configuration (required)** drop-down arrow.

In PingOne, do the following:

Note: For TCM, you use the "Tableau Cloud application" in the IdP to configure TCM authentication.

1. Open a new browser tab or window, sign in to your PingOne account, and then click the **Applications** tab.
2. In the **Application Catalog** search for and select Tableau Cloud.
3. Click **Setup** button, the **Save & Publish** button, and then click the **Download** link next

to **SAML Metadata**, and save the PingOne SAML metadata file to your computer.



5. Review Setup

Test your connection to the application

Logo

Icon

Name: Tableau Online <site-name>

Description: Single sign-on with SAML

You may need to configure these connection parameters as well.

saasid

Issuer

ACS URL

SP entityId

Initiate Single Sign-On (SSO) URL

Single Sign-On (SSO) Relay State

Single Logout Endpoint

Single Logout Response Endpoint

Force Re-authentication: false

Certificate: Download

SAML Metadata: Download

Step 2: Configure SAML in Tableau Cloud or TCM

Complete the following procedure after you download the SAML metadata file from PingOne, as described in the section above.

For Tableau Cloud

1. Back in Tableau Cloud, in the New Configuration page, under **2. Upload metadata to Tableau**, click the **Choose a file** button and navigate to the SAML metadata file you downloaded from your PingOne account.

2. Continue to Step 3: Map attributes, and complete the remaining steps as described.

3. Under **4. Choose default for embedded views**, you can optionally select how users authenticate to embedded views.

4. Click the **Save and Continue** button.

5. Under **5. Get Tableau Cloud metadata**, click the **Export Metadata** button and save the Tableau metadata file to your computer.

   By default, the file name is **saml_sp_metadata.xml**.

For TCM

1. Back in TCM, in the Authentication page, under **2. Upload metadata to Tableau**, click the **Choose a file** button and navigate to the SAML metadata file you downloaded from your PingOne account.

2. Continue to Step 3: Match assertions, and complete the remaining steps as described.

3. Click the **Save and Continue** button.

4. Under **4. Get Tableau Cloud metadata**, click the **Export Metadata** button and save the Tableau metadata file to your computer.

   By default, the file name is **saml_sp_metadata.xml**.

Step 3. Configure "Tableau Cloud application" in your IdP

Note: For TCM, you use the "Tableau Cloud application" in the IdP to configure TCM authentication.

1. Back in your PingOne account, in the Tableau Cloud application, navigate to **Setup**.

2. On the **1. SSO Instructions** page, click **Continue to Next Step**.

3. On the **2. Configure your connection** page, for **Upload Metadata**, click **Select File**, and upload the Tableau Cloud or TCM metadata file you saved from Tableau Cloud or TCM.

4. Click **Continue to Next Step**.

When you import the Tableau Cloud or TCM metadata as part of the PingOneSAML configuration, the certificate embedded in the metadata is not applied to the IdP application definition. This can cause the following error when people sign out of the SAML site:

It looks like the signing certificate has not been configured.

Configure the PingOne certificate

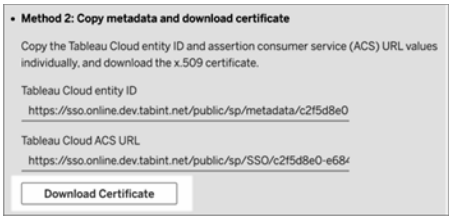
To resolve the sign-out error, you can download the certificate from Tableau Cloud or TCM, convert it from DER encoded to Base-64 encoded, and then upload it to PingOne.

The steps for converting the certificate are specific to Windows.

In Tableau Cloud, do the following:

1. Back in Tableau Cloud, make sure **SAML** is selected and you're on the New Configuration page.

2. Under **5. Get Tableau Cloud metadata**, for **Method 2: Copy metadata and download certificate**, click the **Download Certificate** button, and save the .cer file to your computer.



- **Method 2: Copy metadata and download certificate**

Copy the Tableau Cloud entity ID and assertion consumer service (ACS) URL values individually, and download the x.509 certificate.

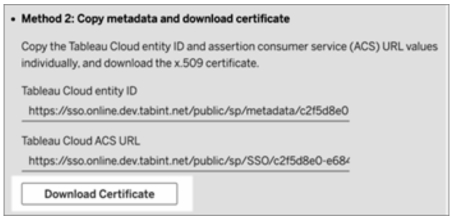
Tableau Cloud entity ID
https://sso.online.dev.tabint.net/public/sp/metadata/c2f5d8e0

Tableau Cloud ACS URL
https://sso.online.dev.tabint.net/public/sp/SSO/c2f5d8e0-e68

Alternatively, in TCM, do the following:

1. Back in TCM, make sure **SAML** is selected and you're on the Authentication page.

2. Under **4. Get Tableau Cloud metadata**, for **Method 2: Copy metadata and download certificate**, click the **Download Certificate** button, and save the .cer file to your computer.

   Copy the Tableau Cloud entity ID and assertion consumer service (ACS) URL values individually, and download the x.509 certificate.

   Tableau Cloud entity ID: https://sso.online.dev.tabint.net/public/sp/metadata/c2f5d8e0

   Tableau Cloud ACS URL: https://sso.online.dev.tabint.net/public/sp/SSO/c2f5d8e0-e68

On your computer, do the following:

1. Double-click the .cer file you downloaded, and click **Open**.

2. In the **Certificate** dialog box, select the **Details** tab and click **Copy to File**.

3. In the Certificate Export Wizard, do the following:

   a. Click **Next** on the opening screen, and then select **Base-64 encoded X.590 (.CER)**.

   b. Click **Next**, and specify the name and location of the file you are exporting.

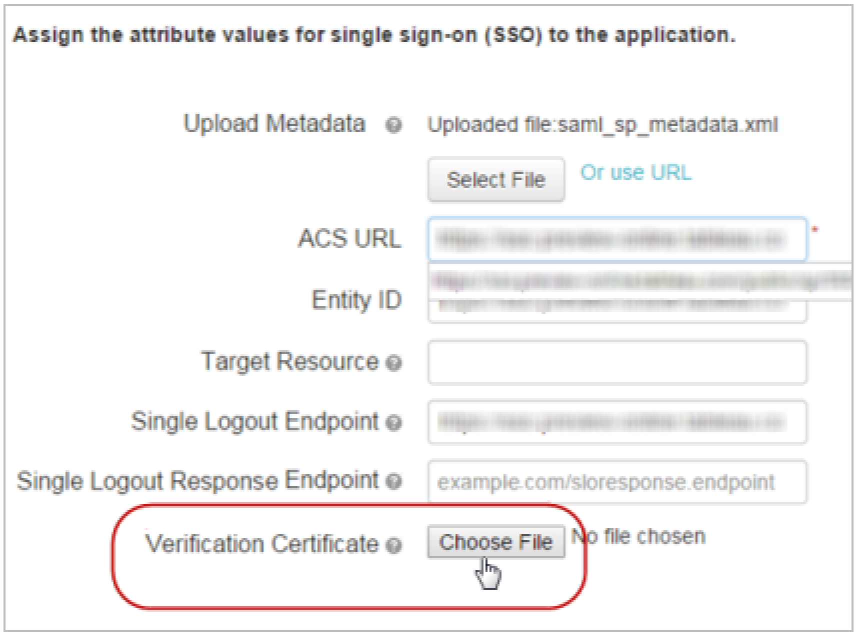
   c. Click **Next**, review the summary information, and then click **Finish**.

In PingOne, do the following:

1. In your PingOne account, return to the application setup pages for Tableau Cloud or TCM.

2. In **Step 2. Configure your connection**, for **Verification Certificate**, click **Choose**

File, and upload the new .cer file you created.



Assign the attribute values for single sign-on (SSO) to the application.

Upload Metadata: Uploaded file:saml_sp_metadata.xml

Single Logout Response Endpoint: example.com/sloresponse.endpoint

Verification Certificate: No file chosen

Select File
Or use URL
ACS URL
Entity ID
Target Resource
Single Logout Endpoint
Choose File

Step 4: Test the SAML configuration

In PingOne, do the following:

- Add a sample user to PingOne and assign them to the Tableau Cloud or TCM application.

In Tableau Cloud, do the following:

1. Add that PingOne user to Tableau Cloud to test the SAML configuration.
    - To add users in Tableau Cloud, see the Add Users to a Site topic.
    - To add users in TCM, see Manage Users With Tableau Cloud Manager topic.
2. Do *one* of the following:
    - In Tableau Cloud, under **7. Test configuration**, click the **Test Configuration** button.

- In TCM, on the Authentication page, under **6. Test configuration**, click the **Test Configuration** button.

We highly recommend that you test the SAML configuration to avoid any locked out scenarios. Testing the configuration helps ensure that you have configured SAML correctly before changing the authentication type of your users to SAML. To test the configuration successfully, make sure that there is at least one user who you can sign in as who is already provisioned in the IdP and added to your Tableau Cloud or TCM with SAML authentication type configured.

Step 5: Add additional users to the SAML-enabled Tableau Cloud site or TCM

Use the steps below to add additional users to your site. The procedure described in this section is performed on the Tableau Cloud's or TCM's **Users** page.

1. After you complete the steps above, from the left pane, navigate to the **Users** page.
2. Follow the procedure described in:
   - Add Users to a Site topic for Tableau Cloud
   - Manage Users With Tableau Cloud Manager topic for TCM

Configure SAML with Okta

If you use Okta as your SAML identity provider (IdP), you can use the information in this topic to set up SAML authentication for Tableau Cloud or Tableau Cloud Manager (TCM). You can also use the How to Configure SAML 2.0 for Tableau Cloud topic in the Okta documentation.

Tableau Cloud's SAML integration with Okta supports service provider (SP)-initiated SSO, identity provider (IdP)-initiated SSO, and single logout (SLO).

Notes:

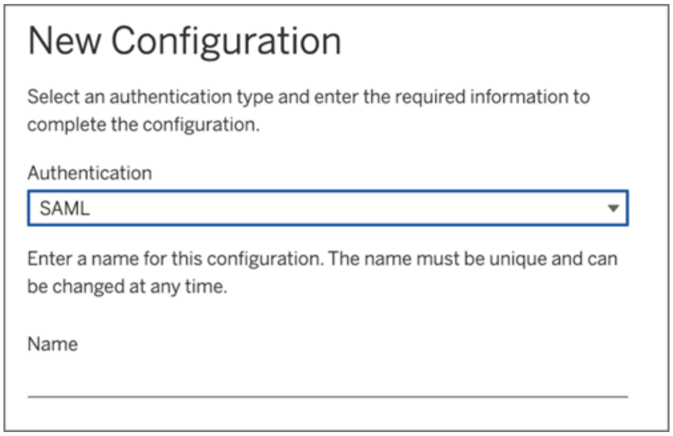
- These steps reflect a third-party application and are subject to change without our knowledge. If the steps described here do not match the screens you see in your IdP account, you can use the general SAML configuration steps, along with the IdP's documentation.

- Beginning February 2022, multi-factor authentication (MFA) through your SAML SSO identity provider (IdP) is a Tableau requirement.
- The configuration steps in the IdP may be in a different order than what you see in Tableau.

Step 1: Get started

In Tableau Cloud, do the following:

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.
2. On the **Authentication** tab, click the **New Configuration** button, select **SAML** from the Authentication drop-down, and then enter a name for the configuration.



New Configuration

Select an authentication type and enter the required information to complete the configuration.

Authentication: SAML

Enter a name for this configuration. The name must be unique and can be changed at any time.

Name

Note: Configurations created before January 2025 (Tableau 2024.3) can't be renamed.

Alternatively, in TCM, do the following:

1. Sign in to TCM as a cloud administrator, and select **Settings** > **Authentication**.
2. Select the **Enable an additional authentication method** check box, and select **SAML** from the Authentication drop-down.
3. Click the **Configuration (required)** drop-down arrow.

In the Okta administrator console, do the following:

Note: For TCM, you use the "Tableau Cloud application" in the IdP to configure TCM authentication.

1. Open a new browser tab or window and sign in to your Okta administrator console.
2. From the left pane, select **Applications** > **Applications** and click the **Browse App Catalog** button.
3. Search for and click "Tableau Cloud" and then click the **Add Integration** button. This opens the **General Settings** tab.
4. (Optional) If you have more than one Tableau Cloud site, edit the site name in the **Application label** field to help you differentiate between your Tableau Cloud application instances.
5. Navigate to the **Sign On** tab, click **Edit**, and do the following:
    a. Under **Metadata details**, copy the Metadata URL.
    b. Paste the URL into a new browser and save the results as a file using the default "metadata.xml".

Step 2: Configure SAML in Tableau Cloud or TCM

Complete the following procedure after you save the SAML metadata file from Okta, as described in the section above.

For Tableau Cloud

1. Back in Tableau Cloud, on the New Configuration page, under **2. Upload metadata to Tableau**, click the **Choose a file** button and navigate to the SAML metadata file you saved from Okta. This automatically fills the IdP entity ID and SSO Service URL values.
2. Map the attribute names (assertions) under **3. Map attributes** to the corresponding attribute names (assertions) in the Okta administrator console's **Tableau Cloud User Profile Mappings** page.

3. Under **4. Choose default for embedding views (optional)**, select the experience you want to enable when users access embedded content. For more information, see the About enabling iFrame embedding section below.

4. Click the **Save and Continue** button.

For TCM

1. Back in TCM, on the Authentication page, under **2. Upload metadata to Tableau**, click the **Choose a file** button and navigate to the SAML metadata file you saved from Okta. This automatically fills the IdP entity ID and SSO Service URL values.

2. Map the attribute names (assertions) under **3. Map attributes** to the corresponding attribute names (assertions) in the Okta administrator console's **Tableau Cloud User Profile Mappings** page.

3. Click the **Save and Continue** button.

Step 3. Configure "Tableau Cloud application" in your IdP

For Tableau Cloud, the procedure in this section will use the information from **5. Get Tableau Cloud Metadata**, under **Method 2: Copy metadata and download certificate** on the **New Configuration** page in Tableau Cloud. For TCM, the procedure in this section will use the information from **4. Get Tableau Cloud Metadata**, under **Method 2: Copy metadata and download certificate** on the **Authentication** page in TCM.

Note: For TCM, you use the "Tableau Cloud application" in the IdP to configure TCM authentication.

1. In the Okta administrator console, click the **Assignments** tab to add your users or groups.

2. When finished, click **Done**.

3. Click the **Sign On** tab and in the Settings section, click **Edit**.

4. (Optional) If you want to enable single logout (SLO), do the following:

   a. Select the **Enable Single Logout** check box.

   b. Copy the "Single Logout URL" value from the Tableau Cloud metadata file. For example, <md:SingleLogoutService Binding="urn:oasis:names:tc:SAML:2.0:bindings:HTTP-POST" Location="https://xxxx/public/sp/SLO/xxxxxxxx-xxxx-xxxx-xxxx-xxxxxxxxxxxx"/>. For more information, see the Configure Single Logout Using SAML with Okta in the Tableau Knowledge Base.

   c. In the **Advanced Sign-on Settings** text box, enter the value you copied in step b.

   d. Next to **Signature Certificate**, click the **Browse** button and navigate to the certificate file you downloaded in the section above.

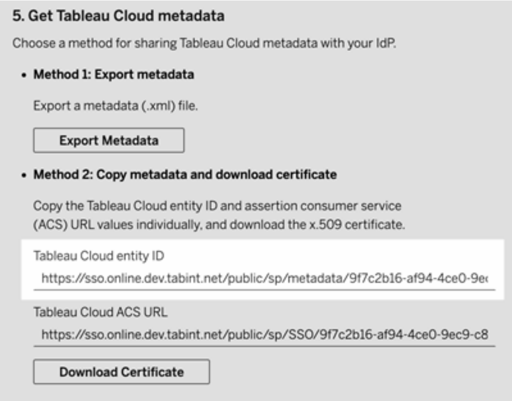
   e. Select the file and click the **Upload** button.

   f. When finished, click **Save**.

5. Select **Applications** > **Applications**, click the Tableau Cloud application, select the **Sign On** tab, and do the following:

   a. Click **Edit**.

   b. Under Advanced Sign-on Settings, for the **Tableau Cloud entity ID** text box in the Okta administrator console, paste the **Tableau Cloud entity ID** value from Tableau Cloud or TCM.



5. Get Tableau Cloud metadata

Choose a method for sharing Tableau Cloud metadata with your IdP.

- **Method 1: Export metadata**

  Export a metadata (.xml) file.

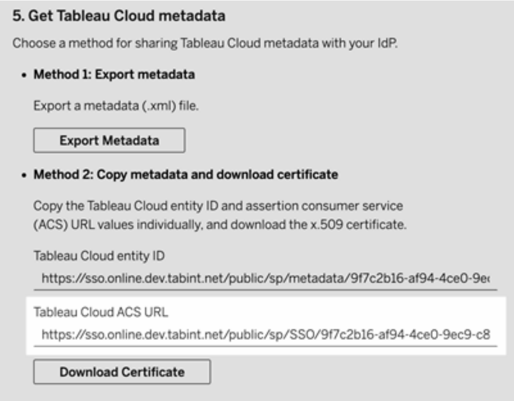
- **Method 2: Copy metadata and download certificate**

  Copy the Tableau Cloud entity ID and assertion consumer service (ACS) URL values individually, and download the x.509 certificate.

  Tableau Cloud entity ID
  https://sso.online.dev.tabint.net/public/sp/metadata/9f7c2b16-af94-4ce0-9e

  Tableau Cloud ACS URL
  https://sso.online.dev.tabint.net/public/sp/SSO/9f7c2b16-af94-4ce0-9ec9-c8

c. For the **Tableau Cloud ACS URL** text box in the Okta administrator console, paste the **Tableau Cloud ACS URL** value from Tableau Cloud or TCM.



5. Get Tableau Cloud metadata

Choose a method for sharing Tableau Cloud metadata with your IdP.

- **Method 1: Export metadata**

  Export a metadata (.xml) file.

- **Method 2: Copy metadata and download certificate**

  Copy the Tableau Cloud entity ID and assertion consumer service (ACS) URL values individually, and download the x.509 certificate.

  Tableau Cloud entity ID
  https://sso.online.dev.tabint.net/public/sp/metadata/9f7c2b16-af94-4ce0-9e

  Tableau Cloud ACS URL
  https://sso.online.dev.tabint.net/public/sp/SSO/9f7c2b16-af94-4ce0-9ec9-c8

> **Note:** The Tableau Cloud and TCM SAML configuration settings appear in a different order than on the Okta settings page. To prevent SAML authentication issues, make sure that the Tableau Cloud entity ID and Tableau Cloud ACS URL are entered into the correct fields in Okta.

6. When finished, click **Save**.

Step 4: Test the SAML configuration

In Okta, do the following:

- Add a sample user to Okta and assign them to the "Tableau Cloud application".

In Tableau Cloud or TCM, do the following:

1. Add that Okta user to Tableau Cloud to test the SAML configuration.
    - To add users in Tableau Cloud, see the Add Users to a Site topic.
    - To add users in TCM, see Manage Users With Tableau Cloud Manager topic.
2. Do one of the following:
    - In Tableau Cloud, on the New Configuration page, under **7. Test Configuration**, click the **Test Configuration** button.
    - In TCM, on the Authentication page, under **6. Test configuration**, click the **Test Configuration** button.

We highly recommend that you test the SAML configuration to avoid any locked out scenarios. Testing the configuration helps ensure that you have configured SAML correctly before changing the authentication type of your users to SAML. To test the configuration successfully, make sure that there is at least one user who you can sign in as who is already provisioned in the IdP and added to your Tableau Cloud or TCM with SAML authentication type configured.

Note: If the connection fails, consider keeping the `NameID` attribute in Tableau as-is.

Step 5: Add additional users to the SAML-enabled Tableau Cloud site or TCM

If you plan to use SCIM to provision your users from Okta, do not manually add your users to Tableau Cloud. For more information, see Configure Configure SCIM with Okta. If you are not using SCIM, then use the steps below to add additional users to your site. **Note:**
SCIM provisioning is not available for TCM.

The procedure described in this section is performed on the Tableau Cloud's **Users** page.

1. After you complete the steps above, from the left pane, navigate to the **Users** page.
2. Follow the procedure described in:

- Add Users to a Site topic for Tableau Cloud
- Manage Users With Tableau Cloud Manager topic for TCM

About enabling iFrame embedding

Note: Applies to Tableau Cloud only.

When you enable SAML on your site, you need to specify how users sign in to access views embedded in web pages. These steps configure Okta to allow authentication using an inline frame (iFrame) for embedded visualization. Inline frame embedding may provide a more seamless user experience when signing on to view embedded visualizations. For example, if a user is already authenticated with your identity provider and iFrame embedding is enabled, the user would seamlessly authenticate with Tableau Cloud when browsing to pages that contain embedded visualizations.

> **Caution:** IFrame can be vulnerable to a clickjack attack. *Clickjacking* is a type of attack against web pages in which the attacker tries to lure users into clicking or entering content by displaying the page to attack in a transparent layer over an unrelated page. In the context of Tableau Cloud, an attacker might try to use a clickjack attack to capture user credentials or to get an authenticated user to change settings. For more information about clickjack attacks, see Clickjacking on the Open Web Application Security Project website.

1. Sign in to your Okta administrator console.
2. From the left pane, select **Customizations** > **Other** and navigate to the **IFrame Embedding** section.
3. Click **Edit**, select the **Allow iFrame embedding** check box, and then click **Save**.

Configure SAML with Salesforce

If you’ve configured Salesforce as your SAML identity provider (IdP), use the information in this topic alongside the Salesforce documentation to add Tableau Cloud or Tableau Cloud

Manager (TCM) to your single sign-on applications.

Notes:

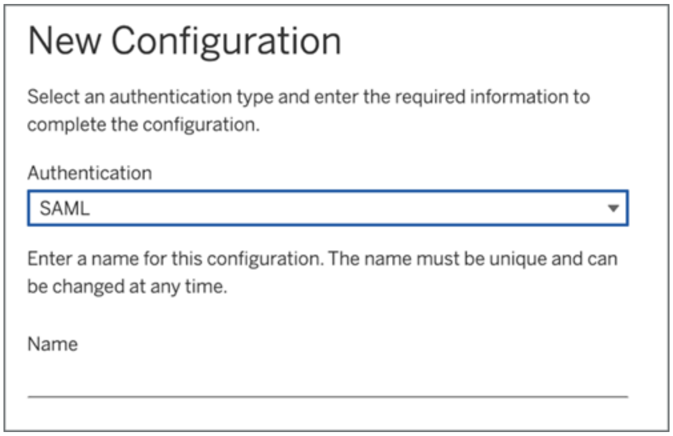
- These steps reflect the Salesforce application and can change without our knowledge. If the steps described here do not match the screens you see in Salesforce, you can use the general SAML configuration steps, along with the Salesforce documentation.
- Beginning February 2022, multi-factor authentication (MFA) with Salesfoce is a Tableau Cloud and Salesforce requirement.
- The configuration steps in the IdP may be in a different order than what you see in Tableau Cloud or TCM.

Step 1: Configure SAML in Tableau Cloud or TCM

To configure the Salesforce application, you will need to use information in the Tableau Cloud or TCM SAML settings.

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.

2. On the **Authentication** tab, click the **New Configuration** button, select **SAML** from the Authentication drop-down, and then enter a name for the configuration.



New Configuration

Select an authentication type and enter the required information to complete the configuration.

Authentication: SAML

Enter a name for this configuration. The name must be unique and can be changed at any time.

Name

Note: Configurations created before January 2025 (Tableau 2024.3) can't be renamed.

Alternatively, in TCM, do the following:

1. Sign in to TCM as a cloud administrator, and select **Settings** > **Authentication**.
2. Select the **Enable an additional authentication method** check box, and select **SAML** from the Authentication drop-down.
3. Click the **Configuration (required)** drop-down arrow.

Step 2: Configure "Tableau Cloud application" in your IdP

See the Salesforce documentation, Configure SSO from Salesforce to Tableau Cloud.

Step 3: Add users to the SAML-enabled Tableau Cloud site or TCM

1. After you complete the Salesforce configuration steps, return to your Tableau Cloud site or TCM.
2. Complete the SAML configuration by adding the users you assigned in the Salesforce Application Profile Assignment page to Tableau Cloud or TCM by selecting existing Tableau Cloud or TCM users, or add new users you want to approve for SAML.

   When you add or import users, you also specify their authentication type. On the **Users** page, you can change users' authentication type any time after adding them. For more information, see one of the following:

   - Add Users to a Site or Import Users topic for Tableau Cloud
   - Manage Users With Tableau Cloud Manager topic for TCM

Configure SAML for Tableau Viz Lightning Web Component

Tableau provides a Lightning Web Component (LWC) for embedding a Tableau visualization within a Salesforce Lightning page.

This topic describes how to enable a SSO experience for embedded Tableau visualizations in a Salesforce Lightning page. SSO for the Tableau Viz LWC scenario requires SAML configuration. The SAML IdP used for Tableau authentication must be either the Salesforce IdP or same IdP that is used for your Salesforce instance.

In this scenario, Salesforce administrators can drag-and-drop Tableau Viz LWC into the Lightning page to embed a visualization. Any view that is available to them on Tableau Cloud can be displayed in the dashboard by entering the embedded URL to the view.

When single sign-on (SSO) is configured for Tableau Viz LWC on Tableau Cloud, the user experience is seamless: after the user signs into Salesforce, embedded Tableau views will work without further authentication to Tableau Cloud.

When SSO is not configured, then users will need to reauthenticate with Tableau Cloud to view embedded visualizations from Tableau Cloud.

> **Note**: Users configured with Salesforce Authentication will need to reauthenticate with Tableau Cloud to view embedded visualizations in Tableau Cloud.

Requirements

- The SAML IdP used for Tableau authentication must be either the Salesforce IdP or same IdP that is used for your Salesforce instance.
- SAML must be configured on Tableau Cloud. See Enable SAML Authentication on a Site or TCM.
- SAML must be configured for Salesforce.
- Install the Tableau Viz Lightning Web Component. See Embed Tableau Views into Salesforce.

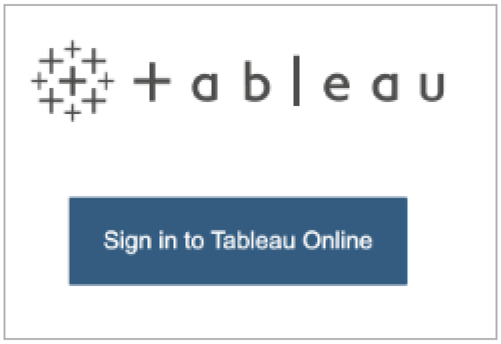
Configuring the authentication workflow

You may need to make additional configurations to optimize the sign-in experience for users who access Lightning with embedded Tableau views.

If a seamless authentication user experience is important, then you will need to make some additional configurations. In this context, “seamless” means that users who access the Salesforce Lightning page where Tableau Viz LWC SSO has been enabled, will not be required to perform any action to view the embedded Tableau view. In the seamless scenario, if the user is logged into Salesforce, then embedded Tableau views will be displayed with no additional user action. This scenario is enabled by *in-frame authentication*.

For a seamless user experience you will need to enable in-frame authentication on Tableau Cloud and at your IdP. The sections below describe how to configure in-frame authentication.

On the other hand, there are scenarios where users are interacting with the Lightning page that will require them to click a “Sign in” button to view the embedded Tableau view. This scenario, where a user must take another action to view the embedded Tableau view, is called pop-up authentication.

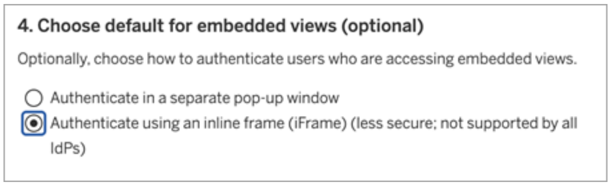


Pop-up authentication is the default user experience if you do not enable in-frame authentication.

Enable in-frame authentication on Tableau Cloud

Before you enable in-frame authentication on Tableau Cloud, you must have already configured and enabled SAML.

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.
2. On the **Authentication** tab, click the **New Configuration** button, select **SAML** from the Authentication drop-down, and then enter a name for the configuration.
3. Navigate down to **4. Choose default for embedded views (optional)** and select the **Authenticate using an inline frame (iFrame)** radio button.



4. Choose default for embedded views (optional)

Optionally, choose how to authenticate users who are accessing embedded views.

○ Authenticate in a separate pop-up window

● Authenticate using an inline frame (iFrame) (less secure; not supported by all IdPs)

> **Caution:** Inline frames can be vulnerable to a clickjack attack. *Clickjacking* is a type of attack against web pages in which the attacker tries to lure users into clicking or entering content by displaying the page to attack in a transparent layer over an unrelated page. In the context of Tableau Cloud, an attacker might try to use a clickjack attack to capture user credentials or to get an authenticated user to change settings. For more information about clickjack attacks, see Clickjacking on the Open Web Application Security Project website.

Enable in-frame authentication with your SAML IdP

As described above, a seamless authentication user experience with Salesforce Mobile requires IdP support for in-frame authentication. This functionality may also be referred to as “iframe embedding” or “framing protection” at IdPs.

Salesforce safelist domains

In some cases, IdPs only allow enabling in-frame authentication by domain. In those cases, set the following Salesforce wildcard domains when you enable in-frame authentication:

`*.force`

`*.visualforce`

Salesforce IdP

Salesforce IdP supports in-frame authentication by default. You do not need to enable or configure in-frame authentication in the Salesforce configuration. However, you must configure Tableau Cloud for in-frame authentication as described above.

Okta IdP

See *Embed Okta in an iframe*, in the Okta Help Center topic, General customization options.

Ping IdP

See the Ping support topic, How to Disable the "X-Frame-Options=SAMEORIGIN" Header in PingFederate.

OneLogin IdP

See *Framing protection*, in the OneLogin Knowledge Base article, Account Settings for Account Owners.

ADFS and EntraID IdP

Microsoft has blocked all in-frame authentication and it cannot be enabled. Instead, Microsoft only supports pop-up authentication in a second window. As a result, pop up behavior can be blocked by some browsers, which will require users to accept pop ups for the `force.com` and `visualforce.com` sites.

Salesforce Mobile App

If your users primarily interact with Lightning on the Salesforce Mobile App, then you should be aware of the following scenarios:

- The Salesforce Mobile App requires that you configure SSO/SAML to view embedded Tableau.
- The Salesforce Mobile App requires in-frame authentication. Pop-up authentication does not work. Instead, users on the Salesforce Mobile App will see the Tableau sign-in button but will not be able to sign to Tableau.
- Mobile App will not work on ADFS and Azure AD IdP.
- Users with Android devices will be required to sign-in to view the embedded Tableau visualization the first time, then SSO will work as expected.

Troubleshoot SAML

This topic provides information about resolving issues that can occur when you configure SAML authentication.

Required assertions and metadata do not map correctly

Most issues occur because metadata that you import from the IdP, or assertion names that you enter, do not match the corresponding IdP attributes. To troubleshoot SAML issues, start by making sure the information shown in steps 1–5 in Tableau Cloud or steps 1-4 in TCM of the Authentication page matches the IdP’s SAML configuration settings.

Tableau Cloud or TCM requires the IdP assertion that contains username. In addition to checking steps 2-5 in Tableau Cloud or steps 2-4 in TCM, make sure that users' usernames match between Tableau Cloud and the IdP.

Identity provider does not display sign-in page

A user provides their username on the Tableau Cloud or TCM sign-in page, Tableau redirects the request to the identity provider (IdP), but the IdP does not return its SAML sign-in page. The IdP can fail to return the sign-in page for any of the following reasons:

- SSO service URL is not valid.

  When you import the IdP metadata, make sure the SSO Service URL field shows the correct URL.

- The IdP does not recognize the authentication request received.

  For example, the Tableau Cloud or TCM entity ID might be incorrect. This can occur if SAML configuration settings on the **Authentication** page have become corrupted or inadvertently changed.

To resolve the issue, repeat Steps 1–2 of the SAML configuration:

1. Sign in to your IdP account and export the IdP metadata.
2. Do one of the following:
   - Sign in to Tableau Cloud, go to **Settings** > **Authentication** page, next to the authentication configuration, click the Actions menu and select **Edit**. On the **Edit**

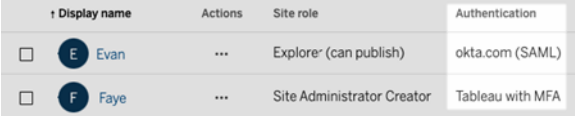
Configuration page, in step 2, re-import and upload the metadata.

- Sign in to TCM, go to **Settings** > **Authentication** page, under the SAML authentication type, click the **Configuration (required)** drop-down arrow. In step 2, re-import and upload the metadata.

Nothing happens after IdP sign-in

If a user provides incorrect credentials on the IdP's sign-in page, or if the user is not authorized to use SAML, some IdPs will not return control to Tableau when authentication fails.

In Tableau Cloud, on the **Users** page, you can see whether a user is authorized for SAML authentication.



	↑ Display name	Actions	Site role	Authentication
☐	E Evan	···	Explorer (can publish)	okta.com (SAML)
☐	F Faye	···	Site Administrator Creator	Tableau with MFA

Full Name field shows users' email addresses

For a SAML site, the Full Name field is populated with the email address if the assertions for first and last name or full name are not provided in step **3. Map attributes** of the SAML settings in the Authentication page.

Unable to authenticate users when using single sign-on

SAML authentication takes place outside Tableau, so troubleshooting authentication issues can be difficult. However, login attempts are logged by Tableau Cloud. You can create a snapshot of log files and use them to troubleshoot problems.

If a user is having trouble being authenticated on Tableau Cloud, you should examine the log file to ensure that username attribute values returned by the IdP match the usernames of users.

To download the log file:

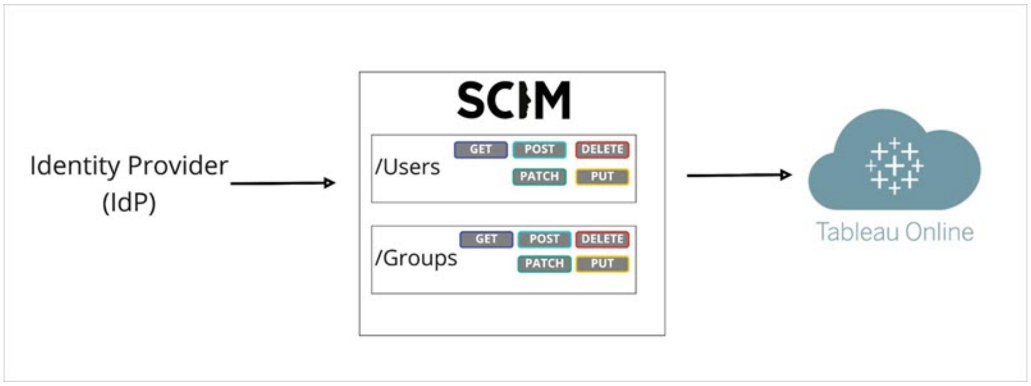
1. Sign in to Tableau Cloud or TCM.
2. Go to **Settings** > **Authentication** page, and do one of the following:
    - In Tableau Cloud, next to the authentication configuration, click the Actions menu and select **Edit**. Under step **7. Test configuration**, under **Troubleshoot SAML**, click the **Download Log** button.
    - In TCM, under the SAML authentication type, click the **Configuration (required)** drop-down arrow. Under step **6. Test configuration**, under **Troubleshoot SAML**, click the **Download Log** button.

Signing in through command line utilities

SAML is not used for authentication when you sign in to Tableau Cloud using tabcmd, even if Tableau Cloud is configured to use SAML. This tool require personal access tokens..

SCIM

System for Cross-domain Identity Management (SCIM) is a protocol that standardizes the automation of users and groups provisioning for cloud-based applications like Tableau Cloud. Tableau Cloud supports SCIM, enabling identity providers (IdPs) to centrally manage user identities while streamlining the process of managing users and group membership in Tableau Cloud. The IdP uses SCIM to ensure that access is granted and revoked in a timely way and Tableau Cloud is kept in sync with the provisioning assignments in the IdP. This type of integration improves security and reduces the manual work for site administrators in Tableau Cloud.



In the diagram above, the IdP *pushes* updates to Tableau Cloud and controls how often Tableau Cloud's SCIM endpoints are called to ensure users and groups are appropriately mirrored.

IdP-specific configuration

The steps later in this topic provide general information that you can use with your IdP's documentation to configure SCIM for your Tableau Cloud site. You can get IdP-specific configuration steps for the following IdPs we support:

- Configure SCIM with Microsoft Entra ID
- Configure SCIM with Okta
- Configure SCIM with OneLogin

Overview of enabling SCIM support

Review the following steps to enable SCIM integration in Tableau Cloud and your IdP. To complete this process, you'll also need the documentation your IdP provides. Look for topics that refer to configuring or enabling a service provider for SCIM provisioning.

Notes:

- After enabling SCIM, users and their attributes should be managed through the IdP. Changes made within Tableau Cloud directly may result in unexpected behavior and overwritten values.

- Beginning in January 2025 (Tableau 2024.3):
  - You can choose the SAML authentication configuration to associate with SCIM. However, only one SAML authentication configuration can support SCIM on a site.
  - The SCIM capability is no longer site admin-scoped. In other words, all site administrators have the ability to configure and edit SCIM.
- Beginning in June 2025 (Tableau 2025.2):
  - You can configure one or more SCIM configurations on a site.
  - You can bypass the SCIM token that Tableau generates and instead use an externally generated JWT (using a Tableau connected app) to support SCIM requests in Tableau Cloud.

Step 1: Perform prerequisites

Before enabling SCIM integration with your Tableau Cloud site, you'll need to meet the following requirements:

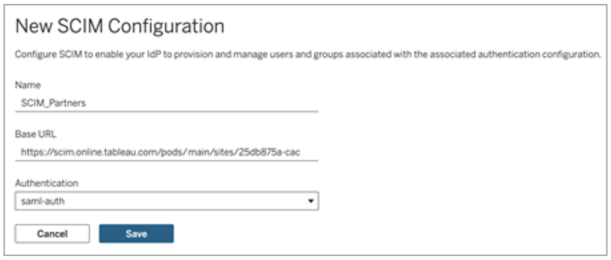
- Have site administrator access to the Tableau Cloud site.
- Able to modify your IdP's settings for Tableau Cloud.
- Your site is already configured to support SAML single sign-on (SSO). If you haven't done this, see Enable SAML Authentication on a Site or TCM, and then follow your IdP's documentation to add Tableau Cloud as an application.
- Optionally, if using external token generation and management, you have created and enabled a Tableau connected app. If you haven't done this, see Use Tableau Connected Apps for Application Integration.

Step 2: Enable SCIM support

In Tableau Cloud - using a Tableau-generated token

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.
2. Do the following:
    a. On the **Authentication** page, under **System for Cross-domain Identity Management (SCIM)**, click the **New Configuration** button.
    b. In the **New SCIM Configuration** dialog box, do the following:
        i. Enter a name for the SCIM configuration.
        ii. Copy the **Base URL** to use in your IdP's SCIM settings.
        iii. From the **Authentication** drop-down, select the SAML authentication configuration to associate with SCIM.
        iv. Click **Save**.

        Note: This populates the **SCIM token** section.



New SCIM Configuration

Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name: SCIM_Partners

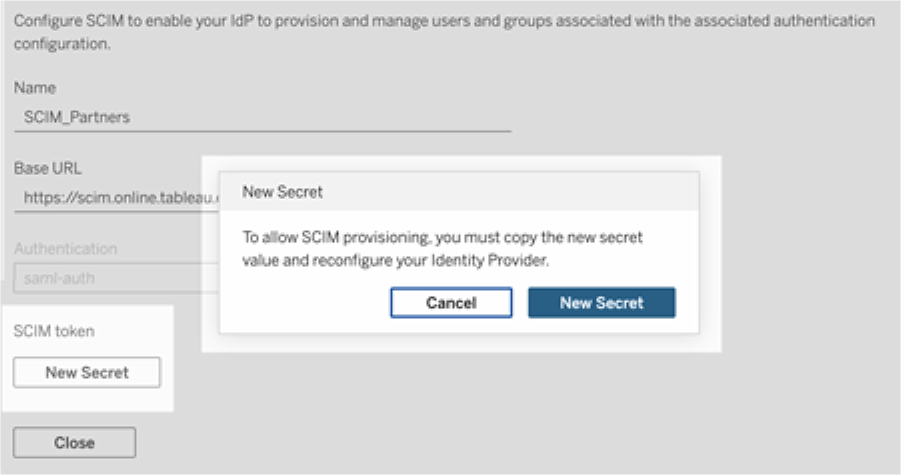
Base URL: https://scim.online.tableau.com/pods/main/sites/25db875a-cac

Authentication: saml-auth

    c. Under **SCIM token**, do the following:

i. Click the **New Secret** button.

ii. In the New Secret dialog box, click the **New Secret** button again. A newly generated secret will display.



Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name
SCIM_Partners

Base URL
https://scim.online.tableau.

Authentication
saml-auth

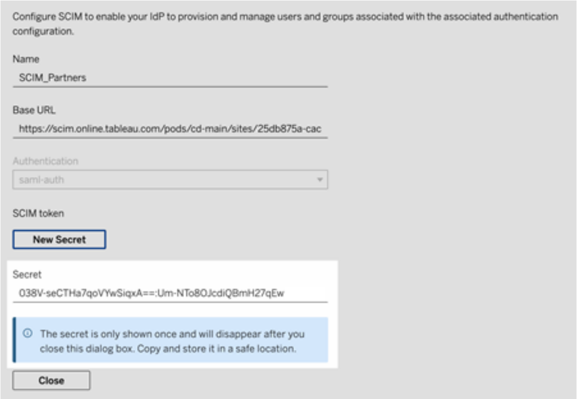
New Secret

To allow SCIM provisioning, you must copy the new secret value and reconfigure your Identity Provider.

iii. Copy the secret and store it in a safe location.

Important:

- If you close the SCIM configuration before you can add the secret to your IdP's SCIM settings, you can edit SCIM configuration but will be required to click **New Secret** again to generate a new secret.
- The secret is tied to the Tableau site administrator user who created the SCIM configuration. If that user’s site role changes or the user is no longer a member of the site, the secret becomes invalid. In this case, another site administrator can generate a new secret for the existing SCIM configuration and add it to the IdP's SCIM settings or create a new SCIM configuration ensuring the base URL and secret is added to the IdP's SCIM settings.



Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name: SCIM_Partners

Base URL: https://scim.online.tableau.com/pods/cd-main/sites/25db875a-cac

Authentication: saml-auth

SCIM token

Secret: 038V-seCTHa7qoVYwSiqxA==:Um-NTo8OJcdiQBmH27qEw

The secret is only shown once and will disappear after you close this dialog box. Copy and store it in a safe location.

   iv. Click **Close**.

3. Navigate to your IdP's SCIM settings and paste the Tableau Cloud base URL and SCIM token in the appropriate fields.

In Tableau Cloud, using an external token

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.

2. Do the following:

   a. Under **System for Cross-domain Identity Management (SCIM)**, click the **New Configuration** button.

   b. In the **New SCIM Configuration** dialog box, do the following:

      i. Enter a name for the SCIM configuration.

      ii. Copy the **Base URL** to use in your IdP's SCIM settings.

      iii. From the **Authentication** drop-down, select the SAML authentication configuration to associate with SCIM.

      iv. Click **Save**.

        Note: This populates the **SCIM token** section, which you can safely ignore.

    v. When finished, click **Close**.

3. Navigate to your IdP's SCIM settings and paste the Tableau Cloud base URL in the appropriate field.

In the IdP

After meeting the prerequisites and enabling SCIM in Tableau Cloud, use the steps in your IdP's documentation to enable SCIM support with your identity provider (IdP). For some general guidance for specific IdPs, see IdP-specific configuration.

Step 3: Provision users and groups

Follow your IdP’s documentation to provision users and groups after enabling SCIM support. For some general guidance for specific IdPs, see IdP-specific configuration.

Replace a Tableau-generated SCIM token

When you need to replace your Tableau-generated SCIM token, follow the steps below to generate a new secret for the existing SCIM configuration.

Note: To generate a new token for an existing SCIM configuration, you must be the site administrator who created the SCIM configuration.

1. In Tableau Cloud, navigate to **Settings** > **Authentication**.
2. Under System for Cross-domain Identity Management (SCIM), next to the SCIM configuration, select **Actions** > **Edit Configuration**.
3. Under SCIM token, do the following:

a. Click the **New Secret** button.

b. In the New Secret dialog box, click the **New Secret** button again. A newly generated secret will display.

c. Copy the secret and store it in a safe location.

   Important:

   - If you close the SCIM configuration before you can add the secret to your IdP's SCIM settings, you can edit SCIM configuration but will be required to click **New Secret** again to generate a new secret.

   - The secret is tied to the Tableau site administrator user who created the SCIM configuration. If that user's site role changes or the user is no longer a member of the site, the secret becomes invalid. In this case, another site administrator can generate a new secret for the existing SCIM configuration and add it to the IdP's SCIM settings or create a new SCIM configuration ensuring the base URL and secret is added to the IdP's SCIM settings.

Configure SCIM with Microsoft Entra ID

You can configure user management through Microsoft Entra ID (also known as Azure Active Directory (AD)), provision groups, and assign Tableau Cloud site roles.

While you complete the following steps, it will help to have the Entra ID documentation at hand. See the tutorial, Configure Tableau Cloud for automatic user provisioning.

Notes:

- If you have already enabled provisioning for your application and would like to update to use the Tableau SCIM 2.0 endpoint, see the Microsoft article Update a Tableau Cloud application. If you are setting up provisioning for a new instance of the Tableau Cloud application, follow the steps below.

- These steps reflect a third-party application and are subject to change without our knowledge. If the steps described here do not match the screens you see in your IdP account, you can use the general SCIM topic along with the IdP’s documentation.
- The configuration steps in the IdP may be in a different order than what you see in Tableau.

Step 1: Perform prerequisites

The SCIM functionality requires that you configure your site to support SAML single sign-on (SSO).

1. Complete the section "Add Tableau Cloud to your Microsoft Entra ID applications" in Configure SAML with Microsoft Entra ID.
2. After adding Tableau Cloud from the Azure Marketplace, remain signed in to both the Entra portal and Tableau Cloud, with the following pages displayed:
   - In Tableau Cloud, the **Settings** > **Authentication** page.
   - In the Entra portal, the **Tableau Cloud** application > **Provisioning** page.

Step 2: Enable SCIM support

Use the following steps to enable SCIM support with Microsoft Entra ID. See also Notes and limitations for SCIM support with Azure Active Directory section below.

Note: For the steps in the Entra portal, make sure you're using Tableau Cloud app from the gallery.

In Tableau Cloud

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.
2. Do the following:
   a. On the **Authentication** page, under **System for Cross-domain Identity Management (SCIM)**, click the **New Configuration** button.

b. In the **New SCIM Configuration** dialog box, do the following:

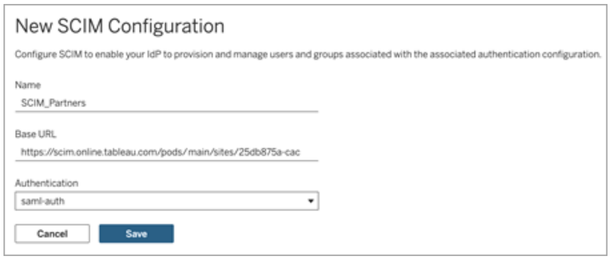
   i. Enter a name for the SCIM configuration.

   ii. Copy the **Base URL** to use in your IdP's SCIM settings.

   iii. From the **Authentication** drop-down, select the SAML authentication configuration to associate with SCIM.

   iv. Click **Save**.

   Note: This populates the **SCIM token** section.



New SCIM Configuration

Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name: SCIM_Partners

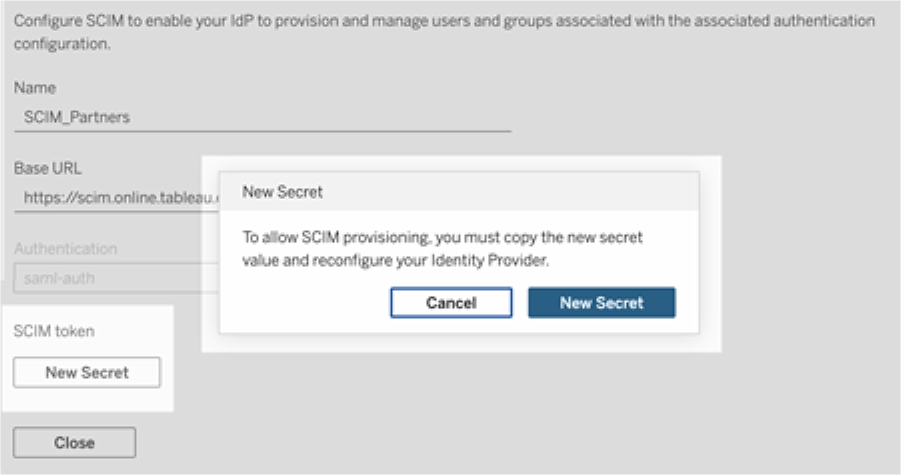
Base URL: https://scim.online.tableau.com/pods/main/sites/25db875a-cac

Authentication: saml-auth

c. Under **SCIM token**, do the following:

   i. Click the **New Secret** button.

   ii. In the New Secret dialog box, click the **New Secret** button again. A newly generated secret will display.



Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name

SCIM_Partners

Base URL

https://scim.online.tableau.

Authentication

saml-auth

SCIM token

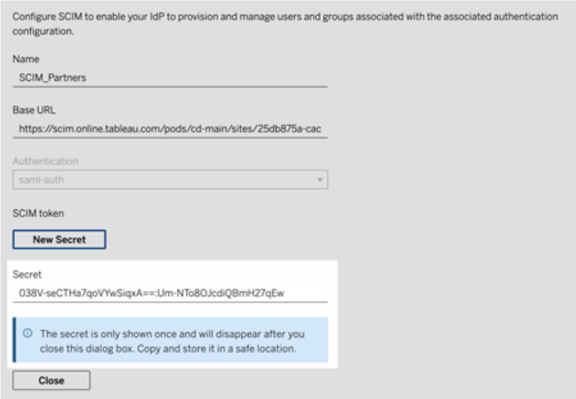
New Secret

To allow SCIM provisioning, you must copy the new secret value and reconfigure your Identity Provider.

iii. Copy the secret and store it in a safe location.

Important:

- If you close the SCIM configuration before you can add the secret to your IdP's SCIM settings, you can edit SCIM configuration but will be required to click **New Secret** again to generate a new secret.
- The secret is tied to the Tableau site administrator user who created the SCIM configuration. If that user’s site role changes or the user is no longer a member of the site, the secret becomes invalid. In this case, another site administrator can generate a new secret for the existing SCIM configuration and add it to the IdP's SCIM settings or create a new SCIM configuration ensuring the base URL and secret is added to the IdP's SCIM settings.



Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name: SCIM_Partners

Base URL: https://scim.online.tableau.com/pods/cd-main/sites/25db875a-cac

Authentication: saml-auth

SCIM token

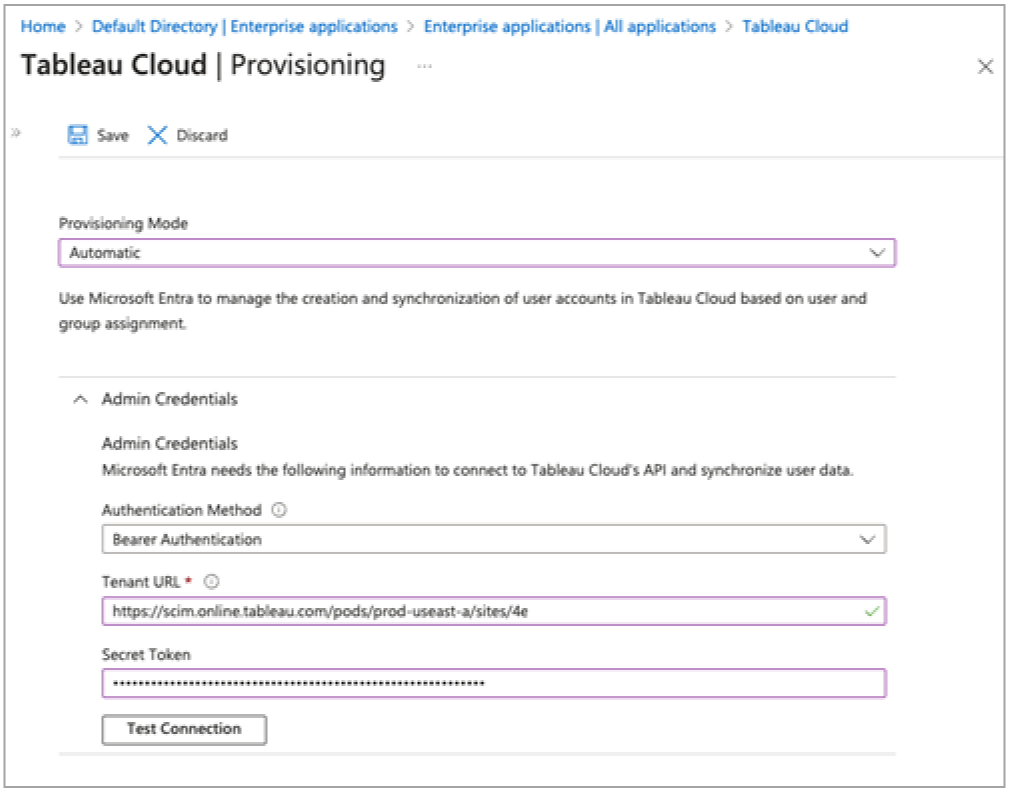
Secret: 038V-seCTHa7qoVYwSiqxA==:Um-NTo8OJcdiQBmH27qEw

The secret is only shown once and will disappear after you close this dialog box. Copy and store it in a safe location.

    iv. Click **Close**.

In Microsoft Entra

1. On the **Provisioning** page in your Entra portal, do the following:
    - For **Provisioning Mode**, select **Automatic**.
    - For **Authentication Method**, select **Bearer Authentication**.
    - For **Tenant URL**, copy and paste the **Base URL** shown in the Tableau Cloud SCIM settings.
    - For **Secret Token**, copy and paste the Tableau Cloud SCIM secret that was generated.



Home > Default Directory | Enterprise applications > Enterprise applications | All applications > Tableau Cloud
Tableau Cloud | Provisioning
Save
Discard

Provisioning Mode
Automatic

Use Microsoft Entra to manage the creation and synchronization of user accounts in Tableau Cloud based on user and group assignment.

Admin Credentials

Admin Credentials
Microsoft Entra needs the following information to connect to Tableau Cloud's API and synchronize user data.

Authentication Method
Bearer Authentication

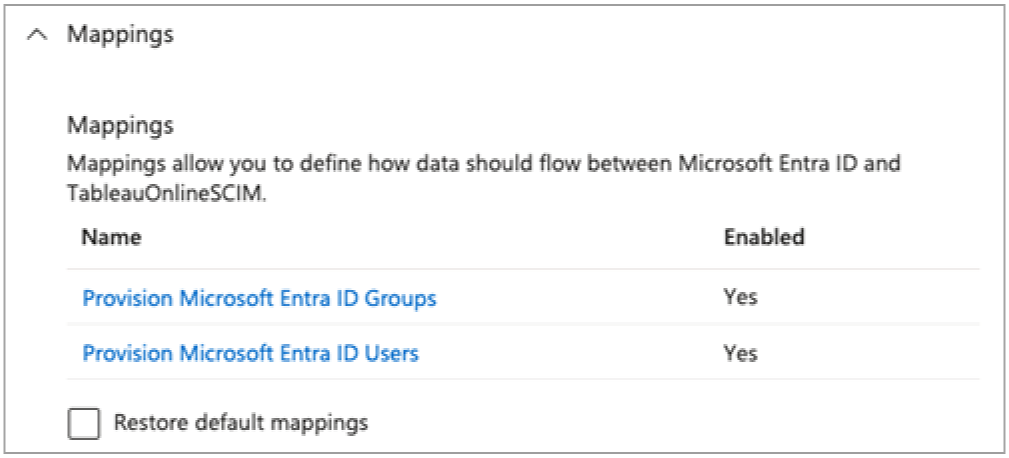
Tenant URL *
https://scim.online.tableau.com/pods/prod-useast-a/sites/4e

Secret Token
••

Test Connection

2. Click the **Test Connection** button to verify the credentials are working as expected, and then click **Save**.

3. In the **Mappings** section, verify that **Provision Microsoft Entra ID Groups** and **Provision Microsoft Entra ID Users** are enabled.



Mappings

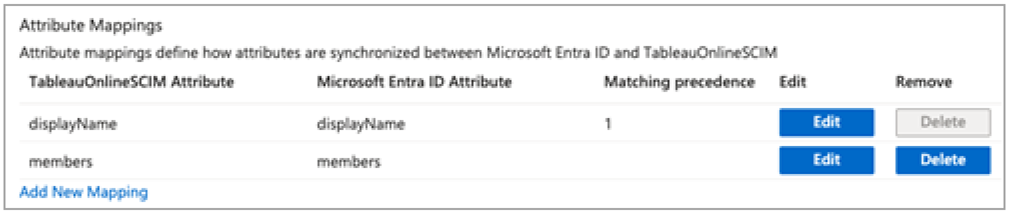
Mappings

Mappings allow you to define how data should flow between Microsoft Entra ID and TableauOnlineSCIM.

Name	Enabled
Provision Microsoft Entra ID Groups	Yes
Provision Microsoft Entra ID Users	Yes

☐ Restore default mappings

4. Select **Provision Microsoft Entra ID Groups**, and on the **Attribute Mappings** page, review the attributes synchronized from Entra ID to Tableau Cloud. To save any changes, click **Save**.



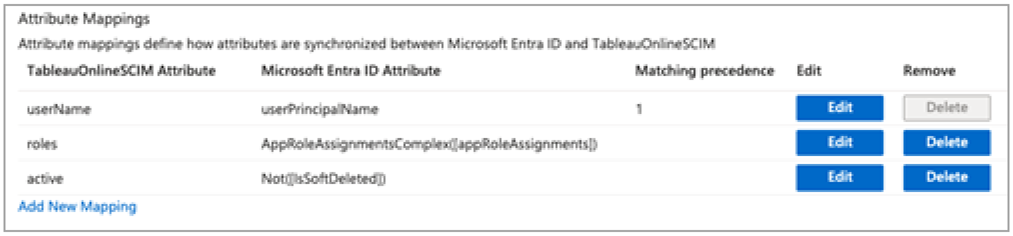
Attribute Mappings

Attribute mappings define how attributes are synchronized between Microsoft Entra ID and TableauOnlineSCIM

TableauOnlineSCIM Attribute	Microsoft Entra ID Attribute	Matching precedence	Edit	Remove
displayName	displayName	1	Edit	Delete
members	members		Edit	Delete

Add New Mapping

5. Select **Provision Microsoft Entra ID Users**, and on the **Attribute Mapping** page, review the attributes synchronized from Entra ID to Tableau Cloud. To save any changes, click **Save**.



Attribute Mappings

Attribute mappings define how attributes are synchronized between Microsoft Entra ID and TableauOnlineSCIM

TableauOnlineSCIM Attribute	Microsoft Entra ID Attribute	Matching precedence	Edit	Remove
userName	userPrincipalName	1	Edit	Delete
roles	AppRoleAssignmentsComplex([appRoleAssignments])		Edit	Delete
active	Not([IsSoftDeleted])		Edit	Delete

Add New Mapping

Step 3: Assign groups to the Tableau Cloud app

Use the following steps to assign groups to the Tableau Cloud gallery app in Microsoft Entra ID.

1. From the application page, select **Enterprise Apps** > **Users and groups**.
2. Click **Add user/group**.
3. On the **Add Assignment** page, select a group and assign one of the following site roles:
    - *Creator*
    - *SiteAdministratorCreator*
    - *Explorer*
    - *SiteAdministratorExplorer*
    - *ExplorerCanPublish*
    - *Viewer*
    - *Unlicensed*

    Note: You'll receive an error if you select a role that is not in the above list. For more information about site roles, see Set Users' Site Roles.
4. Click **Assign**.

Create groups for site roles

A user can be a member of multiple groups in Entra ID , but they will only receive the most permissive site role in Tableau Cloud. For example, if a user is a member of two groups with site roles Viewer and Creator, Tableau will assign the Creator site role.

To keep track of role assignments, we recommend creating role-specific groups in Entra ID, such as *“Tableau - Creator”*, *“Tableau - Explorer”*, etc. You can then use the groups to quickly provision new users for the correct role in Tableau Cloud.

Site roles are listed below in order from most permissive to least permissive:

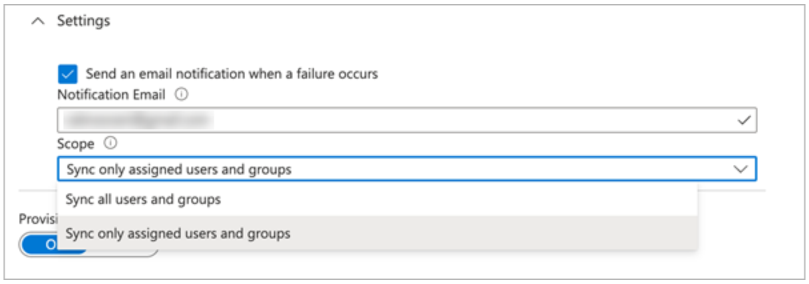
- Site Administrator Creator
- Site Administrator Explorer
- Creator
- Explorer (Can Publish)
- Explorer
- Viewer

Note: Users and their attributes should be managed through Entra ID. Changes made within Tableau Cloud directly may result in unexpected behavior and overwritten values.

Step 4: Provision groups

After you have enabled SCIM support and assigned groups to the Tableau Cloud application in Entra ID, the next step is to provision users to your Tableau Cloud site.

1. On the **Provisioning** page, expand the **Settings** section, and define the groups you want to provision to Tableau Cloud in **Scope**.

   Settings

   ☑ Send an email notification when a failure occurs

   Notification Email: [redacted]

   Scope: Sync only assigned users and groups

   Sync all users and groups
Sync only assigned users and groups
Provisi
O

   Note: The Entra ID setting "Sync all users and groups" is not supported with Tableau Cloud.

2. Toggle **Provisioning Status** to **On**.
3. Click **Save**.

Saving starts the initial synchronization of the groups defined in **Scope**. Synchronization occurs approximately every 40 minutes as long as the Entra ID provisioning service runs. To manually provision users outside of the schedule, select **Provision on demand**. For more information about on demand provisioning, see the Microsoft article On-demand provisioning in Microsoft Entra ID.

After provisioning is complete, you should see the groups from Entra ID on the **Site Users** page in Tableau Cloud.

Change user authentication in Tableau Cloud

Provisioned users are assigned the SAML authentication type by default. To change the authentication type for users, use the steps below.

1. In Tableau Cloud, select **Users**.
2. On the **Site Users** page, select the check boxes next to the users you want to assign an authentication type.
3. On the **Actions** menu, select **Authentication**.
4. In the Authentication dialog, select the preferred authentication type for the user.

For more information about the different authentication types in Tableau Cloud, see Authentication.

Notes for SCIM support with Azure Active Directory

- You must add a separate Tableau Cloud app for each site you want to manage using SCIM.
- When deprovisioning a user in the Tableau Cloud application in Azure AD or if a user is deleted from Azure AD entirely, the user is converted to an **Unlicensed** site role in Tableau Cloud. If the user owns any content, you must first reassign ownership of those content assets before you can manually delete the user in Tableau Cloud.

- Beginning in February 2024 (Tableau 2023.3), the use of SCIM with Grant License on Sign In (GLSI) is supported. GLSI requires the following:

  1. Manually enabling the option for a group and selecting the minimum site role for the users who are members of the group *directly* in Tableau Cloud. It is not possible to set a group with the GLSI attribute in Azure AD, but you can set the attribute for the group you have provisioned from Azure AD in Tableau Cloud.
  2. The user must be provisioned as *unlicensed* from the IdP.

Configure SCIM with Okta

You can configure user management through Okta, provision groups, and assign Tableau Cloud site roles. If you're not yet familiar with Tableau site roles and the capabilities each allows, see Set Users' Site Roles.

Notes:

- These steps reflect a third-party application and are subject to change without our knowledge. If the steps described here do not match the screens you see in your IdP account, you can use the general SCIM topic along with the IdP's documentation.
- The configuration steps in the IdP may be in a different order than what you see in Tableau.

Step 1: Perform prerequisites

The SCIM functionality requires that you configure your site to support SAML single sign-on (SSO).

1. Complete the following sections in Configure SAML with Okta:
   - Step 1: Get started
   - Step 3. Configure "Tableau Cloud application" in your IdP
2. After you finish the steps in these two sections, remain signed in to both the Okta administrator console and Tableau Cloud, with the following pages displayed:

- In Tableau Cloud, the **Settings** > **Authentication** page.
- In the Okta administrator console, **Applications** > **Applications** > **Tableau Cloud** > **Provisioning**.

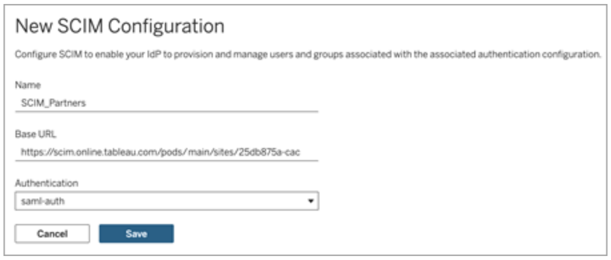
Step 2: Enable SCIM support

Use the following steps to enable SCIM support with Okta. See also the Notes for SCIM support with Okta section below.

In Tableau Cloud

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.
2. Do the following:
   a. On the **Authentication** page, under **System for Cross-domain Identity Management (SCIM)**, click the **New Configuration** button.
   b. In the **New SCIM Configuration** dialog box, do the following:
      i. Enter a name for the SCIM configuration.
      ii. Copy the **Base URL** to use in your IdP's SCIM settings.
      iii. From the **Authentication** drop-down, select the SAML authentication configuration to associate with SCIM.
      iv. Click **Save**.

Note: This populates the **SCIM token** section.



New SCIM Configuration

Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name
SCIM_Partners

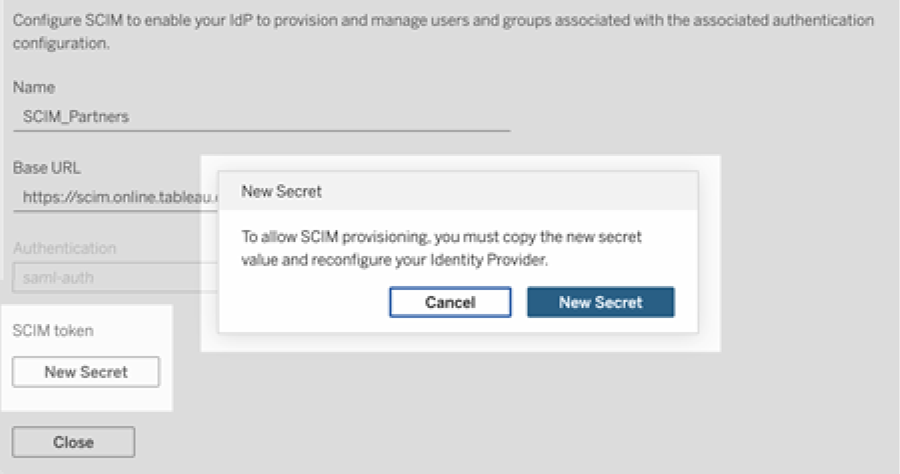
Base URL
https://scim.online.tableau.com/pods/main/sites/25db875a-cac

Authentication
saml-auth

c. Under **SCIM token**, do the following:

   i. Click the **New Secret** button.

   ii. In the New Secret dialog box, click the **New Secret** button again. A newly generated secret will display.



Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name
SCIM_Partners

Base URL
https://scim.online.tableau.

Authentication
saml-auth

SCIM token

New Secret

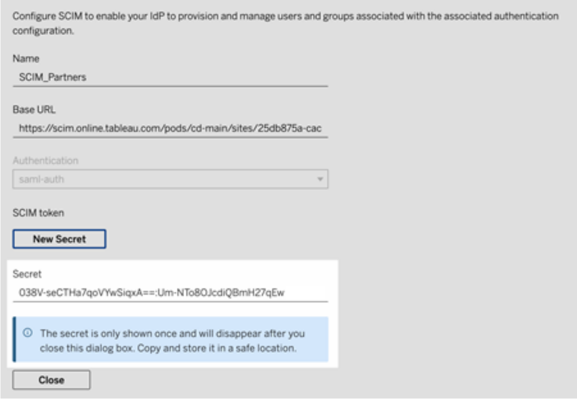
To allow SCIM provisioning, you must copy the new secret value and reconfigure your Identity Provider.

   iii. Copy the secret and store it in a safe location.

   Important:

   - If you close the SCIM configuration before you can add the secret to your IdP's SCIM settings, you can edit SCIM configuration but will be required to click **New Secret** again to generate a new secret.

- The secret is tied to the Tableau site administrator user who created the SCIM configuration. If that user’s site role changes or the user is no longer a member of the site, the secret becomes invalid. In this case, another site administrator can generate a new secret for the existing SCIM configuration and add it to the IdP's SCIM settings or create a new SCIM configuration ensuring the base URL and secret is added to the IdP's SCIM settings.



Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name: SCIM_Partners

Base URL: https://scim.online.tableau.com/pods/cd-main/sites/25db875a-cac

Authentication: saml-auth

SCIM token

Secret: 038V-seCTHa7qoVYwSiqxA==:Um-NTo8OJcdiQBmH27qEw

The secret is only shown once and will disappear after you close this dialog box. Copy and store it in a safe location.

iv. Click **Close**.

In Okta

1. In the Okta administrator console, do the following:
    a. From the left pane, select **Application** > **Application**, click the **Tableau Cloud** app, and then click the **Provisioning** tab.
    b. Click **Enable API Integration** button.
    c. Select the **Enable API integration** check box and click **Save**.
    d. Do the following:

   a. For **API Token**, paste the Tableau Cloud SCIM secret token you copied in the previous step.

   b. For **Base URL**, copy and paste the **Base URL** shown in the Tableau Cloud SCIM settings.

2. Click the **Test API Credentials** button to ensure the configuration was done correctly. If the configuration was done correctly, you see a "Tableau Cloud was verified successfully!" message.

3. When finished, click **Save**.

Step 3: Assign groups to the Tableau Cloud app

For user provisioning to Tableau, we recommend you manage users in groups for easier management in Tableau.

In Okta, assign groups to the Tableau Cloud app so that the users can be provisioned to Tableau Cloud. More specifically, you need two distinct groups, a group assigned to the Assignment tab and a group assigned to the Push Group tab. The group in the Assignments tab is used to create users in Tableau Cloud. The group in the Push Group tab is used to create the group and manage group membership in Tableau Cloud.

Notes:

- Okta requires that you have a group in the Assignments tab and a group for the Push Group tab to prevent a race condition. For more information, see App assignments and Group Push and About Group Pushh in the Okta documentation.

- The steps in this procedure assume you’ve already created at least two groups. For more information about creating groups in Okta, see Create a group in the Okta documentation.

You can use the procedure below to add a group and assign the group to the Tableau Cloud app.

1. From the left pane, select **Application** > **Application**, click the **Tableau Cloud** app, and then click the **Assignments** tab.

2. Click on the **Assign** drop-down and select **Assign to Groups**.

3. Do the following:

   a. Select the relevant group.

   b. Select the site role you would like the users to be provisioned with to Tableau. The options are:

      - Unlicensed
      - Viewer
      - Explorer
      - Explorer (can publish)
      - Creator
      - Site Administrator Explorer
      - Site Administrator Creator

4. When finished, click **Save and Go Back** button.

5. Repeat steps 1-4 in the **Push Group** tab and then click the **Done** button.

Step 4: Enable group provisioning

Okta allows you to push existing groups and their memberships to Tableau Cloud. After a group is pushed, you can manage group membership in Okta to automatically update the corresponding group in Tableau Cloud. Before you follow these steps, we recommend your review Group Push prerequisites and About Group Push in the Okta documentation.

Important: After enabling SCIM, users and their attributes should be managed through Okta. Changes made within Tableau Cloud directly may result in unexpected behavior and overwritten values.

The following procedure continues where you left off in the previous section and assume you are signed in to the Okta administrator console.

1. From the left pane, select **Application** > **Application**, click the **Tableau Cloud** app, and then click the **Push Groups** tab.
2. Click the **Push Groups** button and then select one of the following options from the drop-down menu:
   - **Find groups by name:** Select this option to search groups by name.
   - **Find groups by rule:** Select this option to create a search rule that pushes any groups that match the rule.

   You can deactivate group push, unlink pushed groups, or push group membership immediately by clicking **Active** or **Inactive** in the Push Status column. To delete, deactivate, or activate multiple groups, click **Bulk Edit**. For more information, see Enable Group Push in the Okta documentation.
3. (Optional) If pushing multiple groups, click the **Save & Add Another** button, and repeat the previous step.
4. When finished, click **Save**.

SCIM and grant license on sign in

Beginning in February 2024 (Tableau 2023.3), you can use SCIM with Grant License on Sign In (GLSI) with Okta.

Using SCIM with GLSI for Okta requires the following:

1. In Okta, adding users to the groups in Tableau Cloud app’s Assignment and Push Group tabs.

2. In Tableau Cloud, enabling the GLSI option for the groups and selecting the minimum site role for the users who are members of the groups.

   Note: It’s not possible to set a group with the GLSI attribute in Okta.

3. Users to be provisioned as "Unlicensed" in Okta.

Enable GLSI

To set up and enable GLSI, see Grant License on Sign In.

Remove SCIM users with GLSI

You must first remove SCIM users from their GLSI-enabled groups in Okta before attempting to deactivate them in Okta. Deactivating users will set the users to the "Unlicensed" role in Tableau Cloud. However, users can't get the "Unlicensed" role in Tableau Cloud until they are no longer a member of any GLSI-enabled groups.

1. In Okta, remove the user from the GLSI-enabled group assigned to the Push Group tab first.

2. While still in Okta, deprovision the user by either removing them from the GLSI-enabled group assigned to the Assignments tab or deleting the user in Okta. After you do this, the user will be converted to “Unlicensed” in Tableau Cloud. Deprovisioning a user in Okta only causes the user to be converted to “Unlicensed” in Tableau Cloud and does not delete the user.

   Notes:

   - If you want to delete a user in Okta, see Deactivate and delete user accounts in the Okta documentation.

   - If you want to delete the SCIM user in Tableau Cloud (see Delete SCIM users, below), you manually delete the user from Tableau Cloud.

If you encounter issues, see the Error "User role was not updated to: Unlicensed (errorCode-e=10079)" When Attempting to Deprovision Users via SCIM knowledge article.

About Tableau Cloud's "All Users" group

If you’ve enabled the default “All Users” group with GLSI, you can’t deprovision the users in Okta and therefore unable to get the "Unlicensed" role for any of the users that belong to the GLSI-enabled group in Tableau Cloud. To remove SCIM users in the GLSI-enabled “All Users” group, you must manually delete the users from Tableau Cloud.

Note: If users have content associated with them, you’ll need to reassign content ownership to other users before you can delete the users.

Delete SCIM users

Deleting SCIM users in Okta will only covert them to the "Unlicensed" role and will not delete them in Tableau Cloud. If you want to delete users, you must manually delete the users in Tableau Cloud.

For more information about deleting users, see "Remove users from a site" in the View, Manage, or Remove Users topic.

Notes for SCIM support with Okta

- In the Okta user assignment settings, the values for **User Name** and **Primary email** must be identical.
- You must add a separate Tableau Cloud Okta app for each site you want to manage using SCIM.
- If you want to migrate a site, you will need to re-configure SCIM provisioning for the new site.
- When provisioning new users, first name and last name attributes in Okta are not synced to Tableau Cloud. New users must set those fields when they sign in to Tableau Cloud for the first time.
- When a user is unassigned from the Tableau Cloud app in Okta or the user is deactivated or deleted from Okta entirely, the user is converted to an "Unlicensed" site role

in Tableau Cloud. If the user owns any content, you must first reassign ownership of those content assets before you can manually delete the user in Tableau Cloud.

- You can set a user’s site role (such as Creator, Explorer, or Viewer) in Okta at either the user or the group level. We recommend assigning the site role at the group level. If the user is assigned a site role directly, it will override any group settings.
- A user can be a member of many groups. Groups can have different site roles. If a user is assigned groups with different site roles, the user will receive the most permissive site role in Tableau Cloud. For example, if you choose Viewer and Creator, Tableau will assign the Creator site role.

  Site roles are listed below in order from most permissive to least permissive:

  - Site Administrator Creator
  - Site Administrator Explorer
  - Creator
  - Explorer (Can Publish)
  - Explorer
  - Viewer
- You can update the site role attribute for a user in Okta and this change will propagate to Tableau Cloud. Other attributes, such as User Name and Primary email, cannot be updated. To change these attributes, remove the user, change the attribute, and then add the user again.
- Beginning in February 2024 (Tableau 2023.3), the use of SCIM with Grant License on Sign In (GLSI) is supported. For more information, see SCIM and grant license on sign in above.

Configure SCIM with OneLogin

You can configure user management through OneLogin, provision groups, and assign Tableau Cloud site roles. If you're not yet familiar with Tableau site roles and the capabilities each allows, see Set Users' Site Roles.

As you complete the following steps, it might help also to have the OneLogin documentation at hand. Start with Introduction to User Provisioning in the OneLogin documentation.

Notes:

- These steps reflect a third-party application and are subject to change without our knowledge. If the steps described here do not match the screens you see in your IdP account, you can use the general SCIM topic along with the IdP's documentation.
- The configuration steps in the IdP may be in a different order than what you see in Tableau.

Step 1: Perform prerequisites

The SCIM functionality requires that you configure your site to support SAML single sign-on (SSO).

1. Complete the following sections in Configure SAML with OneLogin:
    - Step 1: Get started
    - Configure SAML with OneLogin
2. After you finish the steps in these two sections, remain signed in to both the OneLogin portal and Tableau Cloud, with the following pages displayed:
    - In Tableau Cloud, the **Settings** > **Authentication** page.
    - In the OneLogin portal, the **Configuration** page.

Step 2: Enable SCIM support

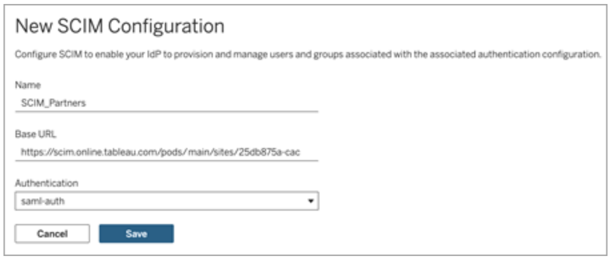
Use the following steps to enable SCIM support with OneLogin. See also Notes and limitations for SCIM support with OneLogin section below.

Note: Remember to click **Save** in the upper right corner of the OneLogin portal after making configuration changes.

In Tableau Cloud

1. Sign in to your Tableau Cloud site as a site administrator, and select **Settings** > **Authentication**.
2. Do the following:
    a. On the **Authentication** page, under **System for Cross-domain Identity Management (SCIM)**, click the **New Configuration** button.
    b. In the **New SCIM Configuration** dialog box, do the following:
        i. Enter a name for the SCIM configuration.
        ii. Copy the **Base URL** to use in your IdP's SCIM settings.
        iii. From the **Authentication** drop-down, select the SAML authentication configuration to associate with SCIM.
        iv. Click **Save**.

Note: This populates the **SCIM token** section.



New SCIM Configuration

Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name

SCIM_Partners

Base URL

https://scim.online.tableau.com/pods/main/sites/25db875a-cac

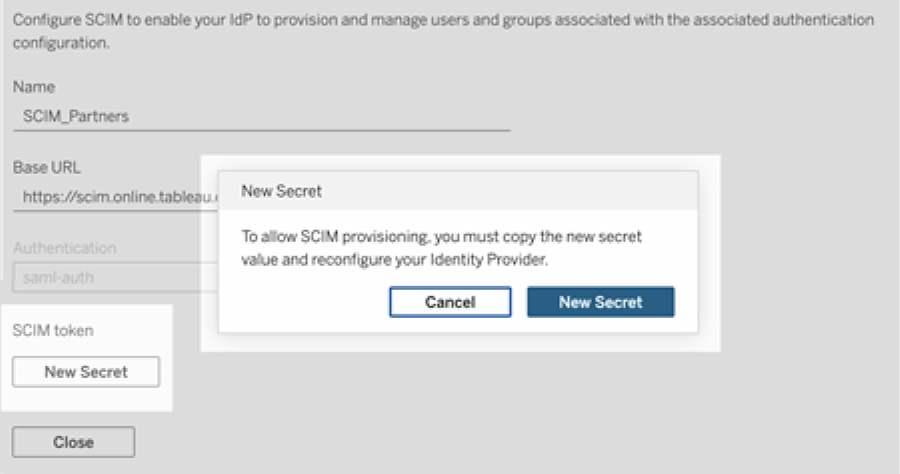
Authentication

saml-auth

c. Under **SCIM token**, do the following:

   i. Click the **New Secret** button.

   ii. In the New Secret dialog box, click the **New Secret** button again. A newly generated secret will display.



Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name

SCIM_Partners

Base URL

https://scim.online.tableau.

Authentication

saml-auth

SCIM token

New Secret

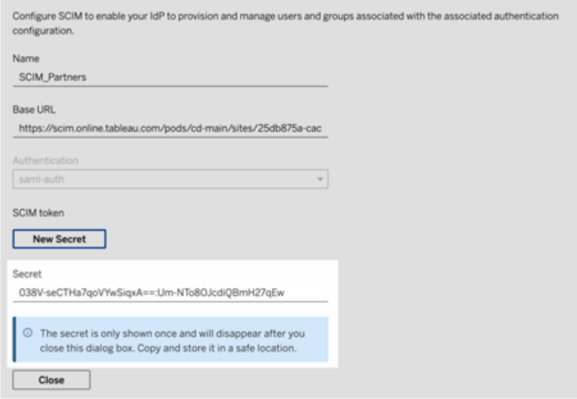
To allow SCIM provisioning, you must copy the new secret value and reconfigure your Identity Provider.

   iii. Copy the secret and store it in a safe location.

   Important:

   - If you close the SCIM configuration before you can add the secret to your IdP's SCIM settings, you can edit SCIM configuration but will be required to click **New Secret** again to generate a new secret.

- The secret is tied to the Tableau site administrator user who created the SCIM configuration. If that user’s site role changes or the user is no longer a member of the site, the secret becomes invalid. In this case, another site administrator can generate a new secret for the existing SCIM configuration and add it to the IdP's SCIM settings or create a new SCIM configuration ensuring the base URL and secret is added to the IdP's SCIM settings.


Configure SCIM to enable your IdP to provision and manage users and groups associated with the associated authentication configuration.

Name: SCIM_Partners

Base URL: https://scim.online.tableau.com/pods/cd-main/sites/25db875a-cac

Authentication: saml-auth

SCIM token

Secret: 038V-seCTHa7qoVYwSiqxA==:Um-NTo8OJcdiQBmH27qEw

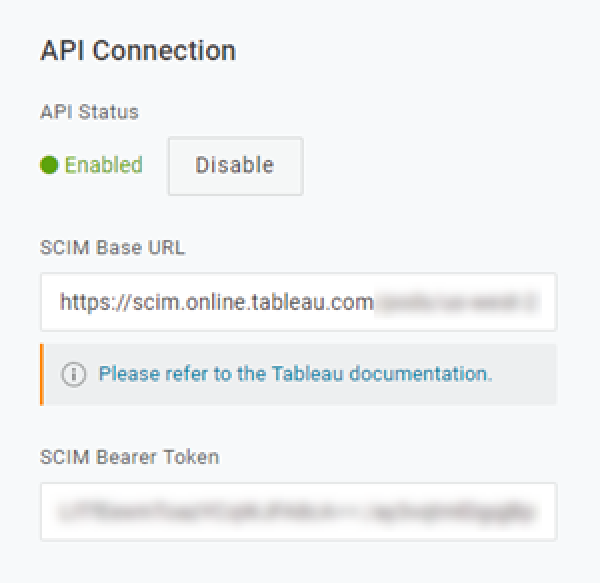
The secret is only shown once and will disappear after you close this dialog box. Copy and store it in a safe location.

iv. Click **Close**.

In OneLogin

1. In the OneLogin portal, on the **Configuration** page, do the following:
   - For **API Status**, click **Enable**.
   - For **SCIM Bearer Token**, paste the Tableau Cloud SCIM secret token you copied earlier.
   - For **SCIM Base URL**, copy and paste the **Base URL** shown in the Tableau Cloud

SCIM settings.



API Connection

API Status

● Enabled

SCIM Base URL

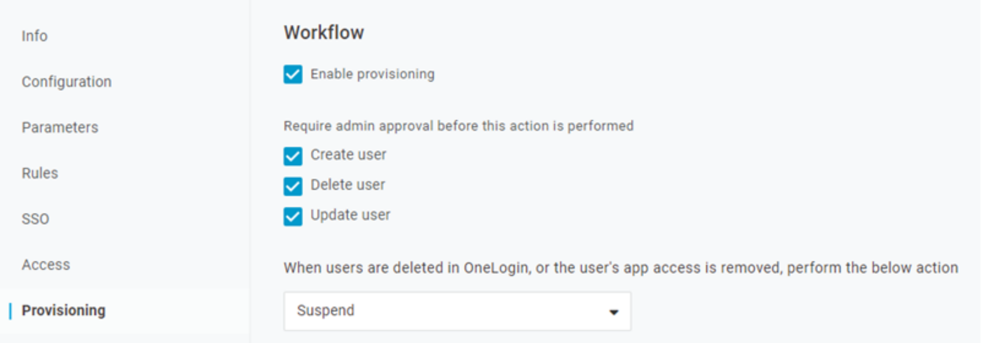
https://scim.online.tableau.com

Please refer to the Tableau documentation.

SCIM Bearer Token

2. On the **Provisioning** page, do the following:

   - Select **Enable provisioning**.
   - Select **Suspend** for **When users are deleted in OneLogin, or the user's app access is removed, perform the below action**.



Info
Configuration
Parameters
Rules
SSO
Access
Provisioning

Workflow

☑ Enable provisioning

Require admin approval before this action is performed

☑ Create user

☑ Delete user

☑ Update user

When users are deleted in OneLogin, or the user's app access is removed, perform the below action

Suspend

3. Click **Save**.

4. (Optional) On the **Parameters** page, map **SCIM Username** to the **Email** attribute. If you don’t map SCIM Username to an attribute in email address format, you’ll have to manually populate this field for each user as part of the provisioning process.

   An error is displayed when provisioning users if the mapped value doesn’t contain the user email address.

If you want to complete the steps for provisioning users and groups, stay signed in to the OneLogin portal and proceed to the next section.

Step 3: Provision users and groups

OneLogin gives you a number of ways by which you can assign user attributes such as groups or site roles. You can apply them at the Tableau Cloud app level, create mapping rules, or apply them manually to individual users.

Before you begin, it's important to note the OneLogin concept of groups operates differently than the Tableau concept of groups. In OneLogin, groups function as security boundaries to apply specific security policies to users. Because of this, users can only belong to one group at a time.

Additionally, OneLogin uses roles as a container for applications that different user cohorts can access. Once you assign users a role, you grant them access to all the applications included in the role. This is similar to the Tableau concept of groups. Users can have multiple roles in OneLogin, which can be mapped to a target application group, such as Tableau Cloud.

Note: The following steps assume you are signed in to the OneLogin portal and Tableau Cloud app. These steps provide some Tableau-specific information that you can use with the OneLogin documentation for mapping group and site role attributes to users.

Provision a user

Use the following steps to provision individual users to Tableau Cloud through the OneLogin portal.

1. Go to the **Users** tab and select the user you want to provision. This opens the user settings page.
2. From the left navigation menu, select **Applications**.
3. On the **Applications** page, click the plus (+) icon to provision the user for your Tableau Cloud application, and then click **Continue**.
4. Enter the appropriate Tableau Cloud site role for the user in the **Site Role** field. For more information about site roles, see Set Users' Site Roles.
5. Click **Save**.

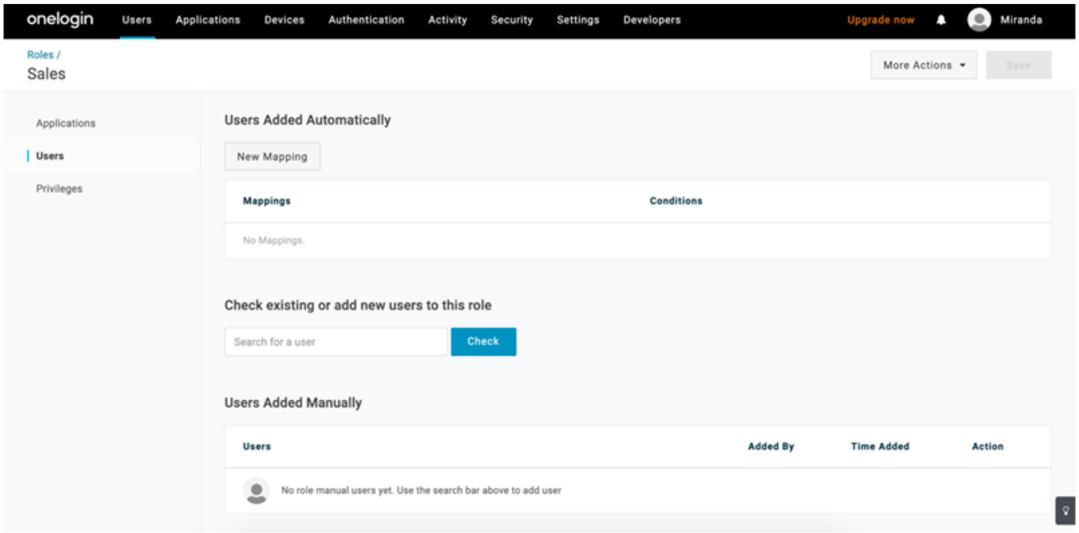
Provision multiple users with OneLogin roles

You can provision multiple users to Tableau Cloud by assigning roles in OneLogin. Users can be added to roles manually or automatically using mappings.

To add users to a role:

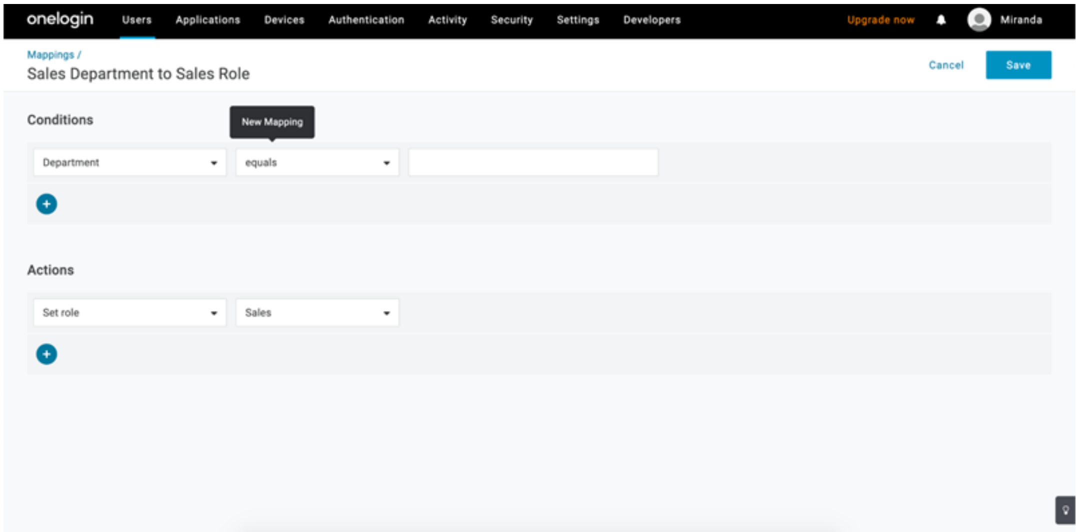
1. Go to **Users** > **Roles**, and select an existing role or create a **New Role**. For more information, see the OneLogin article Roles.

   The following example shows the role “Sales” that we’ll use as a group in Tableau Cloud later on.


onelogin
Users
Applications
Devices
Authentication
Activity
Security
Settings
Developers
Upgrade now
Miranda
Roles /
Sales
More Actions
Save
Applications
Users
Privileges
Users Added Automatically
New Mapping
Mappings
Conditions
No Mappings.
Check existing or add new users to this role
Search for a user
Check
Users Added Manually
Users
Added By
Time Added
Action
No role manual users yet. Use the search bar above to add user

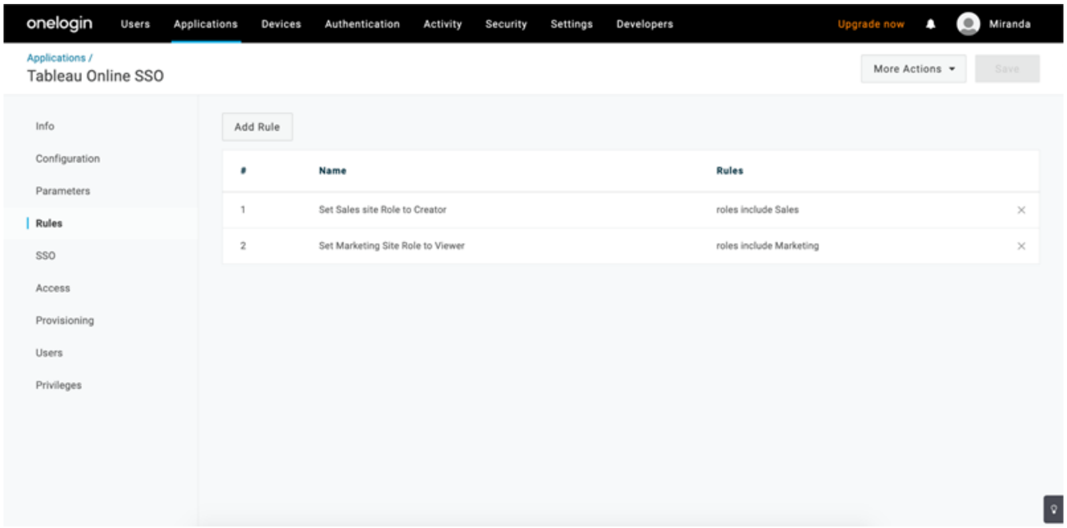
2. On the **Applications** page, assign the role access to the Tableau Cloud application. This should provision the associated users to the application automatically.

3. On the **Users** page, you can add users to a role manually by entering their first and last name, or add a mapping to automatically add users to a role based on specific attributes - such as their Active Directory group, for example.


onelogin
Users
Applications
Devices
Authentication
Activity
Security
Settings
Developers
Upgrade now
Miranda
Mappings /
Sales Department to Sales Role
Cancel
Save
Conditions
New Mapping
Department
equals
Actions
Set role
Sales

4. After adding users to roles, we recommend you create rules within the application to assign the appropriate Tableau Cloud site role based on the OneLogin role. For more information, see the OneLogin article Configure Apps.

   In the image below, users with the “Sales” role will be assigned the Creator site role in Tableau Cloud. Likewise, users with the “Marketing” role will be assigned the Viewer site role.


onelogin
Users
Applications
Devices
Authentication
Activity
Security
Settings
Developers
Upgrade now
Miranda
Applications /
Tableau Online SSO
More Actions
Save
Info
Configuration
Parameters
Rules
SSO
Access
Provisioning
Users
Privileges
Add Rule

#	Name	Rules
1	Set Sales site Role to Creator	roles include Sales
2	Set Marketing Site Role to Viewer	roles include Marketing

Add users to existing Tableau Cloud groups

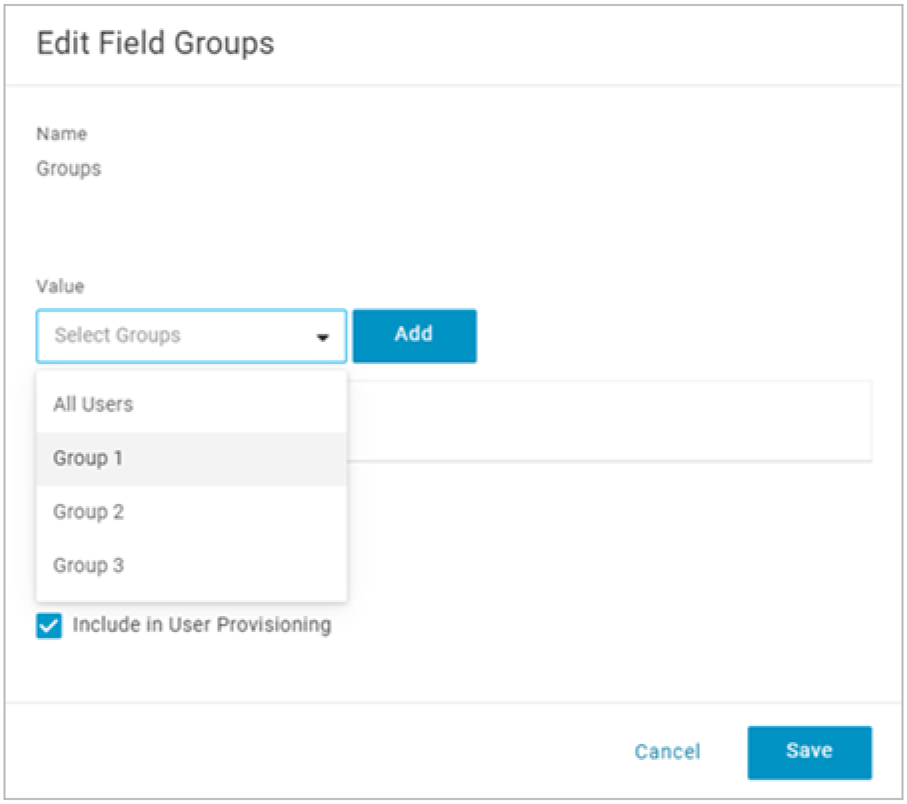
Import Tableau Cloud groups into OneLogin and specify the groups you want to be selected by default in the user provisioning dialog.

1. On the **Parameters** page, click **Groups**, and select the **Include in User Provisioning** check box.

2. Go to the **Provisioning** page, and in the **Entitlements** section, click **Refresh**.

   This imports the groups from Tableau Cloud.

3. Go back to the **Parameters** page, and then select the groups that you want to show as selected values in the user provisioning dialog.



Edit Field Groups

Name
Groups

Value

☑ Include in User Provisioning

4. To change group membership, go to the **Users** page, select a user, and in the **Groups** section, modify the available and selected values.

You can also create mappings that put users into groups automatically, based on conditions you define. For more information, see the OneLogin article Mappings.

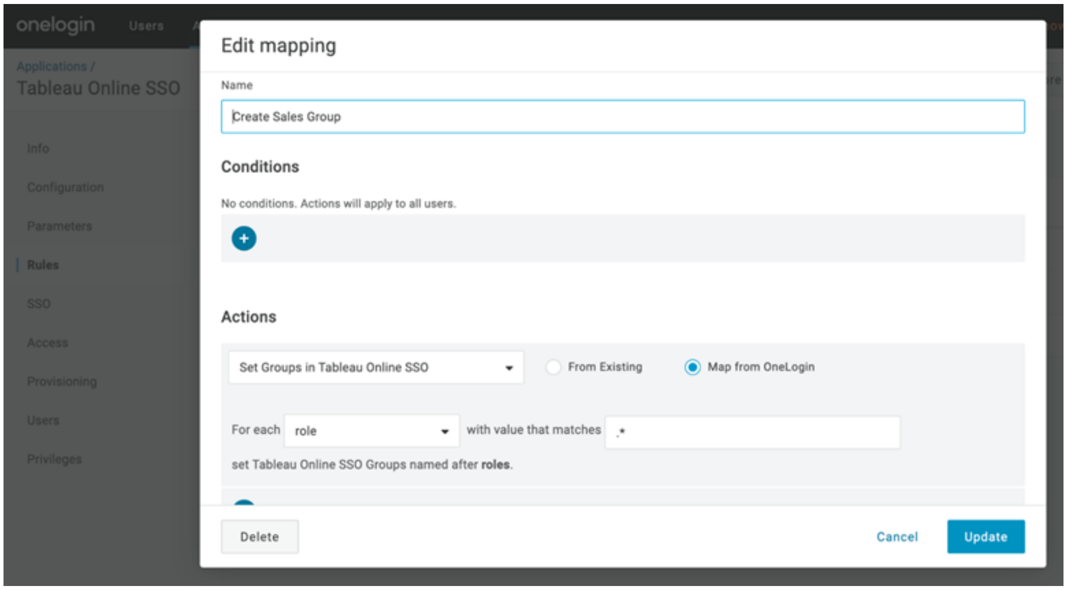
Create groups in Tableau Cloud from OneLogin

Use the following steps to create Tableau Cloud groups based on attributes in OneLogin mappings. For example, creating a group in Tableau Cloud based on user roles.

1. Go to **Applications**, select the Tableau Cloud application, and then **Rules**.
2. On the **Rules** page, click **Add Rule** to open the edit mapping window.

3. Under **Actions**, select **Set Groups** from the drop-down menu, and then select **Map from OneLogin**.

   The conditions field **with value that matches** uses regular expressions. If you want to create a group in Tableau Cloud that matches the role name in OneLogin, type `.*` in the text field.



onelogin
Users
Applications /
Tableau Online SSO
Info
Configuration
Parameters
Rules
SSO
Access
Provisioning
Users
Privileges
Delete
Cancel
Update

Edit mapping

Name: Create Sales Group

Conditions

No conditions. Actions will apply to all users.

Actions

Set Groups in Tableau Online SSO ○ From Existing ● Map from OneLogin

For each role with value that matches .*

set Tableau Online SSO Groups named after **roles**.

Assign Tableau site roles

By default, users are assigned the **Viewer** site role, which occupies a **Viewer** license type.

Whatever method you use in OneLogin to assign site roles, at some point you need to enter the site role name into a text box. For the allowed values you can type, see Valid Tableau site role values below.

Here are some of the ways you can assign site roles

For individual users:

1. On the **Users** page, select the user, and then navigate to the **Applications** tab. Select the corresponding Tableau Cloud application.

2. In the user settings, type the site role name in the **Site Role** text box.

For a set of users:

1. On the **Parameters** page, click **Site Role**, and then, for Value, select one of the options for assigning the site role attribute

   For example:

   - If all users have the same site role, select **Macro** and enter the site role name.
   - If the OneLogin user directory contains the site role, select the corresponding attribute.
2. On the **Rules** page, create a rule that maps a role to a particular role in Tableau Cloud.

When you’re done assigning the site role, click **Save**.

Valid Tableau site role values

On the **Provisioning** page in your OneLogin portal, the Site Role values you can enter are based on current or legacy license roles.

- **Current license roles** include the following site role values:

  Creator, Explorer, ExplorerCanPublish, ReadOnly, ServerAdministrator, SiteAdministratorExplorer, SiteAdministratorCreator, Unlicensed, or Viewer.

- **Legacy (pre-v2018.1) license types** come with the following site roles:

  Interactor, Publisher, ServerAdministrator, SiteAdministrator, Unlicensed, UnlicensedWithPublish, Viewer, or ViewerWithPublish

To learn the effects of changing user attributes, or how to reset individual user attributes you changed manually, see the OneLogin article Provisioning Attributes: the Effect of Defaults, Rules, and Manual Entry.

Notes and limitations for SCIM support with OneLogin

- You must add a separate Tableau Cloud app for each site you want to manage using SCIM.
- When deprovisioning or removing an existing users from the Tableau Cloud application in OneLogin, the user is converted to an **Unlicensed** site role in Tableau Cloud in case they own any content assets. If the user does own content, you must first reassign ownership of those content assets before you can manually delete the user in Tableau Cloud.
- Use of SCIM with Grant License on Sign In is unsupported and may result in incorrectly provisioned site roles for users or groups.

Use Tableau Connected Apps for Application Integration

Beginning in early January 2022, Tableau connected apps enable a seamless and secure authentication experience by facilitating an explicit trust relationship between your Tableau Cloud site and external applications where Tableau content is embedded. In June 2022, Tableau connected apps extended its capabilities to support REST API authorization. And as of October 2023, REST API authorization using connected apps is respected by the Tableau Metadata API.

Note: Tableau connected apps and Salesforce connected apps are different and offer different functionality. Today, Tableau connected apps are optimized for embedding Tableau views and metrics in external applications and used to authorize access to the Tableau REST API. (In October 2023, Tableau retired the ability to embed metrics in Tableau Cloud and Tableau Server version 2023.3.).

There are two types of connected apps you can configure: direct trust or OAuth 2.0 trust.

Direct trust

Using *direct trust*, you can:

- Restrict access to which content can be embedded and where that content can be embedded
- Provide users the ability to access embedded content using single sign-on (SSO) without having to integrate with an identity provider (IdP)
- Provide users the ability to authenticate directly from your external application
- Programmatically authorize access to the Tableau REST API and Tableau Metadata API (starting in Tableau Cloud October 2023) on users' behalf using JSON Web Token (JWT)
- Scope Tableau REST API capabilities users or applications can perform
- Enable additional features like:
  - User attribute functions (March 2023)
  - On-demand access (October 2023)
  - Dynamic group membership using assertions (June 2024)
  - External tokens for SCIM (June 2025)

For more information about this connected app type, see Configure Connected Apps with Direct Trust.

OAuth 2.0 trust

Using *OAuth 2.0 trust*, you can:

- Restrict access to which content can be embedded and where that content can be embedded
- Provide users the ability to access embedded content using single sign-on (SSO) through your identity provider (IdP)
- Provide access using standard OAuth 2.0 standard protocol
- Programmatically authorize access to Tableau REST API and the Metadata API (starting in Tableau Cloud October 2023) on users' behalf

- Scope Tableau REST API capabilities users or applications can perform
- Enable additional features like:
  - User attribute functions (March 2023)
  - On-demand access (October 2023)
  - Dynamic group membership using assertions (June 2024)
  - External tokens for SCIM (June 2025)

For more information about this connected app type, see Configure Connected Apps with OAuth 2.0 Trust.

Configure Connected Apps with Direct Trust

Beginning in early January 2022, Tableau connected apps enable a seamless and secure authentication experience by facilitating an explicit trust relationship between your Tableau Cloud site and external applications.

Note: In order for the session token to be valid, the clocks of the external application and the server that hosts the external application must be set to Coordinated Universal Time (UTC). If either clock uses a different standard, the connected app will not be trusted.

How Tableau connected apps work with direct trust

The trust relationship between your Tableau Cloud site and external application is established and verified through an authentication token in the JSON Web Token (JWT) standard, which uses a shared secret provided by the Tableau connected app and signed by your external application.

Key components of a connected app

The following components of the connected work together with the JWT in your external application to authenticate users and display embedded content.

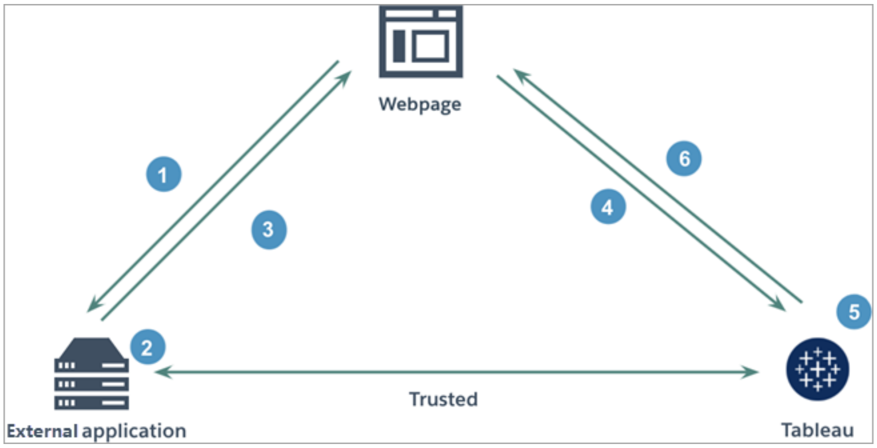
- **Secrets:** Secrets are keys shared by Tableau and your external application. They are used in signatures that form the JWT. A secret is required when using connected apps for embedding authentication or REST API authorization. Secrets can be created in a connected app, do not expire, and remain valid until deleted.

- **Domain allowlist (embedding workflows only):** You can specify a list of allowed domains in each connected app. Tableau content embedded through a connected app is only allowed under the specified domains. This helps ensure that content is exposed under the domains that are secured and approved by your business.
- **Access level (embedding workflows only):** You can specify what content can be embedded through a connected app by associating a connected app with one project or all projects. If you specify one project, only the content in the selected project can be embedded through the connected app. If you want to specify multiple projects, you must use the Tableau REST API.

Connected app workflow

Embedding workflows

The diagram below illustrates how authentication works between your external application (web server and webpage) and Tableau connected app.



1. **User visits the webpage:** When a user visits the embedded content on a webpage, webpage sends a GET request to your external application to retrieve the HTML on that webpage.
2. **External application constructs an authentication token:** The external application constructs a JWT, which contains a secret from the connected app (see Step 3 below for additional JWT requirements) and the scope of user access for the embedded content. The secret is signed by the external application and is used for verification of the trust relationship in a later step.

3. **External application responds with authentication token:** The external application responds to the page with the JWT in the embedded content's URL called by the webpage.
4. **Webpage requests content from Tableau**: With the attempt to load the embedded content, the webpage calls the embedded content's URL, which sends a GET request to Tableau.
5. **Tableau validates the token:** Tableau receives the JWT and verifies the trust relationship with the external application by identifying the connected app and shared secret used in the JWT. Then Tableau creates a session for the user. The session not only respects the embedding scopes defined in the JWT, but also the restrictions specified in the connected app, including the allowed domains and allowed projects.
6. **Tableau returns the content based on the restricted embedding context:** The embedded content only loads when the page is under an allowed domain and the content is published to an allowed project (if applicable). The authenticated user can only interact with the embedded content by the scope defined in the JWT.

Create a connected app

Step 1: Create a connected app

Create a connected app from Tableau Cloud's Settings page.

1. As a site admin, sign in to Tableau Cloud.
2. From the left pane, select **Settings** > **Connected Apps**.
3. Select the New Connected App button drop-down arrow and select **Direct Trust**.
4. In the Create Connected App dialog box, do *one* of following:
   - For *REST API authorization workflows (including Metadata API workflows that use the REST API for authentication)*, in the Connected app name text box, enter a name for the connected app and select the **Create** button.

     Note: You can ignore **Access level** and **Domain allowlist** when configuring a connected app for REST API and Metadata API authorization.

   - For *embedding workflows*, do the following:
     i. In the Connected app name text box, enter a name for the connected app.
     ii. From the Applies to drop-down menu, select **All project** or **Only one project** to control which views or metrics can be embedded. If you select the "Only one project" option, select the specific project to scope to. For more information about these two options, see Access level (embedding

workflows only).

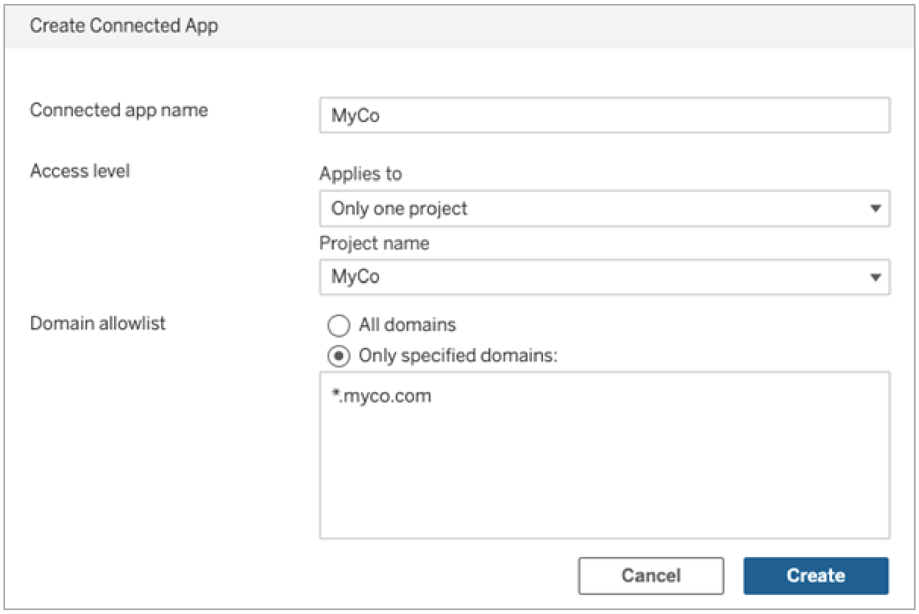
Notes:

- In October 2023 (Tableau 2023.3), Tableau retired the ability to embed metrics.
- In February 2024 (Tableau 2024.1), you can specify multiple projects using the Tableau REST API. For more information, see Create Connected App and Update Connected App methods in the REST API Help.

iii. In the Domain allowlist, specify the domains using the rules described in Domain formatting below to control where views or metrics can be embedded.

Important: We recommend using the domain allowlist as a security best practice to ensure Tableau content is only embedded in locations that you allow.

iv. When finished, select the **Create** button.



Create Connected App

Connected app name: MyCo

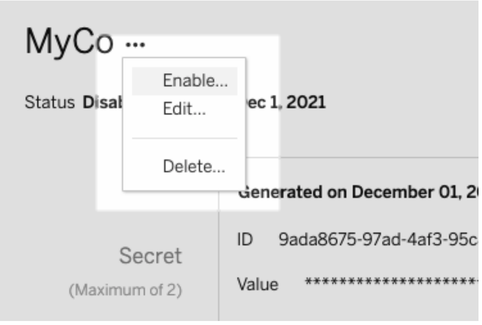
Access level: Applies to: Only one project

Project name: MyCo

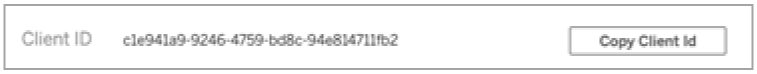
Domain allowlist: ○ All domains ● Only specified domains:

*.myco.com

5. Next to the connected app's name, select the actions menu and select **Enable**. For security purposes, a connected app is set to disabled by default when created.


MyCo ...
Enable...
Edit...
Delete...
Status Disab
ec 1, 2021
Generated on December 01, 2
ID 9ada8675-97ad-4af3-95c
Value ********************
Secret
(Maximum of 2)

6. Make note of the connected app’s ID, also known as the client ID, to use in Step 3 below.



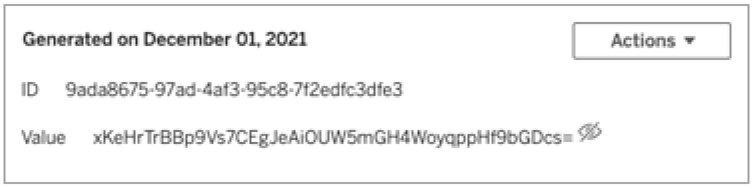
Client ID c1e941a9-9246-4759-bd8c-94e814711fb2

Copy Client Id

Step 2: Generate a secret

You can generate a total of two secrets for each connected app. The second secret can be used for secret rotation purposes to help protect against issues if a secret is compromised.

1. On the detail page of the connected app you created in Step 1, select the **Generate New Secret** button.
2. Make note of the secret ID and secret value to use in Step 3 below.



Generated on December 01, 2021

ID 9ada8675-97ad-4af3-95c8-7f2edfc3dfe3

Value xKeHrTrBBp9Vs7CEgJeAiOUW5mGH4WoyqppHf9bGDcs=

Step 3: Configure the JWT

After you’ve generated a secret, you want to enable your external application to send a valid JWT. JWT is a standard used to securely transfer information between two parties. The JWT is signed by your external application to securely send information to Tableau Cloud. The JWT references the connected app, the user that the session is being generated for, and the level of access the user should have.

A valid JWT includes the following information:

- Connected app ID, also known as the client ID, from Step 1
- Secret ID and secret value generated in Step 2
- Registered claims and header:

Claim	**Name**	**Description or required value**
"`kid`"	Secret ID	Required (in header). The connected app's secret key identifier.
"`iss`"	Issuer	Required (in header). Unique issuer URI that identifies the trusted connect app and its signing key.
"`alg`"	Algorithm	Required (in header). JWT signing algorithm. Only HS256 is supported.
"`sub`"	Subject	User name (email address) of the authenticated Tableau Cloud user.
"`aud`"	Audience	Value must be: "`tableau`".
"`exp`"	Expiration Time	A valid JWT must not be expired. The expiration time (in UTC) of the JWT must be within the maximum validity period, which is 10 minutes.
"`jti`"	JWT ID	Required as a claim. The JWT ID claim provides a unique identifier for the JWT and is case sensitive.
"`scp`"	Scope	For *embedding workflows*, supported values include:

Important: Do not use "`scope`".		"`tableau:views:embed`" "`tableau:views:embed_authoring`" "`tableau:metrics:embed`" (Retired in October 2023 (Tableau 2023.3)) "`tableau:ask_data:embed`" (Retired in February 2024 (Tableau 2024.1)) **Notes:** • Values must be passed as a list type. • For `tableau:views:embed` and `tableau:views:embed_authoring`, the scope respects users' permissions already configured in Tableau Cloud and allows users to interact with the tools in the embedded view if available in the original view. • We recommend the embed code exclude the toolbar parameter. For more information see Known issues

		(embedding workflows only) below. For *REST API authorization workflows*, see REST API methods that support JWT authorization. For *Metadata API workflows that use the REST API for authentication*, the only supported scope is `tableau:content:read`.
`https://tableau.com/oda`	On-demand access - claim (enable capability)	For *embedding workflows* only. Value must be "`true`" and one or more Tableau Cloud groups must be specified (see next row). For more information, including prerequisites like the Embedding Analytics license, see the On-demand access (embedding workflows only) section below.
`https://tableau.com/groups`	On-demand access - claim (specify group name)	For *embedding workflows* only. Value must match the name of one or more groups in Tableau Cloud. For more

		information, including prerequisites like the Embedding Analytics license, see the On-demand access (embedding workflows only) section below.
	Dynamic group membership	For *embedding workflows* only. Value must match the name of one or more groups in Tableau Cloud. For more information, see the Dynamic group membership (embedding workflows only) section below.
(User attribute)	(User attribute values)	For *embedding workflows* only. You can include user attributes in the JWT. Then when user attribute functions are used in embedded content, Tableau checks the authenticated user's context and determines what data can display at runtime. **Notes:** - Check the Tableau Embedding API v3

		Help for *known issues* and *limitations* that might affect your workflow. • For the user attribute to work, 1) you must enable the **Control User Access in Authentication Workflows** setting and 2) the content author must create a user attribute function. • User attributes are case sensitive.

Example JWTs

Here are example JWTs in both Java and Python languages. The Java and Python examples use the nimbus-jose-jwt library and the PyJWT library, respectively.

Java

```
import com.nimbusds.jose.*;
import com.nimbusds.jose.crypto.*;
import com.nimbusds.jwt.*;

import java.util.*;

...

String secret = "secretvalue";
       String kid = "connectedAppSecretId";
       String clientId = "connectedAppClientId";
```

```
        List<String> scopes = new
ArrayList<>(Arrays.asList("tableau:views:embed"));
        String username = "user@domain.com";
        JWSSigner signer = new MACSigner(secret);
        JWSHeader header = new
JWSHeader.Builder(JWSAlgorithm.HS256).keyID(kid).customParam("iss",
clientId).build();
        JWTClaimsSet claimsSet = new JWTClaimsSet.Builder()
                .issuer(clientId)
                .expirationTime(new Date(new Date().getTime() + 60 * 1000)) //ex-
pires in 1 minute
                .jwtID(UUID.randomUUID().toString())
                .audience("tableau")
                .subject("username")
                .claim("scp", scopes)
                .claim("https://tableau.com/oda", "true")
                .claim("https://tableau.com/groups", "Contractors", "Team C",
"Group1", "Group2")
                .claim("Region", "East")
                .build();
        SignedJWT signedJWT = new SignedJWT(header, claimsSet);
        signedJWT.sign(signer);
        model.addAttribute("token", signedJWT.serialize());
```

Python

```
import jwt

token = jwt.encode(
        {
                "iss": connectedAppClientId,
                "exp": datetime.datetime.utcnow() + datetime.timedelta
(minutes=5),
                "jti": str(uuid.uuid4()),
                "aud": "tableau",
                "sub": user,
                "scp": ["tableau:views:embed", "tableau:metrics:embed"],
                              "https://tableau.com/oda":"true",
                              "https://tableau.com/groups": ["Contractors", "Team C",
   "Group1", "Group2"],
                              "Region": "East"
         },
                    connectedAppSecretKey,
                    algorithm = "HS256",
                    headers = {
                    'kid': connectedAppSecretId,
                    'iss': connectedAppClientId
          }
   )
```

After you've configured the JWT, when the code is run by your external application, it will generate a token.

Step 4: Next steps

For embedding workflows

After the JWT has been configured, you must add embed code to your external application. Ensure that you include the valid JWT you configured in Step 3 above in the web component that your external application calls.

For more information about embedding Tableau content, see one or both of the following:

- Embed metrics, see Embed Metrics into Webpages topic in the Tableau Help. (In October 2023 (Tableau 2023.3), Tableau retired the ability to embed metrics.)
- Embed Tableau views and metrics using the Tableau Embedding API v3.

Note: For users to successfully authenticate when they access embedded content, browsers must be configured to allow third-party cookies.

For REST API authorization workflows

After the JWT has been configured, you must add the valid JWT to the REST API Sign In request for authorized access. For more information, see Access Scopes for Connected Apps.

For Metadata API workflows

After the JWT has been configured, you must add the valid JWT to the REST API Sign In request. For more information, see Access Scopes for Connected Apps.

For external tokens for SCIM workflows

After the JWT has been configured, you must have SAML authentication configured and the SCIM capability enabled. For more information, see External tokens for SCIM.

Manage a connected app

The Connected Apps page is where you can manage all the connected apps for your site. You can perform tasks such creating, deleting, and disabling connected apps; and revoking or generating new secrets if existing secrets have been compromised.

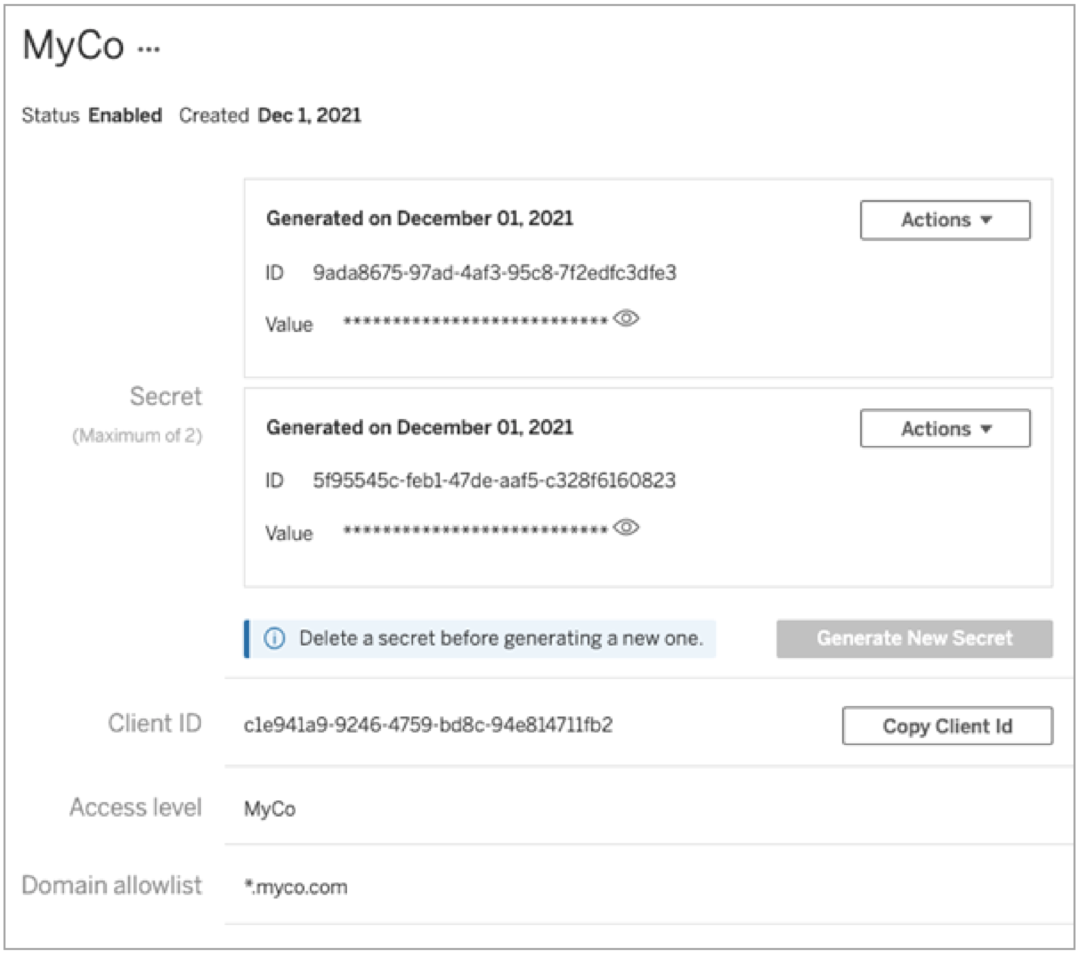
1. As a site admin, sign in to Tableau Cloud.
2. From the left pane, select **Settings** > **Connected Apps**.
3. Select the check box next to the connected app you want to manage and do one or more of the following:
    - **Generate a new secret** according to the rotation timeline specified by your organization’s security policies. To generate an additional secret, click on the name of the connected app and then click the **Generate New Secret** button. A connected app can have a maximum of two secrets. Both secrets can be active at the same time, do not expire, and remain valid until deleted.
    - **Review the connected app details** by selecting the name of the connected app to see when the connected app was created, its ID, project and domain scopes, and its secrets.
    - **Change the project scope or domain**, in the Actions menu, select **Edit**. Make your changes and select **Update**.

      Note: If you change the project or domain scopes and the embedded content doesn’t exist in either the new project or new domain, the embedded view or metric is unable to display and users will see an error when accessing the embedded content.

    - **Delete a secret** by selecting the connected app's name. On the connected app’s page, click **Actions** next to the secret and select **Delete**. In the confirmation dialog box, select **Delete** again.

Note: If the connected app’s secret is being used by an external application, the embedded view or metric is unable to display after the secret is deleted. For more information, see Effects of disabling or deleting a connected app, or deleting a secret below.

- **Disable a connected app**, in the Actions menu, select **Disable**. If the connected app is being used by an external application, the embedded view or metric is unable to display after the connected app is disabled. For more information, see Effects of disabling or deleting a connected app, or deleting a secret below.



Status **Enabled** Created **Dec 1, 2021**

Secret (Maximum of 2)

Generated on December 01, 2021

ID 9ada8675-97ad-4af3-95c8-7f2edfc3dfe3

Value ****************************

Generated on December 01, 2021

ID 5f95545c-feb1-47de-aaf5-c328f6160823

Value ****************************

Delete a secret before generating a new one.

Client ID c1e941a9-9246-4759-bd8c-94e814711fb2

Access level MyCo

Domain allowlist *.myco.com

Effects of disabling or deleting a connected app, or deleting a secret

To display embedded content to your user or enable REST API access through a connected app, the connected app must be enabled and its secret generated. If the connect app is being used in your external application and is either disabled or deleted, or its secret deleted or replaced, users will get a 403 error.

To avoid this issue, ensure the connect app is enabled and the JWT is using the correct secret ID and value.

Access level (embedding workflows only)

You can select one of two project types when configuring a connected app's access level. The access level controls which content can be embedded.

- **All projects:** This option enables the content in all projects to be embedded
- **Only one project:** This option enables only the content in the specified project to be embedded. If the specified project contains nested projects, embedding content in those nested projects is not enabled.

About multiple projects

Starting in February 2024 (Tableau 2024.1), you can enable the content in multiple projects for a connected app using the Tableau REST API only. To specify which projects, use the "project IDs" in either the Create a Connected App or Update a Connected App methods.

Note: When multiple projects are configured for your connected app, Tableau displays **Multiple projects** for the connected app's access level. If you select either **Only one project** or **All projects** and update the connected app, the "Multiple projects" option will no longer be visible. If you need to configure the connected app for multiple projects again, you must use the REST API.

Domain allowlist rules (embedding workflows only)

The connected app’s domain allowlist enables you to restrict access to embedded Tableau content to all domains or some domains; or exclude some domains or block all domains.

Important: We recommend using the domain allowlist as a security best practice to ensure Tableau content is only embedded in locations that you allow.

Domain options

You can select one of two options when configuring a connected app's domain allowlist:

- **All domains:** As the default option, this option enables unrestricted access to embedded content.
- **Only specific domains:** This option gives you the ability to scope down access to embedded content. If you use this option, follow the formatting rules specified in the following section, Domain formatting.

Domain formatting

In the domain allowlist text box, you can enter one or more domains using the formatting examples below.

Note: Domain formatting rules also apply when using the Connect App methods in the Tableau REST API.

Here are some formatting examples based on common scenarios:

To specify...	Example	Embedding access
Range of domains	*.myco.com	Embedded content is accessible from all subdomains under myco.com.
All ports	myco.com:*	Embedded content is access from all ports in myco.com.
Specific port	myco.com:8080	Embedded content is accessible from port 8080 in myco.com only.
Multiple discrete domains	myco.com events.myco.com ops.myco.com	Embedded content is accessible from all three domains. **Note:** When specifying multiple domains, type each domain on a new line or separate

		domains with a space. For the REST API, domains must be separated by a space.
Secure traffic only	https:	Embedded content is securely accessible regardless of domain.
Secure traffic to all ports for a range of domains	https:*myco.com:*	Embedded content is securely accessible from all ports on all subdomains under myco.com.
No domains	[no domains]	Access to embedded content is blocked.

On-demand access (embedding workflows only)

Beginning in October 2023, if your site is licensed with Embedded Analytics usage-based model, you can extend access to your embedded Tableau content to more users using on-demand access. With on-demand access, you allow your users to interact with embedded Tableau content authenticated through your connected app without needing to provision those users in your Tableau Cloud site. On-demand access removes the requirement for you to add and manage users in Tableau Cloud to support access to embedded content.

How on-demand access works

Access to embedded Tableau content using on-demand access is determined by group-level permissions either inherited by (for example, at the project-level) or directly applied to the content. Users like site admins, project owners or leaders, and content owners can assign group-level permissions to content. When users access the embedded content enabled through the on-demand access capability, Tableau validates the JWT contains the correct group membership claims before displaying the content.

Prerequisites

The following criteria must be true to enable on-demand access for embedded content:

1. Site is licensed with Embedded Analytics usage-based model
2. On-demand access capability is enabled for the group

3. Group permissions are specified for the Tableau content
4. Tableau connected app is created
5. JWT used by the connected app includes the `https://tableau.com/oda` and `https://tableau.com/groups` claims
6. Tableau content is embedded in an external application

When these criteria are met, your users can interact with embedded Tableau content enabled through on-demand access capability.

Enable on-demand access capability

To enable the on-demand access capability for a group, when creating or editing a group, you must select the **Allow on-demand access** check box. For more information about creating groups, see Create a Group and Add Users to It.

You can also enable this capability using the Tableau REST API. For more information, see the Create Group and Update Group methods in the Tableau REST API Help.

Capabilities when on-demand access is enabled

Users accessing embedded Tableau content have View capabilities on the content. Users have View capabilities regardless of the selected template or customized capabilities that might be configured for the group (for example, a user with a role of Viewer will never be able to download a data source even if that capability is explicitly granted to them on a specific data source).

Monitor on-demand access

If you have Tableau Cloud with Advanced Management, you can use Activity Log to monitor on-demand access usage. Events in the Activity Log that capture on-demand access include, but not limited to **access view** and **login**. For more information about these events, see Activity Log Site Event Type Reference.

Limitations

Because on-demand access workflows enable certain users who access embedded Tableau Content to be anonymous and ephemeral to Tableau Cloud, the following capabilities are not available to users who access embedded content enabled through the on-demand access capability:

- Create custom views
- Share content using the content's share button
- Subscribe to content for email snapshots of information

Note: Beginning in February 2024 (Tableau 2024.1), Tableau REST API requests can be made as a user with on-demand access.

Dynamic group membership (embedding workflows only)

Beginning in June 2024 (Tableau 2024.2), if connected apps are configured and the capability’s setting is enabled, you can dynamically control group membership through custom claims included in the JWT sent by the external application.

When configured, during user authentication, the external application sends the JWT that contains two custom claims for group membership: group (`https://tableau.com/groups`) and group names (for example, "Group1" and "Group2") to assert the user into. Tableau validates the JWT and then enables access to the groups and the content whose permissions are dependent on those groups.

For more information, see Dynamic group membership using assertions.

External tokens for SCIM

Beginning in June 2025 (Tableau 2025.2), instead of using Tableau-generated SCIM tokens, you can use Tableau connected apps with your externally managed tokens to support SCIM requests between your IdP and Tableau Cloud in user provisioning and group synchronization workflows.

To leverage external token for SCIM, the following requirements must be met:

1. A Tableau connected app that is configured and enabled. For more information, see Step 1: Create a connected app and Step 2: Generate a secret.

2. A valid JWT that contains the following scopes:

   ```
   tableau:users:*
   tableau:groups:*
   ```

   For more information, see Step 3: Configure the JWT.

3. SCIM capability enabled with an associated SAML authentication configuration; and the IdP configured for SCIM. For more information, see In Tableau Cloud, using an external token.

Known issues (embedding workflows only)

There are a couple of known issues when using connected apps that will be addressed in a future release.

- **Toolbar features:** When embedded content has the toolbar parameter defined, not all toolbar features will work. To work around this issue, we recommend you hide the toolbar parameter like in the example below.

  ```
  <tableau-viz id='tab-viz' src-
  ='https://online.tableau.com/t/<your_site>/...'
         toolbar='hidden'>
  </tableau-viz>
  ```

- **Published data sources:** Published data sources set to **Prompt User** for database credentials will not display. To work around this issue, if possible, we recommend data source owners embed their database credentials instead.

- **Ask Data objects in embedded dashboards:** Ask Data objects in embedded dashboards will not load. (In February 2024 (Tableau 2024.1), Tableau retired Ask Data.)

- **Metrics and domain allowlists:** Embedded metrics views will display despite access restrictions that might be specified in the connected apps' domain allowlists. **Note:** Metrics data accessed from toolbars of embedded views will work as expected. (In October 2023 (Tableau 2023.3), Tableau retired the ability to embed metrics.)

Troubleshoot

You can refer to Troubleshoot Connected Apps - Direct Trust for errors that might be associated with the connected app and suggested troubleshooting steps.

Configure Connected Apps with OAuth 2.0 Trust

As a Tableau Cloud site admin, you can register one or more external authorization servers (EASs) to establish a trust relationship between your Tableau Cloud site and the EAS using the OAuth 2.0 standard protocol.

Important:

- Some of the procedures in this topic require configuration with third party software and services. We’ve made a best effort to verify the procedures to enable the EAS feature on Tableau Cloud. However, third-party software and services might change or your organization might differ. If you encounter issues, refer to your third-party documentation for authoritative configuration details and support.
- In order for the session token to be valid, the clocks of the external application and the server that hosts the external application must be set to Coordinated Universal Time (UTC). If either clock uses a different standard, the connected app will not be trusted.

How Tableau connected apps work with OAuth 2.0 trust

The trust relationship between your Tableau Cloud site and external application is established and verified through an authentication token in the JSON Web Token (JWT) standard.

When embedded Tableau content is loaded in your external application, Authorization Code Flow, OAuth flow is used. After users successfully sign in to the IdP, they are then automatically signed in to Tableau Cloud. Follow the steps described below to register your EAS with your Tableau Cloud site.

Key components of a connected app

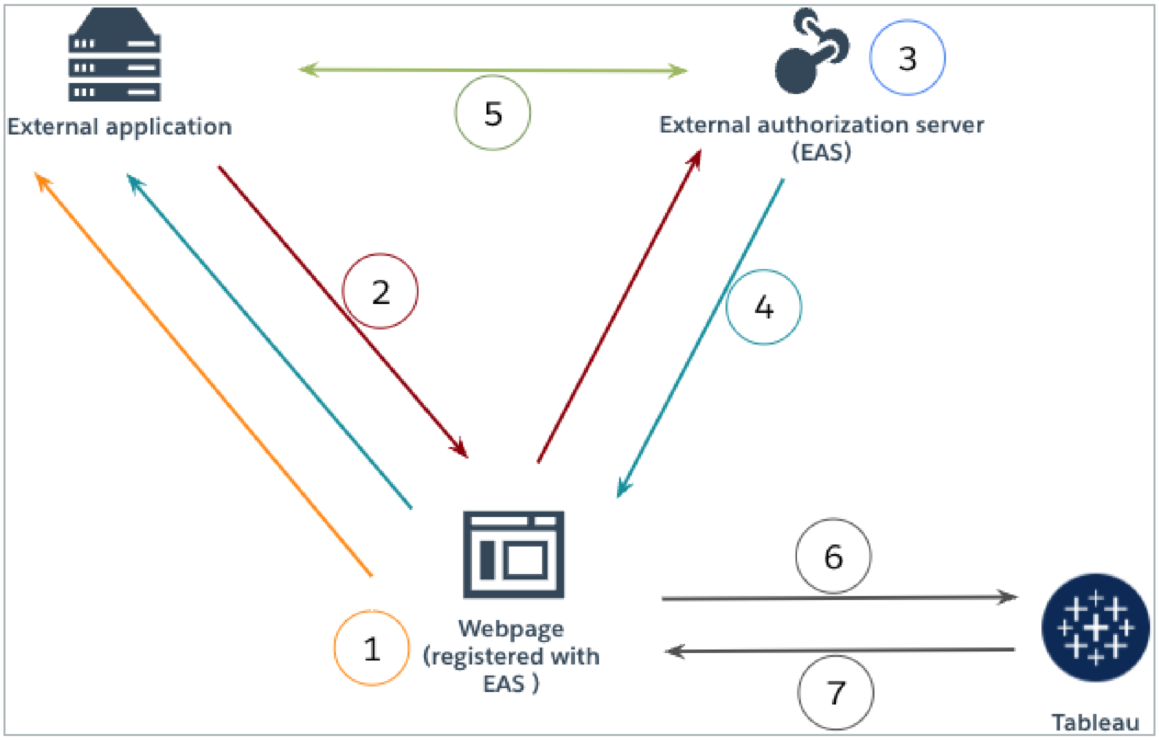
The following components of the connected work together with the JWT in your external application to authenticate users and display embedded content.

- **External authorization server (EAS):** The server, typically your IdP, that functions as the interface between the user and the external application. The server authenticates and authorizes user access to the protected Tableau content.
- **Issuer URL:** The URL that uniquely identifies the EAS instance.

Connected app workflow

Embedding workflows

The diagram below illustrates how authentication works between your external authorization server (EAS), external application (web server and webpage), and Tableau connected app.


External application
5
3
External authorization server (EAS)
2
4
6
Webpage (registered with EAS)
1
7
Tableau

1. **User visits the webpage:** When a user visits the embedded content on a webpage, the webpage sends a GET request to the external application.
2. **External application redirects request to EAS:** External application responds with a webpage that redirects to the external authorization server (EAS).
3. **User authenticates with EAS:** User authenticates and authorizes with the EAS.
4. **EAS responds to webpage with authorization code:** The EAS responds to the page with an authorization code and redirects back to the webpage.
5. **EAS converts authorization code to JWT:** Webpage calls the EAS to convert the authorization code to a JWT, which the webpage puts into the embedded content's URL.
6. **Webpage requests content from Tableau:** Webpage loads the iFrame and sends a GET request to Tableau.
7. **Tableau validates the token:** Tableau validates the JWT in the URL with the signature and responds with the content and respects the embedding scopes defined in the JWT.

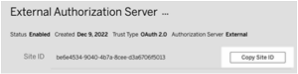
Create a connected app

Step 1: Before you begin

To register an EAS with your Tableau Cloud site, you must have an EAS already configured. In addition, the EAS must send a valid JSON Web Token (JWT) that contains the registered claims and header listed in the table below.

Claim	**Name**	**Description or required value**
`"kid"`	Key ID	Required (in header). A unique key identifier from the identity provider.
`"iss"`	Issuer	Required (in header or as a

		claim). Unique issuer URI, in HTTPS, that identifies the trusted connect app and its signing key.
`"alg"`	Algorithm	Required (in header). JWT signing algorithm. Supported algorithm names are listed in the Class JWSAlgorithm page in the javadoc.io documentation.
`"sub"`	Subject	User name (email address) of the authenticated Tableau Cloud user.
`"aud"`	Audience	Value must be: "`tableau:<site_luid>`" To obtain the site LUID, you can use the Tableau REST API's Sign In method or follow the steps below to copy the site ID. **Note:** You must register an EAS using the procedure described here before you can copy the site ID. 1. Select **Settings** > **Connected Apps** and then select the **External Authorization Server** connected app. 2. Click the **Copy Site ID** button.

		 External Authorization Server ... Status **Enabled** Created **Dec 9, 2022** Trust Type **OAuth 2.0** Authorization Server **External** Site ID be6e4534-9040-4b7a-8cee-d3a6706f5013 Copy Site ID
"`exp`"	Expiration Time	A valid JWT must not be expired. The expiration time (in UTC) of the JWT must be within the maximum validity period, which is 10 minutes.
"`jti`"	JWT ID	The JWT ID claim provides a unique identifier for the JWT and is case sensitive.
"`scp`"	Scope	For *embedding workflows*, supported values include: "`tableau:views:embed`" "`tableau:views:embed_authoring`" "`tableau:metrics:embed`" (Retired in October 2023 (Tableau 2023.3)) "`tableau:ask_data:embed`"(Retired in February 2024 (Tableau 2024.1)) **Notes:** • Values must be passed as a list type. • For `tableau:views:embed`, the scope respects users’ permissions already

		configured in Tableau Cloud and allows users to interact with the tools in the embedded view if available in the original view. - We recommend the embed code exclude the toolbar parameter. For more information see Known issues (embedding workflows only) below. For *REST API authorization workflows*, see REST API methods that support JWT authorization. For *Metadata API workflows that use the REST API for authentication*, the only supported scope is `tableau:content:read`.
`https://tableau.com/oda`	On-demand access - claim (enable capability)	For *embedding workflows* only. Value must be "`true`" and one or more Tableau Cloud groups must be specified (see next row). For more information, including prerequisites like the Embedding Analytics license, see the On-demand access

		(embedding workflows only) section below.
`https://tableau.com/groups`	On-demand access - claim (specify group name)	For *embedding workflows* only. Value must match the name of one or more groups in Tableau Cloud. For more information, including prerequisites like the Embedding Analytics license, see the On-demand access (embedding workflows only) section below.
	Dynamic group membership	For *embedding workflows* only. Value must match the name of one or more groups in Tableau Cloud. For more information, see the Dynamic group membership (embedding workflows only) section below.
(User attributes)	(User attribute values)	For *embedding workflows* only. You can include user attributes in the JWT. Then when user attribute functions are used in embedded content, Tableau checks the authenticated user's context and determines

		what data can display at runtime. **Notes:** • Check the Tableau Embedding API v3 Help for *known issues* and *limitations* that might affect your workflow. • For the user attribute to work, 1) you must enable the **Control User Access in Authentication Workflows** setting and 2) the content author must create a user attribute function. • User attributes are case sensitive.

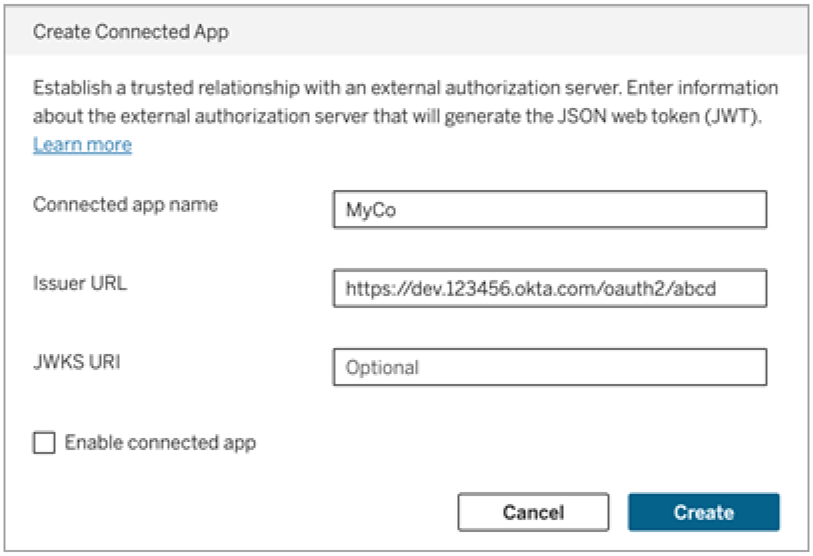
Note: The JWT claims above are documented in the Registered Claim Names section in the documentation distributed by the Internet Engineering Task Force (IETF) organization.

Step 2: Register your EAS with Tableau Cloud

By registering your EAS with Tableau Cloud, you establish a trust relationship between the EAS and your Tableau Cloud site. This means when users access Tableau content embedded in your external application, they are redirected to authenticate with the IdP. The EAS generates the authentication token, which is passed to Tableau Cloud for verification. After the trust relationship is verified, access to the embedded content is granted users.

Note: Some EAS support the option to display a consent dialog that asks for users’ approval for the application to access Tableau content. To ensure the best experience for your users, we recommend you configure your EAS to automatically consent to the external application’s request on users’ behalf.

1. As a site admin, sign in to Tableau Cloud.
2. From the left pane, select **Settings** > **Connected Apps**.
3. Click the New Connected App button drop-down arrow and select **OAuth 2.0 Trust**.
4. In the Create Connected App dialog box, do the following:
    a. In the **Name** text box, enter a name for the connected app.
    b. In the **Issuer URL** text box, paste the issuer URL of the EAS.
    c. Select the **Enable connected app**. For security purposes, a connected app is set to disabled by default when created.
    d. When finished, click the **Create** button.



Create Connected App

Establish a trusted relationship with an external authorization server. Enter information about the external authorization server that will generate the JSON web token (JWT). Learn more

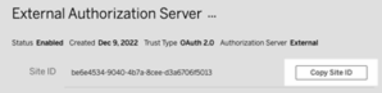
Connected app name: MyCo

Issuer URL: https://dev.123456.okta.com/oauth2/abcd

JWKS URI: Optional

☐ Enable connected app

5. After the connected app is created, copy the connected app’s site ID. The site ID is used for the JWT's "aud" (Audience) claim described in Step 1 above.



Status Enabled Created Dec 9, 2022 Trust Type OAuth 2.0 Authorization Server External

Site ID be6e4534-9040-4b7a-8cee-d3a6706f5013

Step 3: Next steps

For embedding workflows

After configuring your Tableau Cloud site to use your EAS, you must add embed code to your external application. Ensure that you include the valid JWT generated by your EAS, as described in Step 1, in the web component that your external application calls.

For more information about embedding Tableau content, see one or both of the following:

- Embed metrics, see Embed Metrics into Webpages topic in the Tableau Help. (In October 2023 (Tableau 2023.3), Tableau retired the ability to embed metrics.)
- Embed Tableau views and metrics using the Tableau Embedding API v3.

Note: For users to successfully authenticate when they access embedded content, browsers must be configured to allow third-party cookies.

Control where content can be embedded using domain allowlist for embedding

Starting in June 2023 (Tableau 2023.2), you and your users can control whether Tableau content can be embedded without restriction or restricted to certain domains using the Update Embedding Settings for Site method in Tableau REST API.

By default, the `unrestrictedEmbedding` site setting for embedding is set to `true` to allow unrestricted embedding. Alternatively, you and your users can set the setting to `false` and specify the domains where Tableau content in external applications can be embedded using the `allowList` parameter.

For more information, see one or both of the following:

- Update Embedding Settings for Site in the Tableau REST API Help
- Tableau Site Setting for Embedding in the Tableau Embedding API v3 Help.

For REST API authorization workflows

After the JWT has been configured, you must add the valid JWT to the REST API Sign In request for authorized access. For more information, see Access Scopes for Connected Apps.

For Metadata API workflows

After the JWT has been configured, you must add the valid JWT to the REST API Sign In request. For more information, see Access Scopes for Connected Apps.

For external tokens for SCIM workflows

After the JWT has been configured, you must have SAML authentication configured and the SCIM capability enabled. For more information, see External tokens for SCIM.

Manage a connected app

On-demand access (embedding workflows only)

Beginning in October 2023, if your site is licensed with Embedded Analytics usage-based model, you can extend access to your embedded Tableau content to more users using on-demand access. With on-demand access, you allow your users to interact with embedded Tableau content authenticated through your connected app without needing to provision those users in your Tableau Cloud site. On-demand access removes the requirement for you to add and manage users in Tableau Cloud to support access to embedded content.

How on-demand access works

Access to embedded Tableau content using on-demand access is determined by group-level permissions either inherited by (for example, at the project-level) or directly applied to the content. Users like site admins, project owners or leaders, and content owners can assign group-level permissions to content. When users access the embedded content enabled through the on-demand access capability, Tableau validates the JWT contains the correct group membership claims before displaying the content.

Prerequisites

The following criteria must be true to enable on-demand access for embedded content:

1. Site is licensed with Embedded Analytics usage-based model
2. On-demand access capability is enabled for the group
3. Group permissions are specified for the Tableau content
4. Tableau connected app is created
5. JWT used by the connected app includes the `https://tableau.com/oda` and `https://tableau.com/groups` claims
6. Tableau content is embedded in an external application

When these criteria are met, your users can interact with embedded Tableau content enabled through on-demand access capability.

Enable on-demand access capability

To enable the on-demand access capability for a group, when creating or editing a group, you must select the **Allow on-demand access** check box. For more information about creating groups, see Create a Group and Add Users to It.

You can also enable this capability using the Tableau REST API. For more information, see the Create Group and Update Group methods in the Tableau REST API Help.

Capabilities when on-demand access is enabled

Users accessing embedded Tableau content have View capabilities on the content. Users have View capabilities regardless of the selected template or customized capabilities that might be configured for the group (for example, a user with a role of Viewer will never be able to download a data source even if that capability is explicitly granted to them on a specific data source).

Monitor on-demand access

If you have Tableau Cloud with Advanced Management, you can use Activity Log to monitor on-demand access usage. Events in the Activity Log that capture on-demand access include, but not limited to **access view** and **login**. For more information about these events, see Activity Log Site Event Type Reference.

Limitations

Because on-demand access workflows enable certain users who access embedded Tableau Content to be anonymous and ephemeral to Tableau Cloud, the following capabilities are not available to users who access embedded content enabled through the on-demand access capability:

- Create custom views
- Share content using the content's share button
- Subscribe to content for email snapshots of information

Note: Beginning in February 2024 (Tableau 2024.1), Tableau REST API requests can be made as a user with on-demand access.

Dynamic group membership (embedding workflows only)

Beginning in June 2024 (Tableau 2024.2), if connected apps are configured and the capability’s setting is enabled, you can dynamically control group membership through custom claims included in the JWT sent by the external application.

When configured, during user authentication, the external application sends the JWT that contains two custom claims for group membership: group (`https://tableau.com/groups`) and group names (for example, "Group1" and "Group2") to assert the user into. Tableau validates the JWT and then enables access to the groups and the content whose permissions are dependent on those groups.

For more information, see Dynamic group membership using assertions.

External tokens for SCIM

Beginning in June 2025 (Tableau 2025.2), instead of using Tableau-generated SCIM tokens, you can use Tableau connected apps with your externally managed tokens to support SCIM requests between your IdP and Tableau Cloud in user provisioning and group synchronization workflows.

To leverage external tokens for SCIM, the following requirements must be met:

1. A valid JWT that contains the following scopes:

   ```
   tableau:users:*
   tableau:groups:*
   ```

   For more information, see Step 1: Before you begin.

2. A Tableau connected app that is registered and enabled. For more information, see Step 2: Register your EAS with Tableau Cloud.

3. SCIM capability enabled with an associated SAML authentication configuration; and the IdP configured for SCIM. For more information, see In Tableau Cloud, using an external token.

Known issues (embedding workflows only)

There are a couple of known issues when using connected apps that will be addressed in a future release.

- **Toolbar features:** When embedded content has the toolbar parameter defined, not all toolbar features will work. To work around this issue, we recommend you hide the toolbar parameter like in the example below.

  ```
  <tableau-viz id='tab-viz' src-
  ='https://online.tableau.com/t/<your_site>/...'
         toolbar='hidden'>
  </tableau-viz>
  ```

- **Published data sources:** Published data sources set to **Prompt User** for database credentials will not display. To work around this issue, if possible, we recommend data source owners embed their database credentials instead.

Troubleshoot

When embedded content fails to display in your external application or Tableau REST API authorization fails, you can use a browser's developer tools to inspect and identify error codes that might be associated with the EAS feature enabled on your Tableau Cloud site.

Refer to the table below to review the description of the error code and potential resolution.

Error code	Summary	Description	Potential resolution or explanation
5	SYSTEM_USER_NOT_FOUND	Tableau user could not be found	To resolve this issue, verify the '`sub`' (Subject) claim value in the JWT is the user name (email address) of the authenticated Tableau Cloud user. This value is case sensitive.
16	LOGIN_FAILED	Login failed	This error is typically caused by one of the following claim issues in the JWT: • The '`exp`' (Expiration Time) exceeds the default maximum validity period. To resolve this issue, review registered claims required for a valid JWT and ensure the correct value does not exceed 10 minutes. • The '`sub`' (Subject) is calling an unknown user. To resolve this issue, verify the '`sub`'

			value is the user name (email address) of the authenticated Tableau Cloud user.
67	FEATURE_NOT_ENABLED	On-demand access is not supported	On-demand access is available through licensed Tableau Cloud sites only.
142	EXTERNAL_AUTHORIZATION_SERVER_NOT_FOUND	EAS not found	To resolve this issue, verify the correct issuer is being called.
143	EXTERNAL_AUTHORIZATION_SERVER_LIMIT_EXCEEDED	EAS limit exceeded	The site has reached the maximum allowable number (1) of registered external authorization servers (EAS).
144	INVALID_ISSUER_URL	Invalid issuer URL	The issuer URL is not valid or the '`iss`' (Issuer) attribute is missing from the JWT.
149	EAS_INVALID_JWKS_URI	Missing JWKS URI	JWKS URI does not exist in the IdP metadata or the JWKS URI is not configured in Tableau. To resolve this issue, configure a valid JWKS URI.
150	EAS_RETRIEVE_JWK_SOURCE_FAILED	Failure in retrieving key-source	To resolve this issue, verify the JWKS URI is configured correctly.
151	EAS_RETRIEVE_METADATA_FAILED	Failure in retrieving metadata from issuerUrl	To resolve this issue, verify the JWKS URI is configured correctly.

10081	COULD_NOT_RETRIEVE_IDP_METADATA	Missing EAS metadata endpoint	To resolve this issue, verify the EAS is configured correctly and the correct issuer is being called.
10082	AUTHORIZATION_SERVER_ISSUER_NOT_SPECIFIED	Missing issuer	To resolve this issue, verify the correct issuer is being called.
10083	BAD_JWT	JWT header contains issues	The '`kid`' (Secret ID) or '`clientId`' (Issuer) claims are missing from the JWT header. To resolve this issue, ensure this information is included.
10084	JWT_PARSE_ERROR	JWT contains issues	To resolve this issue, verify the following: • The '`aud`' (Audience) value referenced in the JWT uses the "tableau" value. This value is case sensitive. • The '`aud`' (Audience) and '`sub`' (Subject) are included in the JWT.
10085	COULD_NOT_FETCH_JWT_KEYS	JWT could not find keys	Could not find the secret. To resolve this issue, verify the correct issuer is being called.
10087	BLOCKLISTED_JWS_ALGORITHM_USED_TO_SIGN	Issue with the JWT signing algorithm	To resolve the issue, you can remove the signing algorithm.

10088	RSA_KEY_SIZE_INVALID	Issue with JWT signing requirements	To resolve this issue, verify with the EAS or IdP the JWT is being signed with an RSA key size of 2048.
10091	JTI_ALREADY_USED	Unique JWT required	The JWT has already been used in the authentication process. To resolve this issue, the EAS or IdP must generate a new JWT.
10092	NOT_IN_DOMAIN_ALLOW_LIST	Domain of the embedded content is not specified	To resolve this issue, ensure the `unrestrictedEmbedding` setting is set to `true` or `domainAllowlist` parameter includes the domains where Tableau content is embedded using the Update Embedding Settings for Site method in the Tableau REST API.
10094	MISSING_REQUIRED_JTI	Missing JWT ID	To resolve this issue, verify the '`jti`' (JWT ID) is included in the JWT.
10095	EXTERNAL_AUTHZ_SERVER_DISABLED	EAS disabled	The connected app for the EAS registered to the site is disabled.
10096	JWT_EXPIRATION_EXCEEDS_CONFIGURED_EXPIRATION_PERIOD		The '`exp`' (Expiration Time) exceeds the default maximum validity period. To resolve this issue, review registered claims required for a valid JWT and ensure the correct value does not exceed 10 minutes.

10097	SCOPES_MALFORMED	Issues with scopes claim	This error can occur when the '`scp`' (Scope) claim is either missing from the JWT or not passed as a list type. To resolve this issue, verify '`scp`' is included in the JWT and passed as a list type. For troubleshooting help with a JWT, see Debugger on the auth0 site.
10098	JWT_UNSIGNED_OR_ENCRYPTED	JWT is unsigned or encrypted	Tableau does not support an unsigned or encrypted JWT.
10099	SCOPES_MISSING_IN_JWT	Missing scopes claim	The JWT is missing the required '`scp`' (Scope) claim. To resolve this issue, verify '`scp`' is included in the JWT. For troubleshooting help with a JWT, see Debugger on the auth0 site.
10100	JTI_PERSISTENCE_FAILED	Unexpected JWT ID error	There was an unexpected error with the '`jti`' (JWT ID). To resolve this issue, a new JWT with a new '`jti`' must be generated.
10101	EPHEMERAL_USER_LOGIN_FAILED_SITE_NOT_UBP_ENABLED	On-demand access is not supported	The site is not licensed with the Embedded Analytics usage-based model that is required to enable on-demand access. For more information, see Understanding License Models.

10102	EPHEMERAL_ USER_NOT_ SUPPORTED	On-demand access is not supported when iframe-auth attribute is enabled	This error can occur when the iframe-auth attribute is enabled. To resolve this issue, verify that the Tableau Embedding API version 3.6 or later is being used.
10103	JWT_MAX_SIZE_ EXCEEDED	JWT exceeds maximum size	This error can occur when JWT size exceeds 8000 bytes. To resolve this issue, make sure that only the necessary claims are being passed to Tableau Cloud.

Access Scopes for Connected Apps

Beginning in June 2022, using Tableau connected apps, you can programmatically call and access the Tableau REST API through your custom application on behalf of Tableau Cloud users. Access to the REST API is enabled by a JSON Web Token (JWT) defined as part of the initial Sign In request. The JWT must contain scopes that define the REST API methods that are available to your custom application and its users through the connected app.

Authorize access to the REST API using connected apps to:

- Enhance efficiency—using a JWT as a bearer token enables a simplified impersonation with one request to the Sign In endpoint instead of two requests
- Extend and automate complex Tableau integrations and backend queries—such as dynamic content retrieval and advanced filtering

Scope actions

Connected apps use scopes that grant access to content or administrative actions through the REST API methods that support JWT authorization (below). A scope is a colon-separated string that starts with the namespace `tableau`, followed by the Tableau resource that access is being granted to, such as `datasources`, and ends with the action that is allowed on the resource, such as `update`.

The action a scope can take include:

- `create`
- `read`
- `run`
- `update`
- `download`
- `delete`

For example, a scope that allows your custom application to call the Update Data Source method looks like:

```
tableau:datasources:update
```

Scope types

The type of scope you use depends on the content or administrative action that you want to enable. Scopes generally fall into one of the following types: content read, individual, wild-card, and cross-category.

- **Content read scope:** The content read scope, `tableau:content:read`, enables supported GET methods for Tableau content. When you use this scope, you enable actions across REST API categories. More specifically, using this scope you enable GET methods for data sources, metrics, views, workbooks, projects, and sites. Starting in Tableau Cloud October 2023, you also specify this scope in a JWT that will be used to create a credentials token for use with the Metadata API.

  Note: To enable GET methods for administrative actions, like users and groups, you can use their individual scopes.

- Individual scopes: To enable supported content and administrative actions, you can use their individual scopes. An individual scope is generally associated with a single method and REST API category.

  Examples:

  - To enable publish or update a data source action, you can use the individual `tableau:datasources:create` or `tableau:datasources:update` scope, respectively.
  - For administrative actions like add or remove users, you can use the individual `tableau:users:create` or `tableau:users:delete` scope, respectively.

  Note: There are some individual scopes that can enable actions across REST API categories. For example, `tableau:views:download` enables actions in the view data and workbooks REST API categories.

- Wildcard (*) scopes: For certain scopes, you can replace the action with the wildcard character (*) to enable supported actions within a specific REST API category.

  Examples:

  - You can use the `tableau:projects:*` wildcard scope to enable the create, delete, update actions in the projects REST API category.
  - You can use the `tableau:users:*` wildcard scope to enable the get/list, add, delete, update actions in the users REST API category.
  - You can use the `tableau:tasks:*` wildcard scope to enable the get/list, add, delete, update and run actions of extract and subscriptions REST API categories. In addition, this scope enables update data source (if an extract) and update workbook.

- Cross-category scopes: In addition to the content read scope, there are a few additional scopes that, if used, enable supported actions across different REST API categories.

  Examples:

  - If using the `tableau:tasks:run` scope, you enable actions in the data sources and workbooks REST API categories.
  - Again, if using the `tableau:views:download` scope, you enable actions in the view data and workbook REST API categories.
  - If using permissions scopes like `tableau:permissions:update` or `tableau:permissions:delete`, you enable actions in the data sources, workbooks, and projects REST API categories.

Summary of how to authorize REST API access

The following list summarizes the steps to request access to the REST API through a JWT:

1. **Create a connected app** using one of the following methods:
    - Configure Connected Apps with Direct Trust
    - Configure Connected Apps with OAuth 2.0 Trust
2. **Generate a valid JWT**—at runtime your custom application will generate a valid JWT, configured with the scopes you have included
3. **Make a Sign In request**—your custom application will make a Sign In request using the JWT to return a Tableau credentials token and site ID (LUID)
4. **Use the Tableau access token in subsequent requests**—in subsequent REST API calls, use 1) the Tableau credentials token as the `X-Tableau-Auth` header value and 2) the site ID (LUID) in the request URI

Example

For example, suppose you create a connected app using direct trust. Using direct trust, your custom application that calls the REST API generates a valid JWT using the client ID and client secret generated by the connected app.

Scopes in the JWT

To successfully authorize access to the REST API, the JWT must also contain the scopes that define the REST API capabilities. For example, to enable various data source-related methods, you might include the following scopes in the JWT:

```
"tableau:content:read","tableau:datasources:create","tableau:datasources:update","tableau:datasources:download","tableau:tasks:run"
```

Or

```
"tableau:content:read","tableau:datasources:*","tableau:tasks:run"
```

Note: Scope values must be passed as a list type.

Sign In Request URI

To make a call to the REST API, your custom application must first make a Sign In request to generate a Tableau credentials token.

```
POST https://us-west-2b.online.tableau.com/api/3.16/auth/signin
```

Request body

To authorize REST API access using a JWT, the Sign In request body must contain the valid JWT like the example below.

```
<tsRequest>
   <credentials jwt-
="eyJ-
pc3MiOiI4ZTFiNzE3Mi0zOWMzLTRhMzItODg3ZS1mYzJiNDExOWY1NmQiLCJh-
bGciOiJIUzI1NiIsImt-
pZCI6ImIwMTE1YmY5LTNhNGItNGM5MS1iMDA5LWNmMGMxNzBiMWE1NiJ9.eyJh-
dWQiOiJ0YWJsZWF1Ii-
wic3ViI-
joicm1vaGFuQHRhYmxlYXUuY29tIi-
wic2NwIjp-
bInRhYmxlYXU6c2l0ZXM6cmVhZCJdLCJp-
c3MiOiI4ZTFiNzE3Mi0zOWMzLTRhMzItODg3ZS1mYzJiNDExOWY1NmQiLCJleHAiOjE2-
NDg2Njg0Mzk-
sIm-
p0aSI6IjY1ZWFmMmYxLTNmZTgtNDc5Ny1hZmRiLTMyODMzZDVmZGJkYSJ9.mUv2o4gtB-
TrMVLEXY5XTpzDQTGvfE2LGi-3O2vdGfT8">
    <site contentUrl="mycodotcom"/>
   </credentials>
</tsRequest>
```

Response body

The Sign In request produces the following response body, which includes the Tableau credentials token.

```
<tsResponse>
   <credentials token="12ab34cd56ef78ab90cd12ef34ab56cd">
    <site id="9a8b7c6d5-e4f3-a2b1-c0d9-e8f7a6b5c4d" contentUrl=""/>
    <user id="9f9e9d9c-8b8a-8f8e-7d7c-7b7a6f6d6e6d" />
   </credentials>
</tsResponse>
```

After the Tableau credentials token is generated, add it to the header of all subsequent REST API requests.

Header

```
X-Tableau-Auth:12ab34cd56ef78ab90cd12ef34ab56cd
```

All subsequent REST API requests using the Tableau access token are then bounded by the scopes in the JWT.

REST API methods that support JWT authorization

The following scopes can be associated with the connected app to define access and methods your custom application can have to the REST API on users' behalf.

Notes:

- For other REST API capabilities not listed in the table below, you can use other authorization mechanisms to access the methods. For more information, see Authentication Methods in the Tableau REST API Help.
- Both the Sign In and Sign Out methods are supported by JWT authorization but do not require scopes to use beginning in June 2023 (Tableau 2023.2).
- For scopes supported by the Embedding API v3, see one of the following:
  - Configure Connected Apps with Direct Trust
  - Configure Connected Apps with OAuth 2.0 Trust

Wildcard (*) scopes

Wildcard scopes use the wildcard character (*) instead of a specific action, to enable multiple supported actions within a specific REST API category. These include:

Scope	Methods enabled
`tableau:datasources:*`	Enables create, update, and update connection data source methods.
`tableau:metrics:*`	Enables query, update, and delete metrics actions.
`tableau:workbooks:*`	Enables publish, update, download, and preview image workbook actions.
`tableau:groups:*`	Enables create, query, update, and delete groups actions.
`tableau:projects:*`	Enables create, delete, and update projects methods.
`tableau:users:*`	Enables get/list, add, delete, and update users methods.
`tableau:tasks:*` **Note:** This scope is also cross-category.	Enables get/list, add, delete, update and run methods for extracts and subscription tasks. Enables update methods for data sources for workbooks.

Cross-category scopes

Cross-category scopes enable multiple supported actions across multiple REST API categories. These include:

Scope	Methods enabled
`tableau:content:read`	Enables read/list methods for Tableau content, including data sources, metrics, views, workbooks, projects, and sites.

Scope	Methods enabled
`tableau:tasks:run`	Enables run methods for data sources, workbooks, and extracts.
`tableau:views:download`	Enables download methods for view data and workbooks.
`tableau:tasks:*` **Note:** This scope is also wildcard.	Enables get/list, add, delete, update and run methods for extracts and subscription tasks. Enables update methods for data sources for workbooks.

Individual scopes

Method	Scope	Description
(Methods without scopes)	(None)	When no scopes are defined in the JWT, access to the REST API is denied.
Sign in	(No scope needed)	Signs you in as a user on Tableau Cloud.
Sign out	(No scope needed)	Signs you out of the current session.
(Content read scope)	`tableau:content:read`	Enables read/list actions for Tableau content: data

Method	Scope	Description
		sources, metrics, views, workbooks, and projects.
Labels		
Delete Label	`tableau:labels:delete`	Deletes a data label by its LUID.
Delete Labels	`tableau:labels:delete`	Deletes the data labels on one or more assets.
Get Label	`tableau:labels:read`	Gets a data label by its LUID.
Get Labels	`tableau:labels:read`	Displays information about the data labels on one or more assets.
Update Label	`tableau:labels:update`	Updates a label by its LUID.
Update Labels	`tableau:labels:update`	Creates or updates labels on one or more assets.

Method	Scope	Description
Data sources		
(All `tableau:datasources:` methods)	`tableau:datasources:*`	Enables create data source, update data source, and update data source connection methods.
Publish data source	`tableau:datasources:create`	Publish a data source to a site or append data to an existing published data source.
Query data source	`tableau:content:read`	Get information about a published data source.
Query data sources	`tableau:content:read`	Get information about all published data source on a site.
Query data source connections	`tableau:content:read`	Get server address, port, user name, or password information

Method	Scope	Description
		about a published data source.
Update data source	`tableau:datasources:update`	Update owner, project or certification status of the data source.
Update data source connection	`tableau:datasources:update`	Update server address, port, user name, or password of the data source connection.
Update data source now	`tableau:tasks:run`	Run extract refresh.
Pulse		
Create metric definition	`tableau:insight_definitions:create`	Creates a metric definition.
Create metric tag for user	`tableau:insight_metrics:read`	Creates a tag for a specified metric for a specified user. Can be used to exclude a metric from an insight summary for a user.

Method	Scope	Description
List metric definitions	`tableau:insight_definitions_metrics:read`	Lists the metric definitions configured for a site or, optionally, the details and definition for a specific metric.
List metric definition measurement periods	`tableau:content:read`	Lists the time periods configured for a csmetric definition.
Delete metric tag	`tableau:insight_definitions:delete`	Deletes a metric definition.
Delete metric definition	`tableau:insight_definitions:delete`	Deletes a metric definition.
Get metric definition	`tableau:insight_definitions_metrics:read`	Gets a metric definition and optionally metrics it contains.
Update metric definition	`tableau:insight_definitions:update`	Updates a metric definition.
List metrics in definition	`tableau:insight_definitions_metrics:read`	Lists the metrics contained in a metric definition

Method	Scope	Description
Batch list metric definitions	`tableau:insight_definitions_metrics:read`	Gets a batch of metric definitions and metrics available on a site.
Generate current metric value insight bundle	`tableau:insights:read`	Generates an bundle with the current aggregated value of the metric.
Generate detail insight bundle	`tableau:insights:read`	Generates a detail insight bundle.
Generate springboard insight bundle	`tableau:insight:read`	Generates a springboard insight bundle.
Create metric	`tableau:insight_metrics:create`	Creates a metric.
Delete metric	`tableau:insight_metrics:delete`	Deletes a metric.
Get metric	`tableau:insight_metrics:read`	Gets the details of the specified metric.
Update metric	`tableau:insight_metrics:update`	Updates a metric.
Batch list metrics	`tableau:insight_met-`	Gets a batch

Method	Scope	Description
	`rics:read`	of metrics from a definition, specified in a comma delimited list.
Get or create metric	`tableau:insight_metrics:create`	Returns the details of a metric in a definition if it exists, or creates a new metric if it does not. Also returns true if a new metric was created, or `false` if it already existed.
Create subscription	`tableau:metric_subscriptions:create`	Creates a subscription to a specified metric for a specified user and/or group.
List subscriptions	`tableau:metric_subscriptions:read`	Lists the subscriptions to a specified metric and/or for a specified user.

Method	Scope	Description
Delete subscription	`tableau:metric_subscriptions:delete`	Deletes a specified subscription from a metric.
Get subscription	`tableau:metric_subscriptions:read`	Gets a specified subscription to a metric.
Update subscription	`tableau:metric_subscriptions:update`	Updates which metric the subscriptions is for, and/or which users and/or groups are subscribed.
Batch create subscriptions	`tableau:metric_subscriptions:create`	Creates multiple subscriptions to a metric for specified users and/or groups.
Batch get subscriptions	`tableau:metric_subscriptions:read`	Gets a batch of subscriptions to a metric, specified in a comma delimited list of metric LUIDs.

Method	Scope	Description
Batch get subscriber counts	`tableau:metric_subscriptions:read`	Gets the number of unique users subscribed to a set of metrics specified in a comma separated list of metric LUIDs.
Extracts		
(All `tableau:tasks:` methods)	`tableau:tasks:*`	Enables create, delete, get, list, run, and update refresh actions for extracts, subscriptions, update data source (for data sources with extracts), and update workbook methods.
Create Cloud extract refresh task	`tableau:tasks:create`	Create an extract refresh for a Tableau Cloud workbook or data source.

Method	Scope	Description
Delete extract refresh task	`tableau:tasks:delete`	Delete an extract refresh tasks for a Tableau Cloud workbook or data source.
Get extract refresh task	`tableau:tasks:read`	Get the details of an extract refresh for a Tableau Cloud workbook or data source.
List extract refresh tasks in site	`tableau:tasks:read`	List the extract refreshes tasks configured for in a site.
Run extract refresh task	`tableau:tasks:run`	Runs an extract refresh task.
Update Cloud extract refresh task	`tableau:tasks:update`	Update an extract refresh for a Tableau Cloud workbook or data source.
Flows		
Publish flow	`tableau:flows:create`	Publish a flow.

Method	Scope	Description
Jobs		
Query job	`tableau:jobs:read`	Get status information about an asynchronous process that is tracked using a job.
Query jobs	`tableau:jobs:read`	Get a list of active jobs for the specified site.
Metrics (Retired) **Retirement of the legacy metrics feature** Tableau's legacy metrics feature was retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. In October 2023, Tableau retired the ability to embed legacy metrics in Tableau Cloud and in Tableau Server version 2023.3. With Tableau Pulse, we've developed an improved experience to track metrics and ask questions of your data. For more information, see Create Metrics with Tableau Pulse to learn about the new experience and Create and Troubleshoot Metrics (Retired) for the retired feature.		
(All `tableau:metrics:` methods)	`tableau:metrics:*`	Enables query, update, and delete metrics actions.
(All `tableau:metrics:` methods)	`tableau:metrics:*`	Enables query, update, and delete

Method	Scope	Description
		metrics actions.
Get metric	`tableau:content:read`	Get a metric.
Delete metric	`tableau:metrics:delete`	Delete a metric.
List metrics	`tableau:content:read`	Get list of metrics for a site.
Query metrics data	`tableau:metrics:download`	Get underlying data of a metric in comma-separated value (.csv) format.
Update metric	`tableau:metrics:update`	Update owner, project, suspend status, and name of the metric.
Subscriptions		
(All `tableau:tasks:` methods)	`tableau:tasks:*`	Enables create, delete, get, list, run, and update refresh actions for extracts, subscriptions, update data source (for

Method	Scope	Description
		data sources with extracts), and update workbook methods.
Create subscription	`tableau:tasks:create`	Create a subscription.
Delete subscription	`tableau:tasks:delete`	Delete a subscription.
Get subscription	`tableau:tasks:read`	Gets the details of a subscription.
List subscriptions	`tableau:tasks:read`	Lists subscriptions in a site.
Update subscription	`tableau:tasks:update`	Updates a subscription.
Views		
Delete custom view	`tableau:views:update`	Delete the specified custom view.
Get custom view	`tableau:content:read`	Get the details of a specified custom view.
Get custom view image	`tableau:views:download`	Download a .png format image file of a specified custom view.

Method	Scope	Description
Get view	`tableau:content:read`	Get details about a view.
Get view by path	`tableau:content:read`	Get details for all views on a site using the specified name.
List custom views	`tableau:content:read`	Get a list of custom views on a site.
Query view data	`tableau:views:download`	Get a view rendered in comma-separated value (.csv) format.
Query view PDF	`tableau:views:download`	Get a view as a PDF (.pdf) file.
Query view image	`tableau:views:download`	Get a view as an image (.png) file.
Query views for site	`tableau:content:read`	Get all views for a site.
Query views for workbook	`tableau:content:read`	Get all views for the specified workbook.
Query view preview image	`tableau:views:download`	Get the thumbnail image

Method	Scope	Description
		(.png) of the view.
Update custom view	`tableau:views:update`	Change the owner or name of an existing custom view.
Workbooks		
(All `tableau:workbooks:` methods)	`tableau:workbooks:*`	Enables publish, update, download, and preview image workbook actions.
Publish workbook	`tableau:workbooks:create`	Publish a workbook (.twb or .twbx).
Get workbook	`tableau:content:read`	Get a specified workbook and its details.
Query workbook for site	`tableau:content:read`	Get a list of workbooks published to a site.
Query workbook preview image	`tableau:workbooks:download`	Get the thumbnail image (.png) of the workbook.

Method	Scope	Description
Update workbook	`tableau:workbooks:update`	Modify an existing workbook.
Update workbook connection	`tableau:workbooks:update`	Update the connection information.
Update workbook now	`tableau:tasks:run`	Initiate a workbook refresh outside of a scheduled task.
Publish		
Append to file upload	`tableau:file_uploads:create`	Upload a block of data and append it to the data that is already uploaded - to be used after an upload has been initiated using the "initiate file upload" method.
Initiate file upload	`tableau:file_uploads:create`	Initiate the upload process of a file.
Download		
Download data source	`tableau-`	Download the

Method	Scope	Description
	`:datasources:download`	data source (.tdsx).
Download view crosstab Excel	`tableau:views:download`	Download an Excel (.xlsx) file containing crosstab data from the view.
Download workbook	`tableau:workbooks:download`	Download a workbook (.twb or .twbx).
Download workbook revision	`tableau:workbooks:download`	Download a specific version of the workbook (.twb or .twbx).
Download workbook PDF	`tableau:workbooks:download`	Download a PDF (.pdf) file containing images of the sheets in the workbook.
Download workbook PowerPoint	`tableau:views:download`	Download a PowerPoint (.pptx) file containing slides of the sheets in the workbook.
Users		

Method	Scope	Description
(All `tableau:users` methods)	`tableau:users:*`	Enables add, query, update, and remove users actions.
Add user to group	`tableau:groups:update`	Add a user to a group.
Add user to site	`tableau:users:create`	Add a user and assign the user to a site.
Get users in group	`tableau:groups:read`	Get a list of users in a group.
Get users on site	`tableau:users:read`	Get all users on a site.
Query user on site	`tableau:users:read`	Get a user on a site.
Remove users from group	`tableau:groups:update`	Remove a user from a group.
Remove user from site	`tableau:users:delete`	Remove the user from a site.
Groups		
(All `tableau:groups:` methods)	`tableau:groups:*`	Enables create, query, update, and delete groups actions.

Method	Scope	Description
Create group	`tableau:groups:create`	Create a group.
Delete group	`tableau:groups:delete`	Delete a group.
Get groups for user	`tableau:users:read`	Get a list of groups that a user belongs to.
Query groups	`tableau:groups:read`	Get a list of groups on a site.
Update group	`tableau:groups:update`	Update a group.
Group Sets		
(All `tableau:groupsets:` methods)	`tableau:groupsets:*`	Enables create, read, update, and delete group set actions.
Add group to group set	`tableau:groupsets:update`	Add a group to a group set.
Create group set	`tableau:groupsets:create`	Create a group set.
Delete group set	`tableau:groupsets:delete`	Delete a group set.
Get group set	`tableau:groupsets:read`	Return information about a group set.

Method	Scope	Description
List group sets	`tableau:groupsets:read`	List all group sets.
Remove group from group set	`tableau:groupsets:update`	Remove a group to a group set.
Update group set	`tableau:groupsets:update`	Update a group set name.
Projects		
(All `tableau:projects:` methods)	`tableau:projects:*`	Enables create, update, and delete projects actions.
Create project	`tableau:projects:create`	Create a project.
Delete project	`tableau:projects:delete`	Delete a project.
Query project	`tableau:content:read`	Get a list of projects.
Update project	`tableau:projects:update`	Update the name, description, or project hierarchy of the project.
Permissions		
(All `tableau:permissions:` methods)	`tableau:permissions:*`	Enables add, query, update, delete per-

Method	Scope	Description
		missions actions.
Add data source permissions	`tableau:permissions:update`	Add permissions to a data source for a Tableau Server user or group.
Add default permissions	`tableau:permissions:update`	Add default permission capabilities to a user or group, for metric, flow, workbook, data source, data role, or lens resources in a project.
Add project permissions	`tableau:permissions:update`	Add permissions to a project for a user or group
Add view permissions	`tableau:permissions:update`	Add permissions to a view for a user or group.
Add workbook permissions	`tableau:permissions:update`	Add permissions to a specified workbook for a

Method	Scope	Description
		user or group.
Delete data source permissions	`tableau:permissions:delete`	Delete default permission capabilities of a user or group, for metric, flow, workbook, data source, data role, or lens resources in a project.
Delete default permissions	`tableau:permissions:delete`	Delete default permission capabilities of a user or group, for metric, flow, workbook, data source, data role, or lens resources in a project.
Delete project permissions	`tableau:permissions:delete`	Delete the project permission for a user or group.
Delete view permissions	`tableau:permissions:delete`	Delete the view permission for a user or group.

Method	Scope	Description
Delete workbook permissions	`tableau:permissions:delete`	Delete the workbook permission for a user or group.
Query data source permissions	`tableau:permissions:read`	Get a list of permissions for the data source.
Query default permissions	`tableau:permissions:read`	Get default permission capabilities of users and groups for metrics, workbooks, and data sources.
Query project permissions	`tableau:permissions:read`	Get a list of permissions for the project.
Query view permissions	`tableau:permissions:read`	Get a list of permissions for the view.
Query workbook permissions	`tableau:permissions:read`	Get a list of permissions for the workbook.
Site		
(All `tableau:sites:` methods)	`tableau:sites:*`	Enables create, query, update, and

Method	Scope	Description
		delete sites actions.
Get recently viewed site	`tableau:content:read`	Get views and workbooks details on the most recently created, updated, or accessed by the signed in user.
Query views for site	`tableau:content:read`	List all views on a site.

Troubleshoot scopes

401001 - signin error

If you encounter error 401001, the **Sign In** response body is appended with one of the following additional connected apps-specific error codes: 16, 10084, or 10085.

For example, in the following response body, "10084” is the connected apps error code you can use to help troubleshoot issues with signing in to Tableau Cloud using a JWT for REST API authorization.

```
<error code="401001">
  "summary": "Signin Error",
  "detail": "Error signing in to Tableau Cloud (10084)"
</error>
```

To help resolve the issue, refer to the description of the applicable error code and its potential causes.

- **16: Could not find user**—this error can occur because the incorrect "`sub`" (user name) was specified
- **10084: Could not parse access token**—this error can occur for the following reasons:
  - JWT is invalid or there was an unexpected problem
  - Incorrect "`aud`" (audience) was specified
  - For direct trust, there was a problem with signing the secret
- **10085: Could not fetch secret to verify signature for client ID**—this error can occur for the following reasons:
  - Incorrect client ID in "`iss`" specified
  - For direct trust, incorrect "`kid`" (secret ID) was specified
  - For OAuth 2.0 trust, unable to fetch keys from the JWKSource

401002 - unauthorized access error

If you encounter error 401002 and have confirmed that you have the appropriate permissions to make the request, ensure the scope included in the JWT is correct and matches the request you're trying to make. For a list of endpoints and supported scopes, see the REST API methods that support JWT authorization section above.

Troubleshoot Connected Apps - Direct Trust

When embedded content fails to display in your custom application or Tableau REST API authorization fails, you can use a browser's developer tools to inspect and identify error codes that might be associated with the Tableau connected app (direct trust) that's used to display the embedded content.

Note: In order for the session token to be valid, the clocks of the external application and the server that hosts the external application must be set to Coordinated Universal Time (UTC). If either clock uses a different standard, the connected app will not be trusted.

Refer to the table below to review the description of the error code and potential resolution.

Error	Summary	Description	Potential resolution or

code			explanation
5	SYSTEM_USER_NOT_FOUND	Tableau user could not be found	To resolve this issue, verify the '`sub`' (Subject) claim value in the JWT is the user name (email address) of the authenticated Tableau Cloud user. This value is case sensitive.
16	LOGIN_FAILED	Login failed	This error is typically caused by one of the following claim issues in the JWT: • The '`exp`' (Expiration Time) exceeds the default maximum validity period. To resolve this issue, review registered claims required for a valid JWT and ensure the correct value does not exceed 10 minutes. • The '`sub`' (Subject) is calling an unknown user. To resolve this issue, verify the '`sub`' value is the user name (email address) of the authenticated Tableau Cloud user.
67	FEATURE_NOT_ENABLED	On-demand access is not supported	On-demand access is available through licensed Tableau Cloud sites only.
126	CONNECTED_APP_NOT_FOUND	The connected app could not be found	To resolve this issue, verify the connected app is enabled and the correct client ID (also known

			as the connect app ID) is referenced in the JWT.
127	CONNECTED_ APP_SECRET_ NOT_FOUND	The connected app's secret could not be found	To resolve this issue, verify the correct connected app's secret ID and secret value are referenced in the JWT.
128	CONNECTED_ APP_SECRET_ LIMIT_ EXCEEDED	Maximum limit for secrets has been reached	A maximum of two secrets are allowed for a connected app. This error can occur when there's an attempt to create a third secret. To resolve this issue, delete a secret from the connected app before creating a new one.
133	INVALID_ CONNECTED_ APP_DOMAIN_ SAFELIST	Domain allowlist contains one or more invalid characters	This error can occur when the domain allowlist contains one or more invalid characters.
10083	BAD_JWT	JWT header contains issues	The '`kid`' (Secret ID) or '`clientId`' (Issuer) claims are missing from the JWT header. To resolve this issue, ensure this information is included.
10084	JWT_PARSE_ ERROR	JWT contains issues	To resolve this issue, verify the following: • The '`aud`' (Audience) value referenced in the JWT uses the "tableau" value. This value is case sensitive. • The '`aud`' (Audience) and '`sub`' (Subject) are

			included in the JWT. - Review IssueTime or ensure there's no clock mismatch between the machine hosting the connected app and Tableau Cloud.
10085	COULD_NOT_FETCH_JWT_KEYS	JWT could not find keys	Could not find the secret. To resolve this issue, verify the correct 'kid' (Secret ID) is used in the JWT header.
10089	CONNECTED_APP_NOT_FOUND	Could not find connected app	To resolve this issue, ensure the issuer is calling the correct connected app ID (also known as the client ID).
10090	CONNECTED_APP_DISABLED	Connected app is disabled	The connected app used to verify trust is disabled. To resolve this issue, enable the connected app.
10091	JTI_ALREADY_USED	Unique JWT required	The JWT has already been used in the authentication process. To resolve this issue, a new JWT must be generated.
10092	NOT_IN_DOMAIN_ALLOW_LIST	Domain of the embedded content is not specified	To resolve this issue, ensure the `unrestrictedEmbedding` setting is set to `true` or `domainAllowlist` parameter includes the domains where Tableau content is embedded using the Update Embedding Settings for Site method in the Tableau

			REST API.
10094	MISSING_REQUIRED_JTI	Missing JWT ID	To resolve this issue, verify the '`jti`' (JWT ID) is included in the JWT.
10096	JWT_EXPIRATION_EXCEEDS_CONFIGURED_EXPIRATION_PERIOD	Issue with expiration time	The '`exp`' (Expiration Time) exceeds the default maximum validity period. To resolve this issue, review registered claims required for a valid JWT and ensure the correct value does not exceed 10 minutes.
10097	SCOPES_MALFORMED	Issues with scopes claim	This error can occur when the '`scp`' (Scope) claim is either missing from the JWT or not passed as a list type. To resolve this issue, verify '`scp`' is included in the JWT and passed as a list type. For troubleshooting help with a JWT, see Debugger on the auth0 site.
10098	JWT_UNSIGNED_OR_ENCRYPTED	JWT is unsigned or encrypted	Tableau does not support an unsigned or encrypted JWT.
10099	SCOPES_MISSING_IN_JWT	Missing scopes claim	The JWT is missing the required '`scp`' (scope) claim. To resolve this issue, verify '`scp`' is included in the JWT. For troubleshooting help with a JWT, see Debugger on the auth0 site.
10100	JTI_PERSISTENCE_FAILED	Unexpected JWT ID error	There was an unexpected '`jti`' (JWT ID) error. To resolve this issue, a new JWT with a new

			'`jti`' must be generated.
10101	EPHEMERAL_USER_LOGIN_FAILED_SITE_NOT_UBP_ENABLED	On-demand access is not supported	The site is not licensed with the Embedded Analytics usage-based model that is required to enable on-demand access. For more information, see Understanding License Models.
10102	EPHEMERAL_USER_NOT_SUPPORTED	On-demand access is not supported when iframe-auth attribute is enabled	This error can occur when the iframe-auth attribute is enabled. To resolve this issue, verify that the Tableau Embedding API version 3.6 or later is being used.
10103	JWT_MAX_SIZE_EXCEEDED	JWT exceeds maximum size	This error can occur when JWT size exceeds 8000 bytes. To resolve this issue, make sure that only the necessary claims are being passed to Tableau Cloud.
10105	ORIGIN_HEADER_NOT_A_VALID_URI	Invalid Origin header	This error can occur because 1) a URL is specified in the domain allowlist and 2) the Origin header does not contain a valid URL.
10106	ORIGIN_HEADER_NOT_SET	Missing Origin header	This error can occur because 1) a URL is specified in the domain allowlist and 2) the Origin header is not set.

Personal Access Tokens

Personal access tokens (PATs) provide you and your Tableau Cloud users the ability to create long-lived authentication tokens. PATs enable you and your users to sign in to Tableau REST API without requiring hard-coded credentials (username and password) or interactive sign-in. For more information about using PATs with Tableau REST API, see Signing In and Out (Authentication) in the Tableau REST API Help.

This topic discusses how to configure and use PATs with Tableau Cloud sites. For information about how to use PATs with Tableau Cloud Manager, see Personal Access Tokens for Tableau Cloud Manager.

We recommend creating PATs for automated scripts and tasks that are created with the Tableau REST API:

- **Improve security:** PATs reduce risk in the event credentials are compromised. Instead of using a user name and password, users can reduce the impact of credential compromise by using a personal access token for automated tasks. If a PAT gets compromised or is used in automation that is failing or posing a risk, you or your users can just revoke the PAT instead of rotating or revoking the user's credentials.

- **Manage automation:** A PAT can be created for each script or task that is run. This allows you and your users to silo and review automation tasks across your organization. Additionally, by using PATs, password resets or metadata changes (username, email, etc.) on user accounts do not disrupt automation as it would when credentials are hard-coded into the scripts.

- **Monitor usage:** If you have Tableau Cloud with Advanced Management, as a site admin, you can review Activity Log to track which users are creating and revoking PATs, which PATs are being used, which PATs are being revoked and the sessions attached to them.

Notes:

- You must use a PAT, instead of user name and password, to make a REST API sign in request to Tableau Cloud with multi-factor authentication (MFA) enabled with Tableau authentication.
- PATs are not used for generic client access to Tableau Cloud.
- To use PATs with tabcmd, install the compatible version of tabcmd from https://tableau.github.io/tabcmd/.
- PATs are automatically revoked when a user's authentication method is changed.

Understand personal access tokens

When a personal access token (PAT) is created, it is hashed then stored in the repository. After the PAT is hashed and stored, the PAT secret is shown once to the user and then no longer accessible after the users dismisses the dialog. Therefore, users are instructed to copy the PAT to a safe place and to handle it as they would a password. When the PAT is used at run-time, Tableau Cloud compares the PAT presented by the user to the hashed value stored in the repository. If a match is made, then an authenticated session is started.

In the context of authorization, the Tableau Cloud session that is authenticated with a PAT has the same access and privileges as the PAT owner.

Note: Users can't request concurrent Tableau Cloud sessions with a PAT. Signing in again with the same PAT, whether at the same site or a different site, will terminate the previous session and result in an authentication error.

About PAT expiration

Personal access tokens (PATs) expire if not used after 15 consecutive days. If PATs are used more frequently than every 15 days, their expiration depends on the PAT's site setting, which is configurable by a site admin.

After PATs expire, they're unable to be used for authentication and removed from the user's **My Account Settings** page.

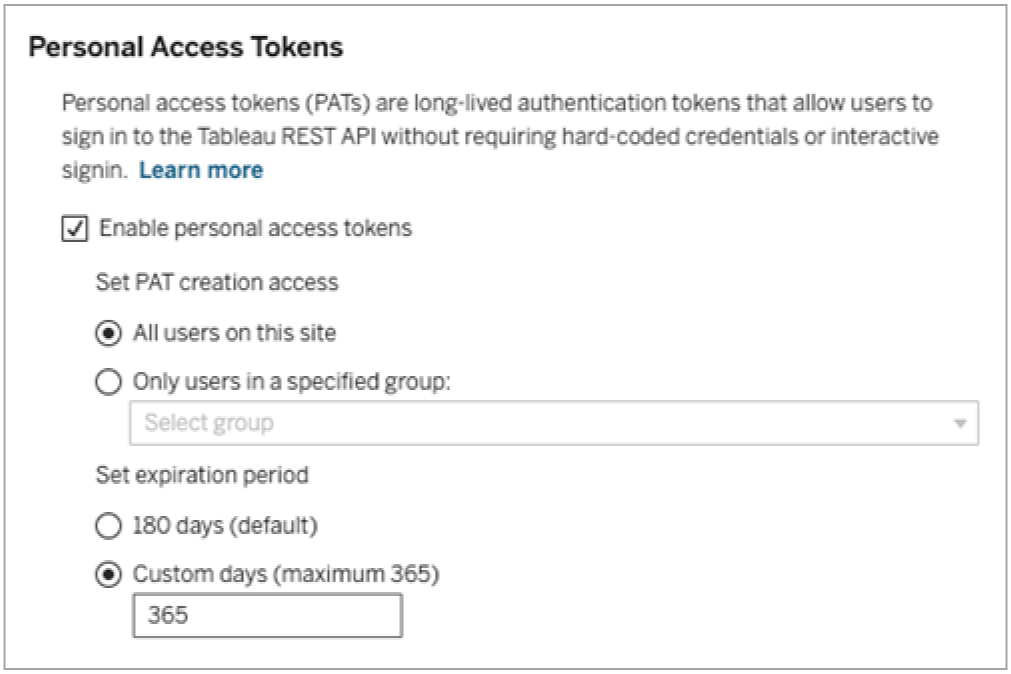
Site settings for personal access tokens

Configure PAT creation and expiration

As a site admin, you can configure who can create and use PATs, and when PATs expire. The changes that you make to PATs settings apply only to new PATs. PATs created before setting changes retain the configurations present when they were created and remain valid until they expire.

On sites activated in June 2023 (Tableau 2023.2) and later, creating PATs is disabled by default. On sites activated before June 2023 (Tableau 2023.2), creating personal access tokens (PATs) is enabled for all users by default and have a default expiration of one year.

1. Sign in to Tableau Cloud as a site admin and navigate to the **Settings** page.
2. Under the Personal Access Tokens section, select the **Enable personal access tokens** check box if not already selected, and do *one* of the following tasks:
   - Keep the **Enable personal access tokens** check box selection to enable all users to create PATs.
   - Alternatively, select the **Only users in the specified group** radio button and select a group from the list to limit the access of creating new PATs only to the users that are members of that group.
     Note: If you select this option, a group must be selected in order for you to save the setting.
3. Under Set expiration period, do *one* of the following:
   - If not selected already, select the **180 days** radio button.
   - Alternatively, in the **Custom days** text box, enter a valid value, 1 through 365.



Personal Access Tokens

Personal access tokens (PATs) are long-lived authentication tokens that allow users to sign in to the Tableau REST API without requiring hard-coded credentials or interactive signin. Learn more

☑ Enable personal access tokens

Set PAT creation access

● All users on this site

○ Only users in a specified group:

Select group

Set expiration period

○ 180 days (default)

● Custom days (maximum 365)

365

4. When finished, click the **Save** button on the top or bottom of the page.

Tasks for managing users' personal access tokens

Create a PAT

Site admins can't create PATs for users. Your users must create their own PATs.

Users with accounts on Tableau Cloud can create, manage, and revoke personal access tokens on the **My Account Settings** page. For more information, see Manage Your Account Settings in the Tableau Help.

Note: A user can have up to 104 PATs.

Monitor PATs usage

If you have Tableau Cloud with Advanced Management, you can use Activity Log to monitor PATs usage. Events in the Activity Log that capture PATs usage include, but not limited to: issue token (issue refresh token), log in with token (login with pat), redeem token (redeem refresh token), and revoke token (revoke refresh token). For more information about these events, see Activity Log Site Event Type Reference.

Revoke a PAT

As a site admin, you can revoke a user's PAT. A user is also able to revoke their own PAT on their **My Account Settings** page using the procedure described in the Manage Your Account topic in the Tableau User Help.

1. Sign in to Tableau Cloud as a site admin and navigate to the **Users** page.
2. Locate the user whose PAT you want to revoke. For more information about navigating Server Admin pages and locating users, see View, Manage, or Remove Users.
3. Click the user's name to open their profile page.
4. On the user's profile page, click the **Settings** tab.

   Note: A site admin can only access the Settings tab and see a user’s PAT if they are a site admin on all the sites that the user belongs to.
5. Under the **Personal Access Tokens** section, identify the PAT that you want to revoke and then click the **Revoke Token** button.
6. In the Delete dialog, click the **Delete** button.

Access Sites from Connected Clients

By default, Tableau Cloud allows users to access their sites directly from a Tableau *client*. It allows this access after the user provides credentials the first time they sign-in from the client. A client in this case is a Tableau application or service that can exchange information with Tableau Cloud. Examples of Tableau clients include Tableau Desktop, Tableau Prep Builder, Tableau Bridge, and Tableau Mobile.

Tableau Cloud establishes a *connected client* by creating a secure refresh token that uniquely identifies a user when the user signs in from the client.

Connected client requirement for Tableau Bridge

The default *connected client* option must remain enabled for the site to allow Tableau Bridge clients to run unattended and, if enabled, support multi-factor authentication with Tableau authentication. If connected clients are disabled for the site, Bridge can only support Tableau user name and password authentication.

Note: If multi-factor authentication (MFA) is enabled with Tableau authentication, Bridge clients must be running Tableau Bridge version 2021.1 and later. For more information about Tableau with MFA, see About multi-factor authentication and Tableau Cloud.

About refresh token expiration

The connected client sessions are managed by refresh tokens. A refresh token is generated after a successful sign-in to Tableau Cloud from the connected client. If the refresh token has not been used in 14 days, then it expires. After the refresh token has expired, a new sign-in to Tableau Cloud from the connected client is required.

If a refresh token is being used regularly, their expiration period depends on when a site was activated. Refresh tokens generated on sites activated in June 2023 (Tableau 2023.2) or later expire after 180 days. Refresh tokens generated on all other sites expire after one year.

After a refresh token has expired, the user must sign in from the connected client to reestablish an authenticated connection to Tableau Cloud.

Opt out of allowing connected clients

Site admins can turn off this functionality, to require users to sign in explicitly each time they visit Tableau Cloud.

Opting out of allowing connected clients is recommended if SAML is enabled on your site, and you want to ensure that users do not have access to Tableau Cloud when they are removed from the IdP’s SAML directory.

1. Sign in to Tableau Cloud with your site admin credentials.

2. Select **Settings**, and then select the **Authentication** tab.

3. Under **Connected clients**, clear the **Let clients automatically connect to this Tableau Cloud site** check box.

If you opt out of connected clients, keep the following points in mind:

- Some clients provide a Remember Me check box, which users can select to remember their user name. Users always need to provide their password.

- For sites configured for single sign-on using SAML authentication, users have direct access to the site after they sign in the first time. They can do this if they do not sign out explicitly by selecting the Sign Out link.

Remove a user’s connected clients

Site admins can remove connected clients (refresh tokens) associated with a particular user, for example, if the user is no longer a member of the site or is seeing a message about exceeding the maximum number of clients in their account.

1. Select **Users**, and on the Site Users page, select the link on the user's display name.

2. On the user's page, select the **Settings** tab.

3. In the **Connected clients** section, remove the appropriate clients.

Users also can go to their own **My Account Settings** page to remove specific clients.

Monitor refresh token usage

If you have Tableau Cloud with Advanced Management, you can use Activity Log to monitor refresh token usage. Events in the Activity Log that capture refresh token usage include, but not limited to: issue token, redeem token, and revoke token. For more information about these events, see Activity Log Site Event Type Reference.

See also

Sign In to Tableau Cloud

OAuth Connections

Monitor Site Activity

Find Admin Views

The Site Status page contains an embedded Tableau workbook with various admin views. These views help you to monitor different types of site activity.

- Allows you to access the Admin Insights project, which you can use to build custom admin views about your site.
- Shows you general site activity for Tableau Cloud.
- Shows you general Tableau Bridge activity.

Navigate to admin views

To see the Admin Insights project or admin views, click **Site Status**. Site administrators can see administrative views for their site.

Use Admin Insights to Create Custom Views

You can get more visibility into your Tableau Cloud deployment by using Admin Insights.

Admin Insights is a Tableau Cloud-only project that is pre-populated with carefully curated data sources and a pre-built workbook of your site's data. Using the resources available to you through the Admin Insights project, you can create custom views to help answer a range of common questions you might have about your site.

For example:

- What's my Tableau Cloud adoption rate in my organization?
- What are common trends around the site’s deployment?
- What content is popular?
- What are my users doing?
- How should licenses be allocated?

Connect to Admin Insights data

If you're a site admin or someone who has been granted access to the Admin Insights project, you can access the Admin Insights data sources directly from Tableau Cloud using Web Authoring or through Tableau Desktop.

From Tableau Cloud

1. Sign in to Tableau Cloud and navigate to the **Admin Insights** project.
2. Select **Create** > **Workbook** and select one of the data sources to get started.

From Tableau Desktop

1. Open Tableau Desktop, under Connect, select **Tableau Server**.

   > **Note:** If you're not already signed in to Tableau Cloud, in the Tableau Server Sign In dialog, click the **Tableau Cloud** hyperlink. Enter your Tableau Cloud credentials and then click **Sign In**.

2. In the search box, type the name of the data source you're looking for.
3. Select a data source and click **Connect** to get started with your analysis.

Start creating custom views

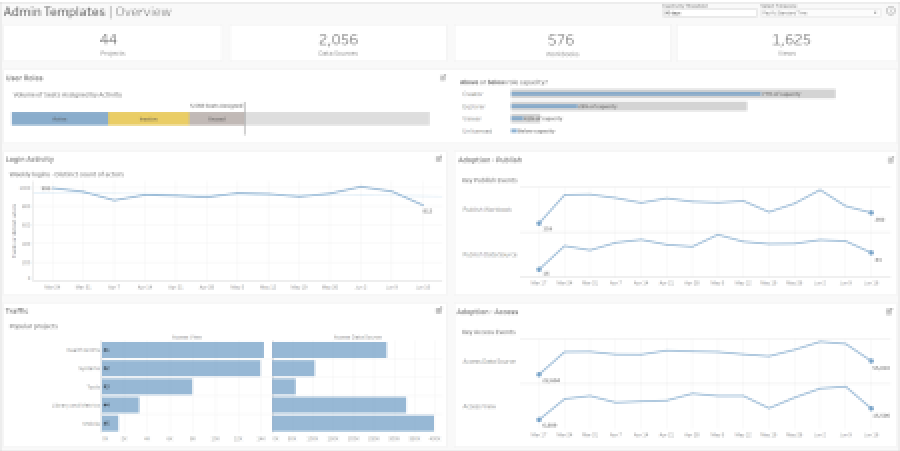
As you think about how you want to approach the analysis of your site and user metrics, consider some of the following questions that organizations commonly ask:

- What are the most popular views or data sources?
- Who are the most active users (i.e., who are the power users)?
- What are the most common tasks performed on the site?
- How many licenses are being used?
- Who hasn't signed in to the site in more than 90 days?

Explore the pre-built workbook

To help you answer the previous questions (and more), go to the pre-built workbook, Admin Insights Starter, to see what kind of insights it can offer. The workbook serves as a template for creating more detailed dashboards and workbooks that address unique questions related to your site or organization.

Starting in October 2024, localized versions of the Admin Insights Starter workbook are available as accelerators on Tableau Exchange.



User Drilldown

Focus: Site activity
Data source: TS Users

Use this dashboard to explore high-level site activity by user role.

This dashboard shows you some of the ways you can analyze your site's log and activity metrics. Although Admin Insights captures up to 90 days of data (365 days with an Advanced Management license), the "Last Publish" and "Last Access" dates can go back to as early as the date the site was created.

Do more with this dashboard:

- Change the "Inactivity threshold" (yellow by default) using the parameter control in the upper-right corner.
- Create URL actions that can email users based on their activity type. For example, email users when they haven't signed in to the site, accessed content, or published content in the last 90 days.
- Create additional views for this dashboard that compares the last 90 days (default) of activity (sign in, access, or publish) to the last 30 days, 60 days, and all days.

Group Drilldown

Focus: Group membership and licensing
Data source: Groups, TS Events, TS Users

The dashboard shows you the count of groups and grouped users on the site. Use the filters or click a row or mark in the Group Breakdown worksheet to select a group. After a single group is selected, you can view membership and license details.

The dashboard shows you the following types of information:

- Group membership: How many groups and grouped users are on the site
- License consumption: The percentage of groups using licenses on sign-in

- Site roles and license type: Which users are members of the group and what site role are they assigned

Do more with this dashboard: Select a user from the membership worksheet to email all group members.

Login Activity Drilldown

Focus: Sign-in activity
Connects to: TS Events (primary), TS Users (secondary)

Use this dashboard to explore trends in sign-in activity.

Using the “Select Events or Distinct Actors” selector on the left, you can see your site’s weekly, daily, and hourly sign-in-related activity. Because there are two data sources behind this dashboard, you can see sign-ins by all users, not just users with recent sign-in activity.

Do more with this dashboard: Duplicate the dashboard and keep only the “Login user breakdown.” Then change the filter on the “Last Login Date” to null to see a list of users who have never signed in to the site. You can also email them depending on what kind of action you want users to take.

Traffic and Adoption Drilldown & Publish Event Drilldown

Focus: Content access and usage
Connects to: TS Events

The information in the dashboards show you the following types of information:

- View access activity: When a view has been accessed and by whom.
- Data source access activity: When 1) a published data source has been connected to through Web Authoring or Tableau Desktop or 2) a user has viewed or published a workbook that uses the published data source.
- Workbook publish activity: When a workbook has been published and by whom.

- Data source publish activity: When a published data source has been published and by whom.

Do more with this dashboard: Using the “Project Name” selector in the upper-right corner, select a project on your site to filter on. This filter affects all sheets in the Admin Insights Starter.

Stale Content

Focus: Content usage and disk space
Connects to: Site Content, TS Events

The dashboard shows you the following types of information:

- Disk space usage by activity: Amount of space used by stale content and content considered active - content accessed in the time frame below the stale threshold.
- Space used by item: Amount of space used by content on the site. The x-axis shows the number of days since the content was last viewed, while the y-axis shows the size.
- Space used by stale and unused content: Total amount of space used by stale and unused content. You can use this information to determine which content is the most stale or takes the most space.

Do more with this dashboard:

- Use the Inactivity Threshold to determine how long content can go unused before it’s deemed stale. Changing this value filters content items that don't meet the threshold.
- Use the Project Name selector to filter content by project. This filter affects all sheets in the Admin Insights Starter.
- To maintain a clean site, remove content that is no longer in use. If you’re unsure, select an item to email the content owner before deleting it.

Stats for Space Usage

Focus: Content ownership and disk space
Connects to: Site Content, TS Events

The dashboard shows you the following types of information:

- Site capacity: Amount of space used in relation to the total site capacity.
- Space usage by project: Amount of space used by top-level projects. Selecting a project filters the other worksheets to show content items, size, and ownership details.
- Space usage by item: Amount of space used by content items, such as workbooks, data sources, flows, and virtual connections.
- Space usage by user: Check how much space content owners are using and identify if any groups or users are exceeding their allotted space.

Do more with this dashboard:

- Use the Project Name selector to filter content by project. This filter affects all sheets in the Admin Insights Starter.
- Select an item or user to send an email and clarify how the content is used.

Dashboard Load Times

Focus: Dashboard performance
Connects to: Viz Load Times

The dashboard shows you the following types of information:

- Success metrics: See the average dashboard load time, total number of requests, and total number of content owners.

- Performance ratings: Users can set performance thresholds to see what percentage of dashboards fall into each rating. By using performance ratings, you can quickly identify content that needs improvement.
- Number of requests: Users can filter by the number of requests to see the most popular content. Understanding how often content is viewed can help prioritize performance fixes.
- Content list: See the count and average load time for projects, workbooks, and views. Users can filter columns by item name or the entire dashboard by workbook owner.

Do more with this dashboard:

- Use performance ratings to understand the overall health of dashboards. To see the most problematic dashboards, select the percentage within each performance rating to filter content
- Identify performance issues and trends over time. To collaborate with content owners on performance problems, hover over or select the marks in the Views column to see their username.

Explore the data sources

You can connect to Admin Insights data sources from Tableau Cloud and Tableau Desktop. Connecting to the data sources directly allows you to explore the data and build dashboards or workbooks specific to your organization. For more information about how to connect, see Connect to Admin Insights data in this topic.

The following table provides an overview of each data source.

Data source	Description
TS Events	TS Events functions as a primary audit data source. It contains data about the various events happening on your site, including sign-in, publishing, and accessing views.
TS Users	TS Users contains data about your users, such as remaining

	licenses, site roles, and workbooks owned by a user. It also includes product activation and usage data for Tableau Desktop, Tableau Prep, web authoring, and site role-specific capabilities.
Groups	The Groups data source identifies the group membership of users on the site.
Site Content	The Site Content data source provides essential governance information about the assets on your site, such as projects, workbooks, flows, and views. It also includes Tableau Pulse information.
Viz Load Times	Viz Load Times contains the load time information for views on your site, helping content authors understand the user experience when loading views.
Job Performance	Job Performance contains events and runtime information for background jobs on the site, such as extract refreshes and flow runs. It also includes Tableau Bridge refresh data, such as the Bridge client name, pooling data, and refresh started and completed times.
Permissions	Permissions contains the effective permissions for all users and content on the site. Site administrators can use the data source to identify gaps in permissions security and ensure that only the appropriate users can access content items.
Subscriptions	The Subscriptions data source provides details about subscriptions on the site, including the name of the creator and recipient, content item, job status, and schedules. It also includes Tableau Pulse information.
Tokens	Tokens contains information about active, unexpired user tokens on the site, including personal access tokens (PATs), refresh tokens, and OAuth tokens. Site administrators can monitor token usage and expiration through the data source, rotating essential tokens as needed.

Manage Admin Insights

Admin Insights is a Tableau Cloud-only project that is pre-populated with carefully curated data sources and a pre-built workbook of your site's data. Using the resources available to you through the Admin Insights project, you can create custom views to help answer a range of common questions you might have about your site.

Admin Insights versus Admin views

The Admin Insights project and the pre-built admin views (accessible from Tableau Cloud’s Status page) are both valuable tools for monitoring the health and activity of your Tableau Cloud site. One tool does not replace the other.

To determine which tool to use, consider the following:

Admin Insights	Admin Views
• Site traffic, adoption, and reach • User roles and sign-in activity • Publishing-related activity	• General site activity, site performance, and disk space usage • Extract performance • Tableau Bridge traffic and extract-related activity • Troubleshooting

What's included with the Admin Insights project

The Admin Insights project is comprised of the following:

- **Admin Insights data sources**—TS Events, TS Users, Groups, Site Content, Viz Load Times, Job Performance, Permissions, Subscriptions, and Tokens. You can use these data sources on which to create new data sources if you need to enrich the data with custom calculations or other data from your organization. For more information about the data sources, see Use Admin Insights to Create Custom Views.

- **Admin Insights Starter**—a pre-built workbook that contains dashboards based on the Admin Insights data sources. These dashboards are intended to serve as templates on which to build more dashboards and views that can go more in depth and answer questions that are unique to your site's deployment or organization. For more information about the dashboards, see Explore the pre-built workbook.

- **Tableau System Account**—data sources in the Admin Insights project are updated by the Tableau System Account. While events conducted by this account are not visible in the data sources, the Tableau System Account is listed as the owner of Admin Insights content by default. This account exists to provide Admin Insights data to your Admin Insights project.

Note: The Admin Insights project shouldn’t be moved from its default location on the Explore page. Moving the project will stop data source updates from Tableau. If you’ve moved the project, back up any changes or content you’ve published, and delete the Admin Insights project to restore functionality. A new Admin Insights project will be created the next day.

About data freshness

The Admin Insights data sources contain up to 90 days of data about your site by default or 365 days with Advanced Management. For more information, see About Tableau Advanced Management on Tableau Cloud. The data sources can be updated daily or weekly. To specify the update frequency for Admin Insights data sources, go to **Settings**, and on the **General** tab, scroll to **Admin Insights Update Frequency**.

Because the Admin Insights Starter is based on these data sources, dashboards in the workbook always show up-to-date information. Periodically, Tableau updates the workbook itself. For more information, see Get updates to the Admin Insights Starter later in this topic.

Share access to Admin Insights

The Admin Insights content is initially visible to site admins only. Consider extending access to other site users in your organization to enable them to build, curate, and gain insight unique to their needs and workflows and ultimately help them manage their content more effectively. For more information about extending project permissions to non-site admins, see Permissions.

Move or rename the Admin Insights Starter

Tableau strongly recommends that you move the pre-built workbook, Admin Insights Starter, to a different project or simply rename it. Doing so helps ensure that your changes are preserved and do not get overwritten by periodic updates Tableau makes to the pre-built workbook.

For more information, see the Get updates to the Admin Insights Starter below.

Get updates to the Admin Insights Starter

Periodically, Tableau makes updates to the Admin Insights Starter. The updates are automatically applied to the **Admin Insights Starter** workbook in the Admin Insights project. The updates are summarized in the Release Notes workbook that is also available in the Admin Insights project. Updates can include new fields or field descriptions, new views, updates to existing views, and more.

To make sure you get the latest updates to the Admin Insights Starter, and none of the changes you make to the workbook are overwritten, follow the steps described below.

Step 1: Prepare for updates

In order to preserve the changes you make to your workbook and avoid these changes from being overwritten by Tableau, Tableau recommends that you do one of the following tasks:

- Move the workbook to a different project
- Rename the workbook

To maintain both your changes and Tableau's latest workbook improvements, you'll need to repeat one of the above tasks after each update that Tableau makes.

Step 2: Check for updates

As part of its update process, Tableau recreates and then adds the Admin Insights Starter to your Admin Insights project.

If you've moved or renamed the workbook, a *new* "Admin Insights Starter" is added to your Admin Insights project. You can verify the new workbook by its modified date or by its publish date in revision history.

Step 3: Use Revision History to undo changes (optional)

If you were unable to move or rename the workbook before Tableau replaced the Admin Insights Starter, or you don't care for the update, you can use revision history to revert the changes. For more information about revision history, see Work with Content Revisions in the Tableau User Help.

Step 4: Manually make or move your changes to the latest Admin Insights Starter

To ensure that your changes are reflected in the same workbook as the changes made by Tableau, you'll need to follow the procedure below.

1. In the latest version of the Admin Insights Starter workbook, you do can do one or both of the following:
   - Manually make the changes that you made in your version of the workbook to the latest version of the workbook.
   - Export the sheet from your version of the workbook and save it to the latest version of workbook. For more information about exporting sheets, see Export and import sheets between workbooks in the Tableau User Help.
2. Move or rename the latest workbook again, so that any new updates Tableau makes to the Admin Insights Starter does not overwrite your changes.

Tips for managing Admin Insights

Although the Admin Insights project functions just like any other project on your site, Tableau recommends you consider the following while managing the project:

- **Move the Admin Insights Starter to a different location.** If you plan to make updates to Admin Insights Starter, Tableau recommends that you either 1) move the workbook to a different project or 2) rename the workbook. Doing one of these tasks ensures that your changes are preserved and do not get overwritten by periodic updates that Tableau automatically makes to the workbook. For more information, see Get updates to the Admin Insights Starter.

- **Use caution when moving data sources.** If you move any of the Admin Insights data sources outside of the Admin Insights project, Tableau will be unable to refresh them. The data sources are also periodically updated by Tableau. To ensure the data sources are refreshed and your changes are preserved, keep the TS Events, TS Users, Groups, Site Content, Viz Load Times, Job Performance, Permissions, Subscriptions, and Tokens data sources in the Admin Insights project.

- **Designate other users, including users who are not site admins, to access and create content for the project.** For example, allow a user to create new views based on the TS Events, TS Users, Groups, Site Content, Viz Load Times, Job Performance, Permissions, Subscriptions, and Tokens data sources. For more information about changing project permissions, see Set permissions.

TS Events Data Source

TS Events functions as a primary audit data source. It contains data about the various events happening on your site, including sign-in, publishing, and accessing views.

Create custom views

If you're a site admin or someone who has been granted access to the Admin Insights project, you can access the Admin Insights data sources directly from Tableau Cloud using Web Authoring or through Tableau Desktop to build custom views. For more information about connecting to Admin Insights data sources, see Use Admin Insights to Create Custom Views.

Example: What are the most popular views?

Use the following steps to create a view that displays the most popular views on the site.

1. Connect to the TS Events data source.
2. From the **Data** pane, drag **Item Name** to the **Rows** shelf and **Number of Events** to the **Columns** shelf.
3. From the **Data** pane, drag **Item Type** to the **Filters** shelf, and select the **View** checkbox.

Do more with your data

Using Tableau Prep, you can join TS Events with other Admin Insights data sources on the following fields to get more visibility into your site. If you're analyzing data from multiple Tableau Cloud sites, you must also join on "Site LUID = Site LUID".

- Join TS Events to TS Users on "Actor User ID = User ID"
- Join TS Events to Site Content on "Item ID = Item ID" and "Item Type = Item Type"

For more information, see Aggregate, Join, or Union Data in Tableau Prep Help.

Data schema

The following table lists the fields included in the TS Events data source. Each row of data correlates with a single event that occurs on the Tableau Cloud site.

Folder	**Field Name**	**Type**	**Description**
Who Acted	Actor License Role	String	The license role for the user who initiated the event; one of Creator, Explorer or Viewer.
	Actor Site Role	String	The site role for the user who initiated the event
	Actor User Id	Number	The user id of the user who initiated the event.
	Actor User Name	String	The email address of the user who initiated the event
	Target User Id	Number	The user ID of the user who was

			the target of the event.
What Was Acted Upon	Historical Item Name	String	The name of the Data Source or Workbook the event was performed against, at the time that the event was performed.
	Historical Item Repository Url	String	A unique, url-style path to the Data Source, Workbook, or View that the event was performed against. This value preserves the historical path of an item during the time the event was performed.
	Historical Project Name	String	The name of the Project within which the event took place, as it was named at the time of the event.
	Item Id	Number	The Id of the Data Source, Workbook or View the event was performed against.
	Item LUID	String	The LUID of the data source, workbook, or view the events was performed against.
	Item Type	String	If the event was performed against content, the value is Data Source, Workbook, or View. Item Type will be NULL if the event wasn’t performed against content.
	Item Name	String	Display name of the item included in the subscription.

			The current name of the Data Source or Workbook the event was performed against.
	Item Owner Email	String	Email address of the item owner. The email of the user who currently owns the View, Datasource or Workbook the event was performed against.
	Item Owner Id	Number	The Id of the user who currently owns the View, Datasource or Workbook the event was performed against.
	Item Repository Url	String	A unique, url-style path to the Data Source, Workbook or View that the event was performed against. This value describes the CURRENT path an item is available at. It will be NULL if the event was not performed against one of the three items listed above, or if the item has since been deleted.
	Project Name	String	The current name of the Project the event took place in, if it was performed against content.
	Site Luid	String	The Luid of the Site on which the event took place
	Site Name	String	The name of the Site on which the event took place

	Workbook Name	String	The name of the Workbook the event was performed against, at the time that the event was performed.
What Action Was Taken	Event Date	Date-time	The date and time that the event in question took place, in UTC.
	Event Date (local)	Date-time	The date and time that the event in question took place, adjusted by the Timezone parameter you've set. **Note:** For older data, a simple adjustment like this will not be accurate if your timezone uses Daylight Savings.
	Event Id	Number	Unique identifier for the event.
	Event Name	String	The name of the specific event that occurred.
	Event Type	String	Events are grouped together into action types, such as Create, Access, Update and Delete.
-	Admin Insights Published At	Date-time	Date and time the Admin Insights data source was last published in UTC
	Count of Distinct Actors	Calculated field	Measure representing the count of unique actors (users initiating the events).
	Number of Events	Calculated field	Measure representing the total number of events

TS Users Data Source

TS Users contains data about your users, such as remaining licenses, site roles, and workbooks owned by a user. Starting May 2023, TS Users includes product activation and usage data for Tableau Desktop, Tableau Prep, web authoring, and site role-specific capabilities.

If a user's site role is changed to unlicensed, their information remains in the TS Users data source. However, when a user is removed from the site, their information is also removed from TS Users within 36 hours.

Create custom views

If you're a site admin or someone who has been granted access to the Admin Insights project, you can access the Admin Insights data sources directly from Tableau Cloud using Web Authoring or through Tableau Desktop to build custom views. For more information about connecting to Admin Insights data sources, see Use Admin Insights to Create Custom Views.

Example: How many licenses are being used?

Use the following steps to create a view that displays the number of licenses used.

1. Connect to the TS Users data source.
2. From the **Data** pane, drag **Measure Names** to the **Rows** shelf and **Measure Values** to the **Columns** shelf.
3. Right-click the **Measure Names** field in the **Rows** shelf and select **Show Filter**.
4. Click the Measure Names filter dropdown menu, and select **Customize** > **Show Apply Button**.
5. In the filter, select the **Total Allowed Licenses** and **Total Occupied Licenses** checkboxes, and then click **Apply**.

Do more with your data

Using Tableau Prep, you can join TS Users with other Admin Insights data sources on the following fields to get more visibility into your site. If you're analyzing data from multiple Tableau

Cloud sites, you must also join on "Site LUID = Site LUID".

- Join TS Users to Groups on “User LUID = User LUID”
- Join TS Users to TS Events on “User ID = Actor User Id”
- Join TS Users to Site Content on “User Email = Owner Email” or “User Email = Item Parent Project Owner Email”

For more information, see Aggregate, Join, or Union Data in Tableau Prep Help.

Data schema

The following table lists the fields included in the TS Users data source. Each row of data corresponds to a unique user on the Tableau Cloud site.

Folder	Field Name	Type	Description
License Utilization	Allowed Creators	Number	Total number of allowed Creator licenses
	Allowed Explorers	Number	Total number of purchased Explorer licenses
	Allowed Viewers	Number	Total number of purchased Viewer licenses
	Occupied Creator Licenses	Calculated field	Number of occupied Creator licenses
	Occupied Explorer Licenses	Calculated field	Number of occupied Explorer licenses
	Occupied Viewer Licenses	Calculated field	Number of occupied Viewer licenses
	Total Allowed Licenses	Number	Total number of allowed licenses

	Total Occupied Licenses	Calculated field	Total number of occupied licenses
	Total Remaining Licenses	Calculated field	Total number of remaining licenses
Site	Site Luid	String	LUID of the site associated with the user. Primarily useful for referencing sites in the Tableau Server API.
	Site Name	String	Name of the Tableau Cloud site
	Site Version	String	The version of Tableau Server running on the Tableau Cloud pod that hosts your site
Traffic to Content - Historical	Total Traffic - Data Sources	Number	Total number of times the user's data sources were accessed
	Total Traffic - Views	Number	Total number of times the user's views were accessed
	Unique Visitors - Data Sources	Number	Number of unique users who accessed the user's data sources
	Unique Visitors - Views	Number	Number of unique users who accessed the user's views
User	User Creation Date	Date-time	Date and time the user's account was created in UTC
	User Email	String	Email address associated with the user's account
	User Friendly Name	String	User friendly name associated with the user's account

	User ID	Number	Internal ID of the user
	User License Type	String	User-based license associated with the user: Viewer, Explorer, or Creator.
	User LUID	String	LUID of the user. Primarily useful for referencing users in the Tableau Server API
	User Name	String	User name associated with the user's account.
	User Site Role	String	Site role of the user. Determines the maximum level of access a user can have on the site.
User Activity - Historical	Access Events - Data Sources	Number	Number of times the user accessed a published data source.
	Access Events - Views	Number	Number of times the user accessed a view.
	Publish Events - Data Sources	Number	Number of times the user published a data source.
	Publish Events - Workbooks	Number	Number of times the user published a workbook.
User Activity - Most Recent Event	Data Source - Last Access Date	Date-time	Date and time the user last accessed a published data source in UTC
	Data Source - Last Publish Date	Date-time	Date and time the user last published a published data source in UTC

	Last Login Date	Date-time	Date and time the user last logged in, in UTC.
	Tableau Desktop - Last Access Date	Date-time	Date and time the user last connected to Tableau Cloud from Tableau Desktop in UTC.
	Tableau Desktop - Last Access Date (Local)	Date-time	Date and time the user last connected to Tableau Cloud from Tableau Desktop, adjusted by the Timezone parameter.
	Tableau Desktop - Last Product Version	String	The version of Tableau Desktop that was last used to connect.
	Tableau Prep - Last Access Date	Date-time	Date and time the user last connected to Tableau Cloud from Tableau Prep in UTC.
	Tableau Prep - Last Access Date (Local)	Date-time	Date and time the user last connected to Tableau Cloud from Tableau Prep, adjusted by the Timezone parameter.
	Tableau Prep - Last Product Version	String	The version of Tableau Prep that was last used to connect
	View - Last Access Date	Date-time	Date and time the user last accessed a view, in UTC.
	Web Authoring - Last Access Date	Date-time	Date and time the user last accessed the web authoring environment in UTC.
	Web Authoring - Last Access Date	Date-time	Date and time the user last accessed the web authoring

	(Local)		environment, adjusted by the Timezone parameter.
	Web Authoring - Last Publish Date	Date-time	Date and time the user last published a workbook, in UTC
User Content	Certified Data Sources	Number	Number of certified data sources the user owns.
	Data Sources	Number	Number of published data sources the user owns
	Projects	Number	Number of projects the user owns.
	Size of Data Sources (MB)	Number	The combined size of all published data sources owned by the user, in megabytes.
	Size of Workbooks (MB)	Number	Combined size of all workbooks owned by the user, in megabytes.
	Views	Number	Number of views the user owns.
	Workbooks	Number	Number of workbooks the user owns.
User Metrics	Days Since Last Login	Number	Number of days since the user last logged in.
	User Account Age	Number	Number of days since the user's account was created
-	Admin Insights Published At	Date-time	Date and time the Admin Insights data source was last published in UTC

Groups Data Source

The Groups data source identifies group membership of users on the site. There's one row of data for each unique combination of group and user pairing. Groups without members, and users not in a group, are included as a row of data with null values represented as "NULL".

Create custom views

If you're a site admin or someone who has been granted access to the Admin Insights project, you can access the Admin Insights data sources directly from Tableau Cloud using Web Authoring or through Tableau Desktop to build custom views. For more information about connecting to Admin Insights data sources, see Use Admin Insights to Create Custom Views.

Example: Which users are in a given group?

Use the following steps to create a view that displays the users in a group.

1. Connect to the Groups data source.
2. From the **Data** pane, drag **Group Name** to the **Rows** shelf.
3. (Optional) In the view, select the groups you want to explore, and then select **Keep Only**.
4. From the **Data** pane, drag **User Email** to the **Rows** shelf, placing it to the right of the **Group Name** field.

Do more with your data

Using Tableau Prep, you can join Groups with other Admin Insights data sources on the following fields to get more visibility into your site. If you're analyzing data from multiple Tableau Cloud sites, you must also join on "Site LUID = Site LUID".

- Join Groups to TS Users on "User LUID = User LUID"

For more information, see Aggregate, Join, or Union Data in Tableau Prep Help.

Data schema

The following table lists the fields included in the Groups data source. Each row of data corresponds to a unique combination of group and user pairing.

Folder	Field Name	Type	Description
Group	Group Is Licensed On Site	Boolean	Whether or not Grant License on Sign In is enabled
	Group LUID	String	LUID of the group associated with the user. Primarily useful for referencing a group in the REST API.
	Group Minimum Site Role	String	Minimum site role associated with the group. Will be null if Grant License on Sign In is not enabled.
	Group Name	String	Name of the group
Site	Site LUID	String	LUID of the site associated with the user. Primarily useful for referencing a site in the REST API.
	Site Name	String	Name of the site associated with the user
User	User Email	String	Email address associated with the user’s account
	User LUID	String	LUID of the user. Primarily useful for referencing users in the REST API
-	Admin Insights Published At	Date-time	Date and time the Admin Insights data source was last published in UTC
	Count of Distinct Groups	Number	Distinct count of groups on the site

	Count of Distinct Users	Number	Distinct count of users on the site

Site Content Data Source

The Site Content data source provides essential governance information about the projects, data sources, flows, workbooks, and views on a site. The data provided about a content item may be unique to its item type. Item types with unique fields are in folders with titles that correspond to their Item Type.

Starting in December 2023, the Site Content data source includes Tableau Pulse information for your site. You can find the fields dedicated to Tableau Pulse within the "Metric" folder while creating views.

> **Note:** Users that connect to the Site Content data source see data about all content items on the site, regardless of the permissions set for each item. Keep this in mind if you plan to distribute to non-administrative users.

Create custom views

If you're a site admin or someone who has been granted access to the Admin Insights project, you can access the Admin Insights data sources directly from Tableau Cloud using Web Authoring or through Tableau Desktop to build custom views. For more information about connecting to Admin Insights data sources, see Use Admin Insights to Create Custom Views.

Example: What percent of site published data sources are certified?

Use the following steps to create a view that displays the percentage of certified published data sources on the site.

1. Connect to the Site Content data source.
2. From the **Data** pane, drag **Migrated Data (Count)** to the **Columns** shelf.

3. From the **Data** pane, drag **Data Source Content Type** to the **Filters** shelf, clear the **All** checkbox, and select the **Published** checkbox.

4. From the **Data** pane, drag **Data Source Certified** to Color on the **Marks** card.

5. Right-click the **CNT (Migrated Data)** field in the **Columns** shelf and select **Quick Table Calculation** > **Percent of Total**.

Do more with your data

Using Tableau Prep, you can join Site Content with other Admin Insights data sources on the following fields to get more visibility into your site. If you're analyzing data from multiple Tableau Cloud sites, you must also join on "Site LUID = Site LUID".

- Join Site Content to TS Events on “Item ID = Item ID” and “Item Type = Item Type”
- Join Site Content to TS Users on “Owner Email = User Email” or “Owner Email = Item Parent Project Owner Email"

For more information, see Aggregate, Join, or Union Data in Tableau Prep Help.

Data schema

The following table lists the fields included in the Site Content data source. Each row of data corresponds to a unique content item, with Item LUID as the unique identifier for content in a Tableau Cloud site.

Folder	Field Name	Type	Description
Data Source	Data Source Content Type	String	Indicates if the Data Source is Published or Embedded. Will be NULL for any Items that are not Data Sources.
	Data Source Database Type	String	Type of database connection (i.e. mysql, postgres, sqlproxy, etc.). Will be NULL for any Items that are not Data Sources.

	Data Source Is Certified	Boolean	Whether or not the Data Source is a Certified Data Source. Will be NULL for any Items that are not Data Sources.
Dates	Created At	Date-time	Date and time the item was created, in UTC.
	Created At (Local)	Date-time	Date and time the item was created, adjusted by the Timezone parameter.
	Extracts Incremented At	Date-time	Date and time the data source was incrementally refreshed, in UTC. For incremental refreshes only.
	Extracts Incremented At (Local)	Date-time	Date and time the data source was incrementally refreshed, adjusted by the Timezone parameter.
	Extracts Refreshed At	Date-time	Date and time the data source was last refreshed, in UTC. For full extract refreshes only.
	Extracts Refreshed At (Local)	Date-time	Date and time the data source was last refreshed, adjusted by the Timezone parameter.
	First Published At	Date-time	Date and time the item was first published, in UTC.
	First Published At (Local)	Date-time	Date and time the item was first published, adjusted by the Timezone parameter you've set.
	Last Accessed At	Date-time	Date and time the item was last accessed, either by accessing a View or connecting to a Data Source,

			in UTC.
	Last Accessed At (Local)	Date-time	Date and time the item was last accessed, either by accessing a View or connecting to a Data Source, adjusted by the Timezone parameter you've set.
	Last Published At	Date-time	Date and time the item was last published, in UTC.
	Last Published At (Local)	Date-time	Date and time the item was last published, adjusted by the Timezone parameter you've set.
	Updated At	Date-time	Date and time the item was last updated, in UTC.
	Updated At (Local)	Date-time	Date and time the item was last updated, adjusted by the Timezone parameter you've set.
Hyperlinks	Item Hyperlink	String	Full URL of the item on the site. (Useful for creating hyperlinks to the item).
	Site Hyperlink	String	The root URL of the Tableau Cloud site
Item	Description	String	The text description of the item. Will be NULL for View items.
	Has Incremental Extract	Boolean	Whether or not it is possible to perform an incremental extract for this Workbook or Data Source.
	Has Refresh Scheduled	Boolean	Whether or not the Workbook or Data Source has extracts being refreshed on a schedule.

	Has Refreshable Extract	Boolean	Whether or not refreshable extracts are available for the Workbook or Data Source. (For example: .hyper files published via REST API are not refreshable from Tableau Cloud, so those extracts would be labeled False)
	Is Data Extract	Boolean	Whether or not the Workbook or Data Source contains an Extract.
	Item ID	Number	The ID of the item. The ID is unique within each Item Type and Site.
	Item LUID	String	The LUID of the item. The LUID is unique within each item type and site. Primarily used to reference content via the REST API.
	Item Name	String	Display name of the item
	Item Parent Project ID	Number	Item ID of the parent project that contains the item, such as a workbook or data source. The Item ID of this item's Parent Project. (Ex: The Item ID of the Project a Workbook resides in.)
	Item Parent Project Level	String	The Project Level of this item's Parent Project. (Ex: The Project Level of the Project a Workbook resides in.)
	Item Parent Project Name	String	The name of the item’s parent project. For example, the item name of the project a workbook resides in.

	Item Parent Project Owner Email	String	The email address of the parent project owner
	Item Revision	Number	The revision number of the item
	Item Type	String	The type of item that this content is. Either a Data Source, Flow, Project, View or Workbook.
	Owner Email	String	Email address of the item owner
	Top Parent Project Name	String	The name of the item's top parent project. For example, the item name of the project at project Level 0 of this item's project hierarchy. Will be NULL for top-level projects.
-	Size (bytes)	Number	The size of the item in bytes (÷1,000,000,000 for GB)
	Size (MB)	Number	The size of the item in MB (÷1,000 for GB)
	Total Size (bytes)	Number	The total size of the item in bytes (÷1,000,000,000 for GB)
	Total Size (MB)	Number	The total size of the item in MB (÷1,000 for GB)
Metric	Adjustable Filter Options	String	The fields added as adjustable filter options to a metric definition, or the filter options selected on a metric.
	Has Definition Filters	String	Whether or not there are definition filters applied.
	Metric Defin-	String	The aggregation for the measure

	ition Aggregation		being tracked.
	Metric Definition Data Source ID	String	The data source that the metric definition is connected to
	Metric Definition ID for Related Metric	String	The definition that the metric is related to
	Metric Definition Number Format	String	The format for the metric value
	Metric Time Granularity	String	The level of detail that the data is aggregated at
Project	Controlled Permissions Enabled	Boolean	The asset permissions setting for projects. When true, project permissions are locked, and assets inherit project permission rules.
	Controlling Permissions Project LUID	String	The LUID of the project that controls permissions for the nested project
	Controlling Permissions Project Name	String	The name of the project that controls permissions for the nested project
	Nested Projects Permissions Enabled	Boolean	The asset permissions setting for nested projects. When true, nested project permissions are locked, and assets inherit permission rules from the parent project.
	Project Level	Number	The level of the project within its hier-

			archy. The value increments by 1 for each level: 0 = Top-level project, 1 = A project whose parent is a top-level project, 2 = A project whose parent's parent is a top-level project, and so on. The value is NULL for any items that are not projects.
Site	Site LUID	String	LUID of the site associated with the user. Primarily used for referencing a site in the REST API.
	Site Name	String	The name of the Tableau Cloud site
-	Storage Quota (bytes)	Number	The storage capacity of the Tableau Cloud site in bytes.
View	View Title	String	The title of the view. The value is NULL for items that are not views.
	View Type	String	The type of view. Either a story, dashboard, or sheet. The value is NULL for items that are not views.
	View Workbook ID	Number	ID of the parent workbook of the view. Primarily used for hyperlinks and the REST API. The value is NULL for items that are not views.
	View Workbook Name	String	Display name of the parent workbook of the view. The value is NULL for items that are not views.
Workbook	Workbook Shows Sheets As Tabs	Boolean	Whether or not the sheets of the workbook are displayed as tabs. The value is NULL for items that are not workbooks.

-	Admin Insights Published At	Date-time	Date and time the Admin Insights data source was last published in UTC
	Timezone	String	Specifies the timezone for displaying dates. This field represents an integer value used to determine the number of hours to offset from UTC. It doesn't account for Daylight Saving Time adjustments.

Viz Load Times Data Source

Viz Load Times contains the load time information for views on your site to help content authors better understand the user experience when loading views.

Create custom views

If you're a site admin or someone who has been granted access to the Admin Insights project, you can access the Admin Insights data sources directly from Tableau Cloud using Web Authoring or through Tableau Desktop to build custom views. For more information about connecting to Admin Insights data sources, see Use Admin Insights to Create Custom Views.

Example: Which views take the longest to load?

Use the following steps to create a view that displays load times, helping to identify which views take the longest to load.

1. Connect to the Viz Load Times data source.
2. From the **Data** pane, drag **Item Name** to the **Rows** shelf and **Duration** to the **Columns** shelf.
3. From the **Data** pane, drag **Status Code Type** to the **Filters** shelf and select the **Success** checkbox.
4. In the **Columns** shelf, right-click **Dimensions** and select **Measure (Count)** > **Median**.

Do more with your data

Using Tableau Prep, you can join Viz Load Times with other Admin Insights data sources on the following fields to get more visibility into your site. If you're analyzing data from multiple Tableau Cloud sites, you must also join on "Site LUID = Site LUID".

- Join Viz Load Times to TS Events and Site Content on “Item Repository URL = Item Repository URL”
- Join Viz Load Times to TS Events and Site Content on “Item Type = Item Type”

For more information, see Aggregate, Join, or Union Data in Tableau Prep Help.

Data schema

The following table lists the fields included in the Viz Load Times data source. Each row of data corresponds to a request for a content item and the load duration, measured in seconds.

Folder	Field Name	Type	Description
Item	Item Hyperlink	String	Full URL of the item on the site
	Item Luid	String	LUID of the item (data source or view) that was requested.
	Item Name	String	Display name of the item
	Item Owner Email	String	Email address of the item owner
	Item Repository URL	String	A unique name for the item (data source or view) that the request relates to, derived from the ASCII characters in the name, which can be used in URLs to refer to it.
	Item Type	String	The type of item, either a data source or view.
Project	Project Name	String	The name of the project that contains

			the item
	Project Owner User Name	String	Email address of the project owner
Request	HTTP Request URI	String	The request URI
	HTTP User Agent	String	The agent string supplied by the client
	Request ID	String	Primary key for the request
	Request Time	Date-time	The date and time that the request started, in UTC.
	Request Time (local)	Date-time	The date and time that the request started, adjusted by the Timezone parameter.
	Status Code	Number	The status returned to the client
	Status Code Type	String	The type of status code. The value 1 = Informational response, 2 = Success, 3 = Redirect, 4 = Client error, and 5 = Server error.
Workbook	Workbook Name	String	For views, the name of their parent workbook that contains the item requested.
	Workbook Owner User Name	String	For views, the email address of the owner of the parent workbook that contains the item requested.
-	Admin Insights Published At	Date-time	Date and time the Admin Insights data source was last published in UTC

	Timezone	String	Specifies the timezone for displaying dates. This field represents an integer value used to determine the number of hours to offset from UTC. It doesn't account for Daylight Saving Time adjustments.

Job Performance Data Source

Job Performance contains events and runtime information for background jobs on the site, such as extract refreshes and flow runs. Starting May 2023, Job Performance includes Tableau Bridge refresh data, including the Bridge client name, pooling data, and refresh started and completed times.

Create custom views

If you're a site admin or someone who has been granted access to the Admin Insights project, you can access the Admin Insights data sources directly from Tableau Cloud using Web Authoring or through Tableau Desktop to build custom views. For more information about connecting to Admin Insights data sources, see Use Admin Insights to Create Custom Views.

Example: How many extract refreshes and flow runs occur on the site?

Use the following steps to create a view that displays the total number of extract refreshes and flow runs that occur on the site.

1. Connect to the Job Performance data source.
2. From the **Data** pane, drag **Item Name**, **Item Type**, **Owner Email**, and **Job Type** to the **Rows** shelf.
3. In the **Rows** shelf, right-click **Item Name** and select **Sort**.
4. In the Sort dialog, select **Sort By** > **Field** and **Field Name** > **Job ID**. Close the dialog.
5. From the **Data** pane, drag **Started At (local)** to the **Columns** shelf.

6. In the **Columns** shelf, right-click **Started At (local)** and select **Exact Date**. This converts the dimension to a measure.
7. From the **Data** pane, drag **Job Result** to Color and **Job Execution Duration (Days)** to Size on the **Marks** card.

Example: What is the average job queued duration?

Use the following steps to create a view that displays the average job queued duration.

1. Connect to the Job Performance data source.
2. From the **Data** pane, drag **Started At** to the **Columns** shelf and **Started At (local)** to the **Rows** shelf.
3. In the **Columns** shelf, right-click the **Started At** field and select **Day** from the second set of values (i.e., May 11, 2022). This converts the field to a measure.
4. In the **Rows** shelf, right-click **Started At (local)** and select **More** > **Hour** from the first set of values (i.e., 9).
5. On the **Marks** card, select **Square** from the Shape dropdown menu.
6. From the **Data** pane, drag **Job Queued Duration** to Color on the **Marks** card. Right-click the field and select **Measure** > **Average**.
7. From the **Data** pane, drag **Job ID** to Size on the **Marks** card. Right-click the field and select **Measure** > **Count (Distinct)**.

Do more with your data

Using Tableau Prep, you can join Job Performance with other Admin Insights data sources on the following fields to get more visibility into your site. If you're analyzing data from multiple Tableau Cloud sites, you must also join on "Site LUID = Site LUID".

- Join Job Performance to Site Content on "Item ID = Item ID"

For more information, see Aggregate, Join, or Union Data in Tableau Prep Help.

Data schema

The following table lists the fields included in the Job Performance data source. Each row of data corresponds to a unique background job and the related content item, providing information about job status, duration, and error details.

Folder	Field Name	Type	Description
Bridge	Agent is Pooled?	String	Indicates whether the Bridge client is part of a pool
	Agent Name	String	Name of the Bridge client that performed the refresh
	Agent Timezone	String	The timezone of the Bridge client
	Agent Version	String	The version of Bridge deployed on the machine
	Bridge Error Message	String	The error message associated with the failed request
	Bridge Error Type	String	The type of refresh error
	Bridge Initiator User Name	String	The user who initiated the refresh request, either from a scheduled task or manual run
	Bridge Job Result	String	The result of the Bridge refresh job. Either Succeeded or Failed.
	Pool Name	String	Name of the pool associated with the Bridge client
Dates	Bridge Completed At	Date-time	Date and time the Bridge refresh was completed in UTC
	Bridge Com-	Date-time	Date and time the Bridge refresh was

	pleted At (Local)		completed, adjusted by the Timezone parameter. Does not account for daylight savings.
	Bridge Started At	Date-time	Date and time the Bridge refresh was started in UTC
	Bridge Started At (Local)	Date-time	Date and time the Bridge refresh was started, adjusted by the Timezone parameter. Does not account for daylight savings.
	Completed At	Date-time	Date and time the job was completed in UTC
	Completed At (Local)	Date-time	Date and time the job was completed, adjusted by the Timezone parameter. Does not account for daylight savings.
	Created At	Date-time	Date and time the job was created in UTC
	Created At (Local)	Date-time	Date and time the job was created, adjusted by the Timezone parameter. Does not account for daylight savings.
	Overflow Queued At	Date-time	Date and time the job entered the overflow queue in UTC. Jobs enter the overflow queue when they exceed concurrent capacity for the site. Will be NULL for jobs that weren’t added to the overflow queue.
	Overflow Queued At (Local)	Date-time	Date and time the job entered the overflow queue, adjusted by the Timezone parameter. Does not

			account for daylight savings.
	Queued At	Date-time	Date and time the job was queued in UTC. For most jobs, this is the same as the Created At date. For jobs that exceed concurrent capacity on the site, this is when the job was eligible to run.
	Queued At (Local)	Date-time	Date and time the job was queued, adjusted by the Timezone parameter. Does not account for daylight savings.
	Started At	Date-time	Date and time the job was started in UTC
	Started At (Local)	Date-time	Date and time the job was started, adjusted by the Timezone parameter. Does not account for daylight savings.
Hyperlinks	Item Hyperlink	String	Full URL of the item on the site
Item	Item ID	String	The ID of the item related to the job. The ID is unique within each Item Type and Site.
	Item LUID	String	The LUID of the item. The LUID is unique within each item type and site. Primarily used to reference content via the REST API.
	Item Name	String	For data sources, flows, and workbooks, the display name of the item that the job is related to.
	Item Type	String	The type of item that the job is related

			to. Either a data source, flow, workbook, or view.
	Owner Email	String	Email address of the item owner
	Parent Project Name	String	The Item Name of this item's Parent Project.
	Parent Project Owner Email	String	The email address of the owner of the parent project (if any) that the item exists within.
Job	Error Message	String	Runtime details associated with the job, such as ID, status, and error messages
	Final Job Result	String	The final result of the background job, either Succeeded or Failed
	Job ID	String	The ID of the job generated. The ID is unique per Job Type and Site.
	Job LUID	String	The LUID of the job. The LUID is unique with each job type and site. Primarily used to reference content via the REST API.
	Job Result	String	The result of the background job, either Succeeded or Failed.
	Job Type	String	The type of job. Either an extract refresh, incremental refresh, flow run, subscription, data alert, or metric.
	Subscriber Email	String	Email address of the individual receiving the subscription
	Subscriber ID	String	User ID of the subscription creator

	Subscription Subject	String	The email Subject entered by the user when they subscribed to the workbook or view.
	Was Manual Run	Boolean	Whether or not the job was initiated manually by clicking the “Run Now” option on the site.
	Was Overflow Queued	Boolean	Whether or not the job exceeded the concurrent capacity.
Schedule	Schedule LUID	String	The LUID of the schedule that the background task is associated with
	Schedule Name	String	Name of the schedule that the background task is associated with
-	Admin Insights Published At	Date-time	Date and time the Admin Insights data source was last published in UTC
	Bridge Extract Upload Duration	Number	The amount of time it took for the extract to upload in seconds
	Bridge Refresh Duration	Number	The amount of time elapsed since the refresh was started in seconds
	Job Duration	Number	How long it took for the job to run, in seconds. Includes queue time and overflow queue time.
	Job Execution Duration	Number	The amount of time running after the job was started, in seconds.
	Job Overflow Queued Duration	Number	The amount of time waiting to enter the queue due to concurrent jobs capacity, in seconds.

	Job Queued Duration	Number	The amount of time spent in the queue, in seconds.
	Timezone	Number	Specifies the timezone for displaying dates. This field represents an integer value used to determine the number of hours to offset from UTC. It doesn't account for Daylight Saving Time adjustments.

Permissions Data Source

Permissions contains the explicit permissions for all users and content on the site. Administrators can use the data source to identify gaps in permissions security and ensure that only the appropriate users can access content items.

> **Note:** Site roles determine the maximum capabilities a user can have. For example, a Viewer can’t web edit, even if they’re allowed in a user or group rule. Based on the order that permissions are evaluated, users may have different capabilities than listed in the data source. For more information, see Effective permissions.

Create custom views

If you're a site admin or someone who has been granted access to the Admin Insights project, you can access the Admin Insights data sources directly from Tableau Cloud using Web Authoring or through Tableau Desktop to build custom views. For more information about connecting to Admin Insights data sources, see Use Admin Insights to Create Custom Views.

Example: Which users and groups have access to content?

Use the following steps to create a view that displays which users and groups have access to content.

1. Connect to the Permissions data source.
2. From the **Data** pane, drag **Item Type**, **Item Name**, **Item Parent Project Name**, and **Controlling Permissions Project Name** to the **Rows** shelf. This creates a hierarchical view of your site content and shows how permissions are determined, for example, if permissions are set at the project level or on individual pieces of content.
3. From the **Data** pane, drag **Grantee Name** and **Grantee Type** to the **Rows** shelf. Adding these dimensions shows the users and groups with access to the content.
4. From the **Data** pane, drag **Capability Type** to the **Rows** shelf. The capabilities for users and groups are displayed.

Do more with your data

Using Tableau Prep, you can join Permissions with other Admin Insights data sources on the following fields to get more visibility into your site. If you're analyzing data from multiple Tableau Cloud sites, you must also join on "Site LUID = Site LUID".

- Join Site Content to Permissions on "Item LUID = Item LUID" (left join)
- Join Permissions to TS Users on "User LUID = User LUID"
- Join Permissions to Groups on "Grantee LUID = Group LUID" (right join)

Tip: To streamline analysis, delete the All Users group rule or edit the rule to remove permissions.

For more information, see Aggregate, Join, or Union Data in Tableau Prep Help.

Data schema

The following table lists the fields included in the Permissions data source. Each row of data corresponds to a combination of user, content item, and permission capability.

Folder	Field Name	Type	Description
Capabilities	Capability Type	String	The ability to perform a given

			action on the item. Options include view, filter, download, or delete and are unique to the item type.
	Permissions Description	String	A description of the permission value.
	Permission Value	Number	A numerical representation of the explicit permissions for a content asset. Lower values indicate precedence. For example, denying a capability to a group (8) is overridden by allowing that capability to a user in the group (7).
Grantees	Grantee LUID	String	The LUID of the grantee. Either the user LUID or Group LUID. Primarily used to reference content via the REST API.
	Grantee Name	String	The name of the grantee. Either the user email or group name.
	Grantee Type	String	The type of the grantee. Either user or group.
Items	Controlling Permissions Project Name	String	The name of the project that controls permissions for the nested project.
	Item Hyperlink	String	Full URL to the item on the site. Useful for creating hyperlinks on a dashboard.
	Item LUID	String	The LUID of the item. The LUID is unique within each item type and site. Primarily used to reference

			content via the REST API.
	Item Name	String	Display name of the item.
	Item Parent Project Name	String	The name of the item's parent project.
	Item Type	String	The type of content item. Such as a data source, prep flow, project, or workbook.
	Top Parent Project Name	String	The name of the item's top-level project.
Site	Site LUID	String	The LUID of the Tableau Cloud site. Primarily used to reference content via the REST API.
	Site Name	String	The name of the Tableau Cloud site.
-	Admin Insights Published At	Date-time	Date and time the Admin Insights data source was last published in UTC.
	User Email	String	The email address of the user with explicit permission.
	User LUID	String	The LUID of the user with explicit permission.
	User Site Role	String	The site role of the user.
	Has Permission?	Calculated field	Tells you if the grantee is allowed access to an item. Does not take into account the Site Administrator capability. Site Administrators will have more permissions than captured by the

			calculation.

Subscriptions Data Source

The Subscriptions data source provides details about subscriptions on the site, including the name of the creator and recipient, content item, job status, and schedules. Site administrators can use this data to improve the viewing experience for users who access content through subscriptions.

Starting in February 2024, the Subscriptions data source includes Tableau Pulse information for your site. The "Subscriber Group Name" and "Subscriber Group LUID" fields have been included in the User folder. These fields display the group name and LUID when a user is following a metric as part of a group.

Create custom views

If you're a site admin or someone who has been granted access to the Admin Insights project, you can access the Admin Insights data sources directly from Tableau Cloud using Web Authoring or through Tableau Desktop to build custom views. For more information about connecting to Admin Insights data sources, see Use Admin Insights to Create Custom Views.

Example: How often do users receive subscriptions?

Use the following steps to create a view that displays how often users receive subscriptions.

1. Connect to the Subscriptions and TS Events data sources.
2. Select **Data** > **Edit Blend Relationships**.
3. In the Blend Relationships dialog, set the primary data source to **Subscriptions**, and select the **Custom** radio button.
4. Click **Add**.
5. In the Add/Edit Field Mapping dialog, map **Subscriber Email** to **Actor User Name**, and click **OK**.

6. Click **OK** to exit the Blend Relationships dialog.
7. From the **Data** pane, drag **Subscriber Email**, **Subject**, and **Last Sent (local)** to the Rows shelf.
8. From the **Data** pane, drag **Number of Events** to the Columns shelf.
9. Verify that **Item LUID**, **Item Type**, and **Actor User Name** are the linking fields in the **Data** pane. If there are broken links, click the icon next to the field name to link the two data sources.
10. From the **Data** pane, drag **Subscription Status** to **Color** on the Marks card.

Example: What are the most popular Pulse metrics?

Use the following steps to create a view that displays the most popular Tableau Pulse metrics.

1. Connect to the Subscriptions data source.
2. From the **Data** pane, drag **Item Type** to the Filter shelf, and then select the **Metric** checkbox in the dialog.
3. Drag **Item LUID** and **Item Name** to the Rows shelf.
4. Drag **CNT(Subscriber User LUID)** to the Columns shelf.
5. From the toolbar, select the **Sort Descending** button to sort the X axis.

   > **Note:** The viz displays subscribed users individually. To view users subscribed by group, use the "Subscriber Group Name" and "Subscriber Group LUID" fields.

6. From the menu, click **Analysis** > **Create Calculated Field**.
   a. Name:

      ```
      Is Group Follow
      ```

   b. Calculation:

      `NOT ISNULL(Subscriber Group LUID)`

7. From the **Data** pane, drag **Is Group Follow** to **Color** on the Marks card.

8. Drag **Subscriber Group Name** to **Detail** on the Marks card.

   Tip: Understanding which users chose to follow a metric themselves, rather than being added by others, can help identify which metrics are naturally popular.

9. From the menu, click **Analysis** > **Create Calculated Field**.

   a. Name:

      `User Self-Followed`

   b. Calculation:

      `NOT [Is Group Follow] AND [Created By User Email] <> [Subscriber Email]`

10. From the **Data** pane, drag **User Self-Followed** to **Color** on the Marks card.

Do more with your data

Using Tableau Prep, you can join Subscriptions with other Admin Insights data sources on the following fields to get more visibility into your site. If you're analyzing data from multiple Tableau Cloud sites, you must also join on "Site LUID = Site LUID".

- Join Subscriptions to TS Events on "Subscriber Email = Actor User Name"

For more information, see Aggregate, Join, or Union Data in Tableau Prep Help.

Data schema

The following table lists the fields included in the Subscriptions data source. Each row of data corresponds to a subscription and recipient combination.

Folder	Field Name	Type	Description

Content	Item LUID	String	The LUID of the item included in the subscription
	Item Type	String	The type of item included in the subscription, either a workbook or view.
	Item Name	String	Display name of the item included in the subscription
	Item Owner Email	String	Email address of the item owner
	Item Hyperlink	String	Full URL of the item on the site
Subscription	Data Conditions	String	The condition for when subscriptions are sent, either Always or When data is available
	Has Image Attached	Boolean	Indicates whether an image is attached to the subscription email
	Has PDF Attached	Boolean	Indicates whether a PDF is attached to the subscription email
	Is Extract Refresh Triggered	Boolean	Indicates whether the data extract associated with the subscription has been refreshed
	Schedule LUID	String	The LUID of the schedule
	Schedule Name	String	Name of the schedule
	Subject	String	The subject of the subscription
	Subscription LUID	String	The LUID of the subscription
	Subscription Status	String	Status of the subscription, either Active or Suspended.

	Subscription ID	Number	The ID of the subscription
	Created At	Date-time	Date and time the subscription was created in UTC
	Created At (Local)	Date-time	Date and time the subscription was created, adjusted by the Timezone parameter.
	Last Sent	Date-time	Date and time the subscription was last sent in UTC
	Last Sent (Local)	Date-time	Date and time the subscription was last sent, adjusted by the Timezone parameter.
User	Created By User Email	String	Email address of the user that created the subscription
	Created By User LUID	String	The LUID of the user that created the subscription
	Subscriber Email	String	Email address of the user receiving the subscription
	Subscriber User LUID	String	The LUID of the user receiving the subscription
	Subscriber Group Name	String	If user is following a metric as part of a group, the name of the group.
	Subscriber Group LUID	String	If user is following a metric as part of a group, the LUID of the group.
Schedule	Day of Month	String	Day of the month on which this schedule will run
	Day of Week	String	Day of the week on which this schedule will run

	Schedule Type	String	Indicates whether the schedule runs on an hourly, daily, weekly, or monthly basis.
	Minute Interval	String	How frequently the schedule runs, in minutes.
	Start At Minute	String	Time of day when the schedule will start
	End At Minute	String	Time of day when the schedule will end
Task	Task LUID	String	The LUID of the task
	Task ID	Number	The ID of the task
	Task Type	String	The type of background job associated with this task, such as extract, subscription, or Bridge refresh.
	Consecutive Failure Count	Number	Number of times the task has failed
	Historical Queue Time	Number	Amount of time the task has spent in the queue, in seconds.
	Historical Run Time	Number	Amount of time taken for the task to complete, in seconds. Doesn’t include queue time.
-	Admin Insights Published At	Date-time	Date and time the Admin Insights data source was last published in UTC
	Number of Recipients	Number	Distinct count of recipients
	Number of Sub-	Number	Distinct count of subscriptions

	scriptions		
	Timezone	String	Specifies the timezone for displaying dates. This field represents an integer value used to determine the number of hours to offset from UTC. It doesn't account for Daylight Saving Time adjustments.

Tokens Data Source

Tokens contains information about active, unexpired user tokens on the site, including personal access tokens (PATs), refresh tokens, and OAuth tokens. Site administrators can monitor token usage and expiration through the data source, rotating essential tokens as needed.

The following tokens are included in the data source:

- **OAuth Database** - Manage the access tokens used for OAuth connections. The tokens are valid until a Tableau Cloud user deletes it, or the data provider revokes it. For more information, see OAuth Connections.
- **OAuth Client** - Manage refresh tokens used by connected clients, such as Tableau Desktop and Tableau Prep. For more information, see Access Sites from Connected Clients.
- **Personal access tokens (PATs)** - Manage long-lived authentication tokens used to sign in to Tableau Cloud, such as automated scripts and tasks that are created with the Tableau REST API. For more information, see Personal Access Tokens.

At any time, site administrators can quickly revoke a token by unlicensing a user with the undesired token. With the caveat that new tokens have to be created when the user is relicensed. For steps on removing or revoking specific types of tokens, follow the links in the previous section.

Create custom views

If you're a site admin or someone who has been granted access to the Admin Insights project, you can access the Admin Insights data sources directly from Tableau Cloud using Web Authoring or through Tableau Desktop to build custom views. For more information about connecting to Admin Insights data sources, see Use Admin Insights to Create Custom Views.

Example: When were OAuth Database tokens last updated?

Use the following steps to create a view that measures when OAuth database tokens were last update and token rotation compliance within an organization.

1. Connect to the Tokens data source.
2. From the **Data** pane, drag **Token Type** to the Filter shelf. Select the **OAuth Database** checkbox, and click **OK**.
3. Drag **Database Type**, **Database User Name**, and **Last Updated** to the **Rows** shelf.
4. On the **Rows** shelf, right-click **Last Updated** and select **Exact Date** from the context menu. Change the field from continuous to discrete.
5. From the menu, click **Analysis** > **Create Calculated Field**.
    1. Name: Days Since Last Update
    2. Calculation:

       `ROUND(TODAY()-[Last Updated])`
6. Click **OK**.
7. From the **Data** pane, drag Days Since Last Update to the Rows shelf. Change the field from continuous to discrete.

Example: When do embedded OAuth database tokens expire?

To prevent disruptions such as view load errors and failed extract refreshes, it's important to monitor the expiration of embedded OAuth database tokens. Use the following steps to create a view that identifies tokens nearing expiration, enabling users to refresh their credentials proactively.

> **Note:** Tableau doesn't store expiration times for OAuth database tokens. To obtain this information, contact your database administrator to verify expiration details for each database type.

1. Connect to the Tokens data source.
2. From the **Data** pane, drag **Token Type** to the Filter shelf. Select the **OAuth Database** checkbox, and click **OK**.
3. Drag **Database Type** and **Owner Email** to the Rows shelf.
4. From the menu, click **Analysis** > **Create Calculated Field**. In this example, we use a Snowflake database with a 90-day expiration period.
    a. Name: `Expires At (all tokens)`
    b. Calculation:

    ```
    IF [Token Type] = 'OAuth Database'
    THEN
    IF [Database Type] = 'snowflake'
    THEN DATEADD('day', 90, [Last Updated])
    // add conditions for other database types here //
    ELSE NULL
    END
    ELSE [Expires At]
    END
    ```
5. From the menu, click **Analysis** > **Create Calculated Field**.
    a. Name: `Days Until Expiration`
    b. Calculation:

```
DATEDIFF('day', TODAY(), [Expires At (all tokens)])
```

6. Drag **Days Until Expiration** to the Rows shelf. Change the field from continuous to discrete.

7. Drag **Days Until Expiration** to the Filters shelf. Select **All Values**, setting the Maximum to 14. This filters tokens expiring in the next 14 days or those already expired. Adjust as needed.

8. Use the resulting values to contact users whose tokens are set to expire soon.

Example: Which users own PATs on the site?

The following example displays the names and site roles of users who own PATs on the site. You can adjust the filter for other token types.

1. Connect to the Tokens and TS Users data sources.

2. Select **Data** > **Edit Blend Relationships**.

3. In the Blend Relationships dialog, set the primary data source to **Tokens**, and select the **Custom** radio button.

4. Click **Add**.

5. In the Add/Edit Field Mapping dialog, map **Owner Email** to **User Email**, and click **OK** > **OK**.

6. From the **Data** pane, drag **Token Type** to the Filter shelf. Select the **PAT** checkbox, and click **OK**.

7. From the **Data** pane, drag **User Name**, **User Site Role**, **Expires At**, and **Last Used At** At to the **Rows** shelf.
8. Verify that **User Email** is the linking field in the **Data** pane. If there is a broken link, click the icon next to the field name to link the two data sources.

9. On the **Rows** shelf, right-click **Expires At** and select **Exact Date** from the context menu. Change the field from continuous to discrete.
10. Repeat step 7 for **Last Used At**.

Do more with your data

Using Tableau Prep, you can join Tokens with other Admin Insights data sources on the following fields to get more visibility into your site. If you're analyzing data from multiple Tableau Cloud sites, you must also join on "Site LUID = Site LUID".

- To see the site role of the token owner, join Tokens to TS Users on “Owner Email” = “User Email”
- To see group membership of the token owner, join Tokens to Groups on “Owner Email” = “User Email”

For more information, see Aggregate, Join, or Union Data in Tableau Prep Help.

Data schema

The following table lists the fields included in the Tokens data source. Each row of data corresponds to a combination of Token ID and Owner Email.

Folder	**Field Name**	**Type**	**Description**
Database	Asset Key ID	Numeric	ID of the database entry. Applies to OAuth Database tokens.
	Database Type	String	The type of database, for example, Salesforce, Snowflake, etc. Applies to OAuth Database tokens.
	Database User Name	String	Name of the user connecting to the database. Applies to OAuth Database tokens.
	Instance URL	String	The instance URL for the data provider, for example, https://-

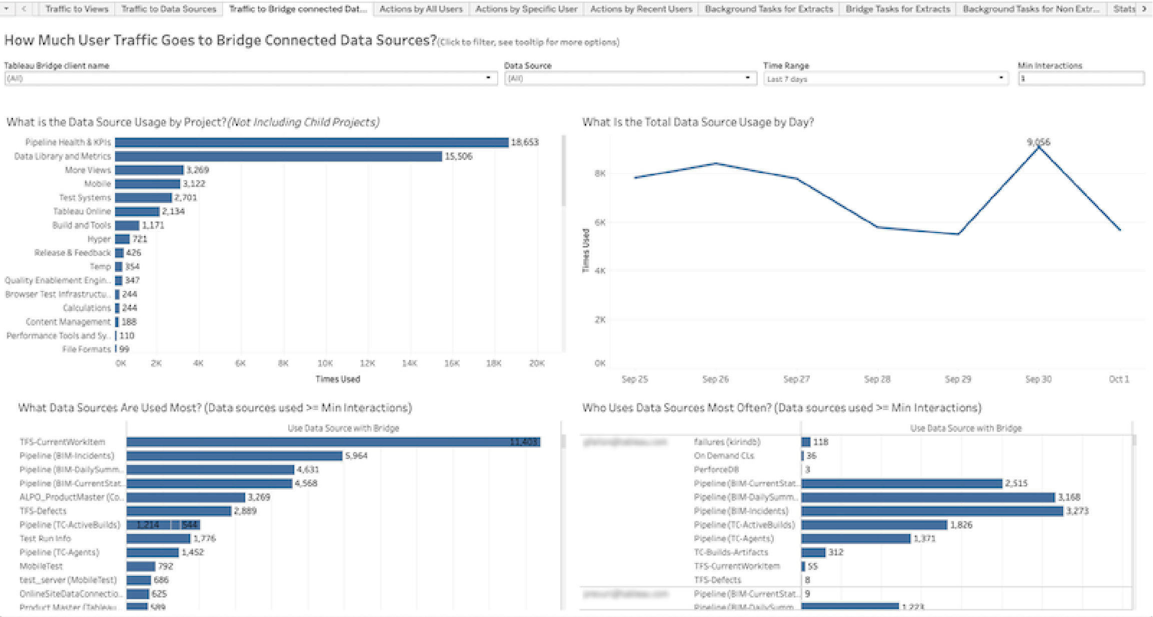
			login.salesforce.com. Applies to OAuth Database tokens.
	Last Updated	Date-time	Date and time the data source credentials were last changed in UTC. Applies to OAuth Database tokens.
Devices	Device ID	String	ID of the connected client associated with the token. Applies to OAuth Client tokens.
	Device Name	String	Name of the connected client associated with the token. Applies to OAuth Client tokens.
Site	Site LUID	String	The LUID of the Tableau Cloud site. Primarily used to reference content via the REST API.
	Site Name	String	Name of the Tableau Cloud site.
Token	Expires At	Date-time	Date and time the token expires in UTC. Applies to PAT and OAuth Client tokens.
	GUID	String	Unique ID of the token. Applies to PAT and OAuth Client tokens.
	Issued At	Date-time	Date and time the token was issued in UTC.
	Last Used At	Date-time	Date and time the token was last used in UTC. Applies to PAT and OAuth Client tokens.
	Owner Email	String	Email address of the token owner.
	PAT Name	String	Name of the personal access token. Applies to PATs.

	Token Identifier	String	Uniquely identifies a row of data using the GUID for PAT and OAuth Client tokens and Asset Key ID for OAuth Database tokens.
	Token Type	String	An enumerated value for the token type. Either personal access token (PAT), OAuth Client, or OAuth Database.
-	Admin Insights Published At	Date-time	Date and time the Admin Insights data source was last published in UTC.

Traffic to Bridge Connected Data Sources

The **Traffic to Bridge Connected Data Sources** admin view gives the site admin the ability to see usage of data sources with live connections. This view can help you determine which data sources are most heavily used and those that are used less often. You can filter the information you see by selecting the Bridge client name, data source, and the time range.

This view gives you a snapshot of Tableau Cloud activity over the past 30 days.



Traffic to Views
Traffic to Data Sources
Traffic to Bridge connected Dat...
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Tasks for Extracts
Bridge Tasks for Extracts
Background Tasks for Non Extr...
Stats

How Much User Traffic Goes to Bridge Connected Data Sources? (Click to filter, see tooltip for more options)

Tableau Bridge client name: (All)
Data Source: (All)
Time Range: Last 7 days
Min Interactions: 1

What is the Data Source Usage by Project? (Not Including Child Projects)
Pipeline Health & KPIs 18,653
Data Library and Metrics 15,506
More Views 3,269
Mobile 3,122
Test Systems 2,701
Tableau Online 2,134
Build and Tools 1,171
Hyper 721
Release & Feedback 426
Temp 354
Quality Enablement Engin.. 347
Browser Test Infrastructu.. 244
Calculations 244
Content Management 188
Performance Tools and Sy.. 110
File Formats 99
0K 2K 4K 6K 8K 10K 12K 14K 16K 18K 20K
Times Used
What Is the Total Data Source Usage by Day?
Times Used
0K 2K 4K 6K 8K
9,056
Sep 25 Sep 26 Sep 27 Sep 28 Sep 29 Sep 30 Oct 1
What Data Sources Are Used Most? (Data sources used >= Min Interactions)
Use Data Source with Bridge
TFS-CurrentWorkItem 11,403
Pipeline (BIM-Incidents) 5,964
Pipeline (BIM-DailySumm.. 4,631
Pipeline (BIM-CurrentStat.. 4,568
ALPO_ProductMaster (Co.. 3,269
TFS-Defects 2,889
Pipeline (TC-ActiveBuilds) 1,214 544
Test Run Info 1,776
Pipeline (TC-Agents) 1,452
MobileTest 792
test_server (MobileTest) 686
OnlineSiteDataConnectio.. 625
Product Master (Tableau.. 589
Who Uses Data Sources Most Often? (Data sources used >= Min Interactions)
Use Data Source with Bridge
failures (kirindb) 118
On Demand CLs 36
PerforceDB 3
Pipeline (BIM-CurrentStat.. 2,515
Pipeline (BIM-DailySumm.. 3,168
Pipeline (BIM-Incidents) 3,273
Pipeline (TC-ActiveBuilds) 1,826
Pipeline (TC-Agents) 1,371
TC-Builds-Artifacts 312
TFS-CurrentWorkItem 55
TFS-Defects 8
Pipeline (BIM-CurrentStat.. 9
Pipeline (BIM-DailySumm.. 1,223

The top of the view shows you how data sources are being used over the **Time Range** you specify (the default is the last 7 days):

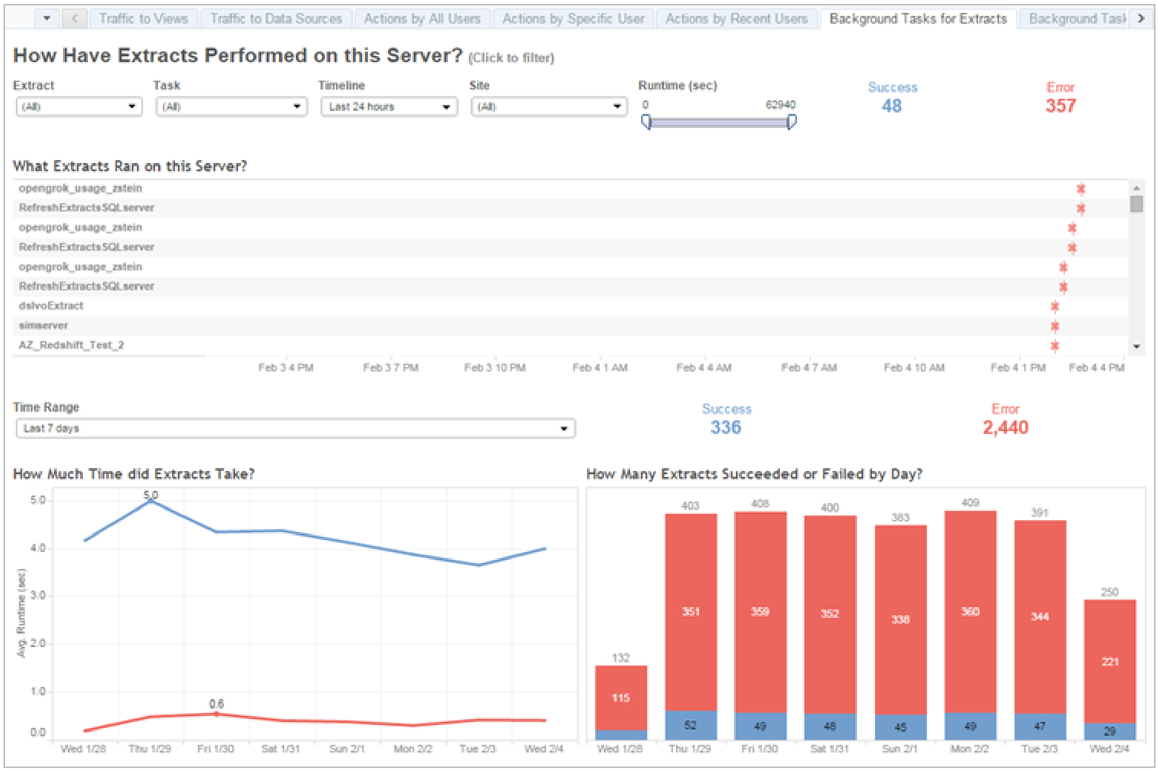
- **What is the Data Source Usage by Project**—this shows total data source usage by project, based on the filters you set. Hover over a mark to see the number of times a data source was used. Select the mark to update the other sections of the view based on your selection.
- **What is the Total Data Source Usage by Day**—this shows total data source usage by day, based on the filters you set. Hover over a point on the line to see the count. Select the point to update the other sections of the view based on your selection.

Two bar graphs at the bottom of the view show results that are filtered by **Min Interactions**. These show you which data sources are most used, and who uses data sources most often. Only those data sources and users with interaction counts greater than or equal to the minimum interactions value are displayed:

- **What Data Sources are Used Most**—this is a list of the most used data sources. Like the other sections of the view, the information is limited by filters and any selection you make.
- **Who Uses Data Sources Most Often**—this shows the users who most often use the data sources. This is impacted by filters and any selection you make.

Background Tasks for Extracts

The Background Tasks for Extracts view displays extract-specific tasks that run on the server. This view gives you a snapshot of Tableau Cloud activity over the past 30 days.



Extract (All)
Task (All)
Timeline Last 24 hours
Site (All)
Runtime (sec) 0 62940
Time Range Last 7 days

Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Tasks for Extracts
Background Task
How Have Extracts Performed on this Server? (Click to filter)
Success 48
Error 357
What Extracts Ran on this Server?
opengrok_usage_zstein
RefreshExtractsSQLserver
opengrok_usage_zstein
RefreshExtractsSQLserver
opengrok_usage_zstein
RefreshExtractsSQLserver
dslvoExtract
simserver
AZ_Redshift_Test_2
Feb 3 4 PM
Feb 3 7 PM
Feb 3 10 PM
Feb 4 1 AM
Feb 4 4 AM
Feb 4 7 AM
Feb 4 10 AM
Feb 4 1 PM
Feb 4 4 PM
Success 336
Error 2,440
How Much Time did Extracts Take?
Avg. Runtime (sec)
5.0
4.0
3.0
2.0
1.0
0.0
5.0
0.6
Wed 1/28
Thu 1/29
Fri 1/30
Sat 1/31
Sun 2/1
Mon 2/2
Tue 2/3
Wed 2/4
How Many Extracts Succeeded or Failed by Day?
132
115
403
351
52
408
359
49
400
352
48
383
338
45
409
360
49
391
344
47
250
221
29
Wed 1/28
Thu 1/29
Fri 1/30
Sat 1/31
Sun 2/1
Mon 2/2
Tue 2/3
Wed 2/4

Understand this view

To better understand this pre-built admin view, make note of the following:

- The table, "What Extracts Ran on this Server," lists the extracts that ran in the time period specified in **Timeline**.
- You can click **Success** or **Error** to filter the table based on status.
- You can also click a specific task to update the "How Much Time did Extracts Take" graph for the selected task.
- The table, "How Many Extracts Succeeded or Failed," updates for the status (success or failure) of the task, but the count of extracts that succeeded or failed does not change.

Status

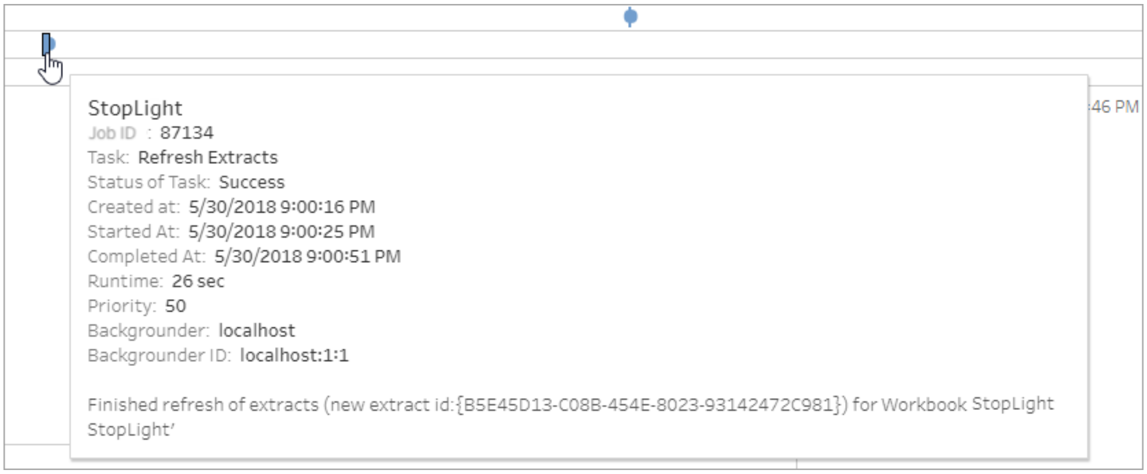
Tasks can have a status of success or error.

Icon	Description
✱	**Error**—Server was unable to complete the task.

Icon	Description
●	**Success**—Server completed the task.

See details about a task

For details on about the task, use your mouse to hover over the success or error icon.



StopLight
Job ID : 87134
Task: Refresh Extracts
Status of Task: Success
Created at: 5/30/2018 9:00:16 PM
Started At: 5/30/2018 9:00:25 PM
Completed At: 5/30/2018 9:00:51 PM
Runtime: 26 sec
Priority: 50
Backgrounder: localhost
Backgrounder ID: localhost:1:1

Finished refresh of extracts (new extract id:{B5E45D13-C08B-454E-8023-93142472C981}) for Workbook StopLight StopLight'

Errors in task details

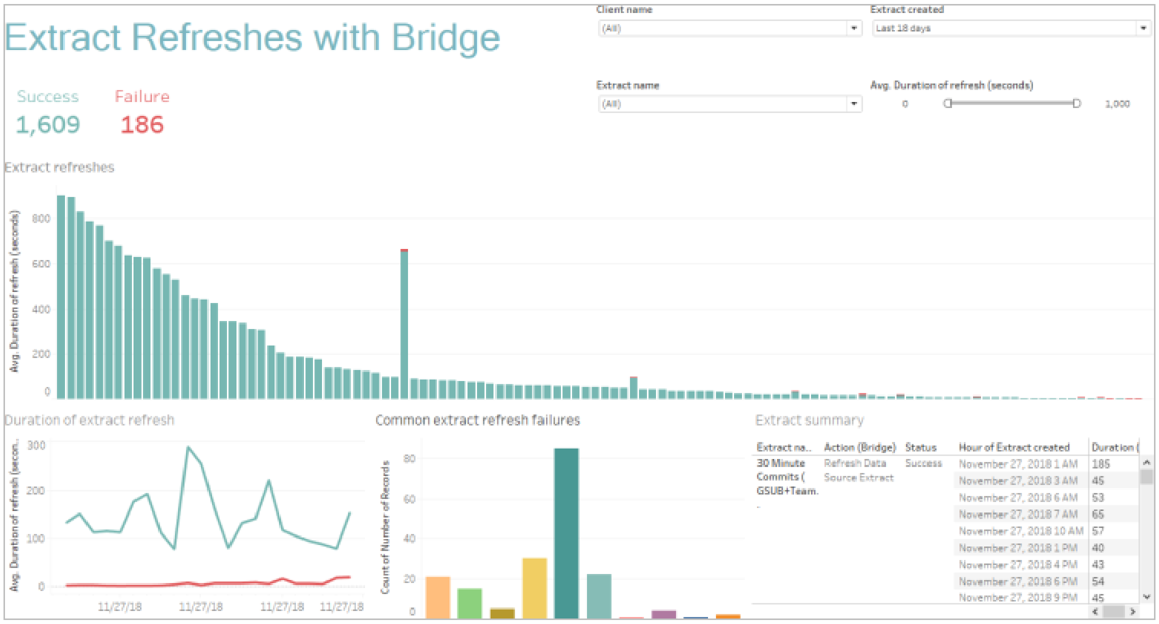
If a refresh task reaches the timeout limit, you might see one of the following errors in the task details:

- *The query time resource limit (7200 seconds) was exceeded.*
- *com.tableau.nativeapi.dll.TableauCancelException: Operation cancelled.*
- *The query time resource limit (8100 seconds) was exceeded.*

For more information about the timeout limit for refresh tasks and suggestions for resolving these errors, see Time limit for extract refreshes.

Bridge Extracts

The **Bridge Extracts** admin view captures the last 30-days' worth of refresh activity by Tableau Bridge.


Extract Refreshes with Bridge
Success
1,609
Failure
186
Extract refreshes
Avg. Duration of refresh (seconds)
800
600
400
200
0
Duration of extract refresh
Avg. Duration of refresh (secon..
300
200
100
0
11/27/18
11/27/18
11/27/18
11/27/18
Common extract refresh failures
Count of Number of Records
80
60
40
20
0
Extract summary

Client name: (All)

Extract created: Last 18 days

Extract name: (All)

Avg. Duration of refresh (seconds): 0 – 1,000

Extract na..	Action (Bridge)	Status	Hour of Extract created	Duration (
30 Minute Commits (GSUB+Team.	Refresh Data Source Extract	Success	November 27, 2018 1 AM	185
			November 27, 2018 3 AM	45
			November 27, 2018 6 AM	53
			November 27, 2018 7 AM	65
			November 27, 2018 10 AM	57
			November 27, 2018 1 PM	40
			November 27, 2018 4 PM	43
			November 27, 2018 6 PM	54
			November 27, 2018 9 PM	45

This pre-built admin view can help answer the following questions the site admin might have about refreshes performed by one or all of the Bridge clients registered to the site:

- **Error rate:** How often are refreshes succeeding and failing? If refreshes are failing, why?
- **Requests made:** How many refreshes are scheduled?
- **Time-elapsed:** How long are refreshes taking?
- **Saturation:** How busy is each client?

You can filter the view by the client name, when the extract data source was created, the extract data source name, and the duration of the refresh.

Notes about this view

- If you don't see any data in the admin view, verify that you have a Bridge client associated with your site. Alternatively, change the value for the "Extract created" filter in the upper-right corner of the view.
- If you don't see the duration-based data that you expect in the view, clear the "Avg. Duration of refresh (seconds)" filter by clicking the Show All Values (⊽) icon.
- In the "Common extract refresh failures" table, hover over each bar to see the error and the error details. If there's more than one data source associated with the error, an asterisk (*) shows instead.

- In some cases, data on the *Bridge Tasks for Extracts* view is missing or incomplete. This is because the view doesn't include certain jobs, such as canceled or failed jobs. Use *Background Tasks for Extracts* to view extract-specific tasks.

Background Tasks for Non Extracts

The Background Tasks for Non Extracts view displays tasks that the server runs that are not related to standard Online extract refreshes. For example, Bridge Refresh jobs, edited OAuth connections, subscription notifications, and so on. This view gives you a snapshot of Tableau Cloud activity over the past 30 days.

A table lists the tasks that ran in the time range specified. Click **Success** or **Error** to filter the table based on status. Select a specific task in the **How Many Tasks Succeeded or Failed on this Site** table to update the **What Background Tasks Ran on this Site** graph for the selected task.

Tasks can have a status of success or error. For details about the task, use your mouse to hover over the success or error icon.

Icon	Description
✱	**Error**—Server was unable to complete the task.
●	**Success**—Server completed the task.

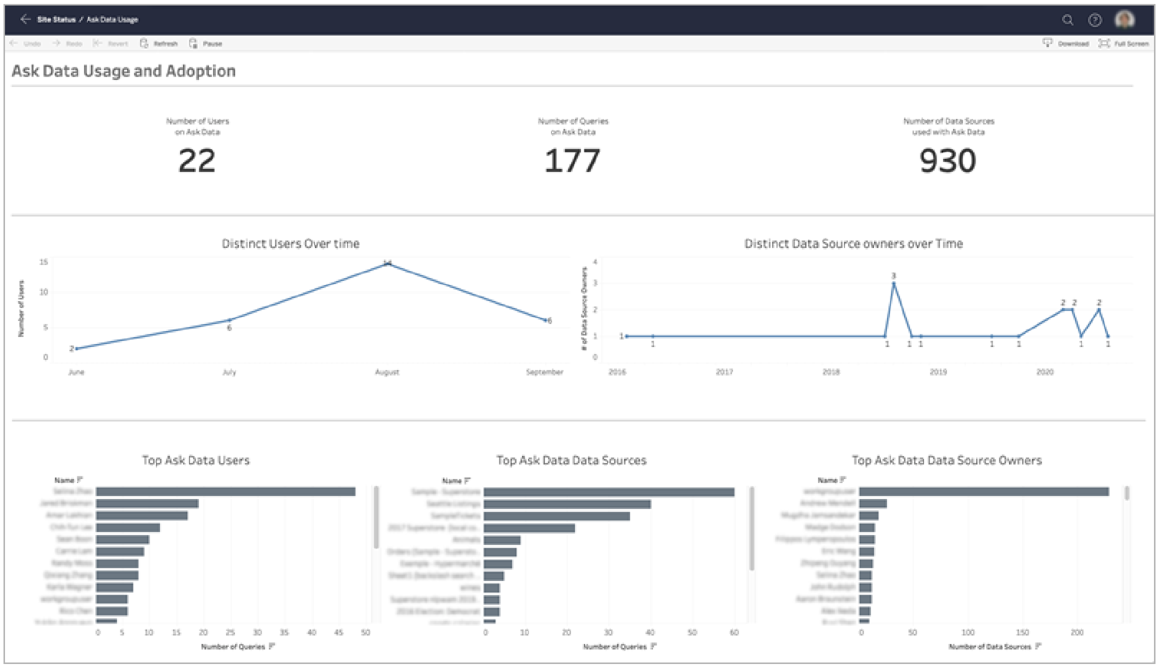
Details that you can see about the task are its ID, status, priority, when it was created, started and completed. You can also see its runtime: the total run time of the background job, which includes the run time of the job plus background job overhead such as initialization and cleanup. You can also see which backgrounder the job is running on.

Ask Data Usage

Important changes for Ask Data and Metrics

Tableau's Ask Data and Metrics features were retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. With advances in natural language technologies, we're developing an improved interface that will make it easier to ask questions of your data and stay on top of changes. For more information, see *How Tableau AI and Tableau Pulse are reimagining the data experience.*

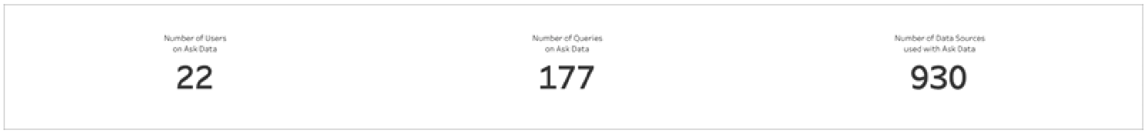
The Ask Data Usage view is a pre-built dashboard that allows site or server admins to see and understand the usage patterns and value of Ask Data for a site. Admins can see the growth of engagement with Ask Data and monitor the results of internal training or roll-outs. The dashboard highlights the top Ask Data users, data sources, and data source owners, along with some headline value metrics.


Site Status / Ask Data Usage
Undo
Redo
Revert
Refresh
Pause
Download
Full Screen
Ask Data Usage and Adoption
Number of Users on Ask Data
22
Number of Queries on Ask Data
177
Number of Data Sources used with Ask Data
930
Distinct Users Over time
Number of Users
June
July
August
September
Distinct Data Source owners over Time
# of Data Source Owners
2016
2017
2018
2019
2020
Top Ask Data Users
Name
Number of Queries
Top Ask Data Data Sources
Name
Number of Queries
Top Ask Data Data Source Owners
Name
Number of Data Sources

To enable Ask Data, see Disable or Enable Ask Data for a Site.

Explore the dashboard

The Ask Data Usage view provides information about Ask Data across the entire site. You can use the following metrics to understand user engagement and help drive self-service analytics adoption in your organization.



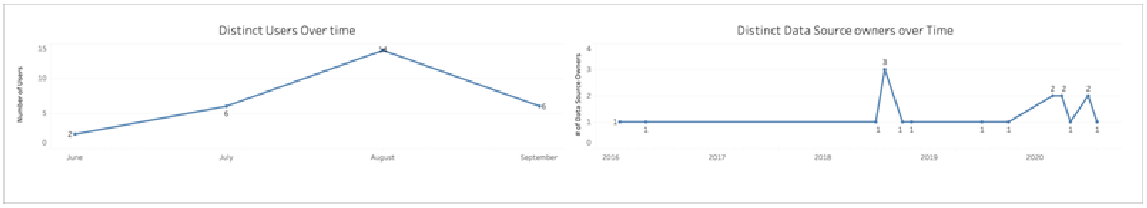
Number of Users on Ask Data
22

Number of Queries on Ask Data
177

Number of Data Sources used with Ask Data
930

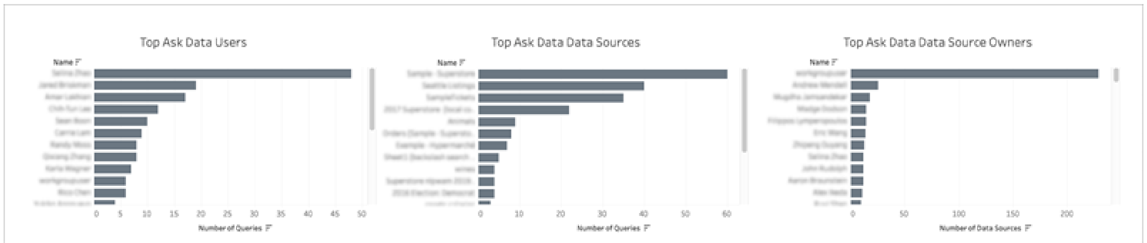
At the top of the dashboard, three headline metrics provide an overview of Ask Data usage on the site.

- **Number of Users on Ask Data** - This shows the total number of Ask Data users on the site.
- **Number of Queries on Ask Data** - This shows the total number of Ask Data queries issued on the site.
- **Number of Data Sources Used with Ask Data** - This shows the total number of data sources used with Ask Data.



In the middle of the dashboard, two line charts show you how Ask Data is used over time.

- **Distinct Users Over Time** - This shows the distinct number of Ask Data users over time.
- **Distinct Data Source Owners Over Time** - This shows the distinct number of data source owners over time.



At the bottom of the dashboard, three bar charts list the top Ask Data users, data sources, and data source owners.

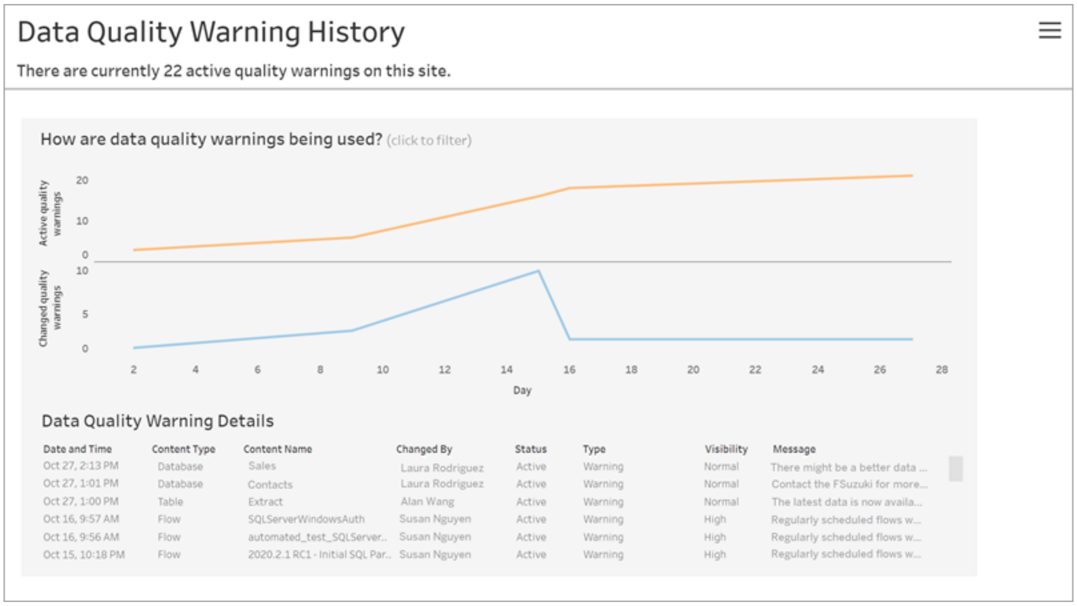
- **Top Ask Data Users** - This lists the top Ask Data users and the total number of queries issued by each user.
- **Top Ask Data Data Sources** - This lists the top Ask Data data sources and the total number of queries issued for each data source.
- **Top Ask Data Data Source Owners** - This lists the top Ask Data data source owners and the total number of data sources owned by each user.

Data Quality Warning History

When Tableau Catalog is enabled in your environment, site administrators can see how data quality warnings are being used on the site using the pre-built admin view, Data Quality Warning History.

For more information about Tableau Catalog, part of Data Management, see "About Tableau Catalog" in the Tableau Server or Tableau Cloud Help.

From the Site Status page, select the Data Quality Warning History dashboard:



Data Quality Warning History

There are currently 22 active quality warnings on this site.

How are data quality warnings being used? (click to filter)

Data Quality Warning Details

Date and Time	Content Type	Content Name	Changed By	Status	Type	Visibility	Message
Oct 27, 2:13 PM	Database	Sales	Laura Rodriguez	Active	Warning	Normal	There might be a better data ...
Oct 27, 1:01 PM	Database	Contacts	Laura Rodriguez	Active	Warning	Normal	Contact the FSuzuki for more...
Oct 27, 1:00 PM	Table	Extract	Alan Wang	Active	Warning	Normal	The latest data is now availa...
Oct 16, 9:57 AM	Flow	SQLServerWindowsAuth	Susan Nguyen	Active	Warning	High	Regularly scheduled flows w...
Oct 16, 9:56 AM	Flow	automated_test_SQLServer..	Susan Nguyen	Active	Warning	High	Regularly scheduled flows w...
Oct 15, 10:18 PM	Flow	2020.2.1 RC1 - Initial SQL Par..	Susan Nguyen	Active	Warning	High	Regularly scheduled flows w...

The dashboard shows how many data quality warnings are active over a period of time. It also shows how many warnings have been changed (created, updated, and deleted) over that same time period.

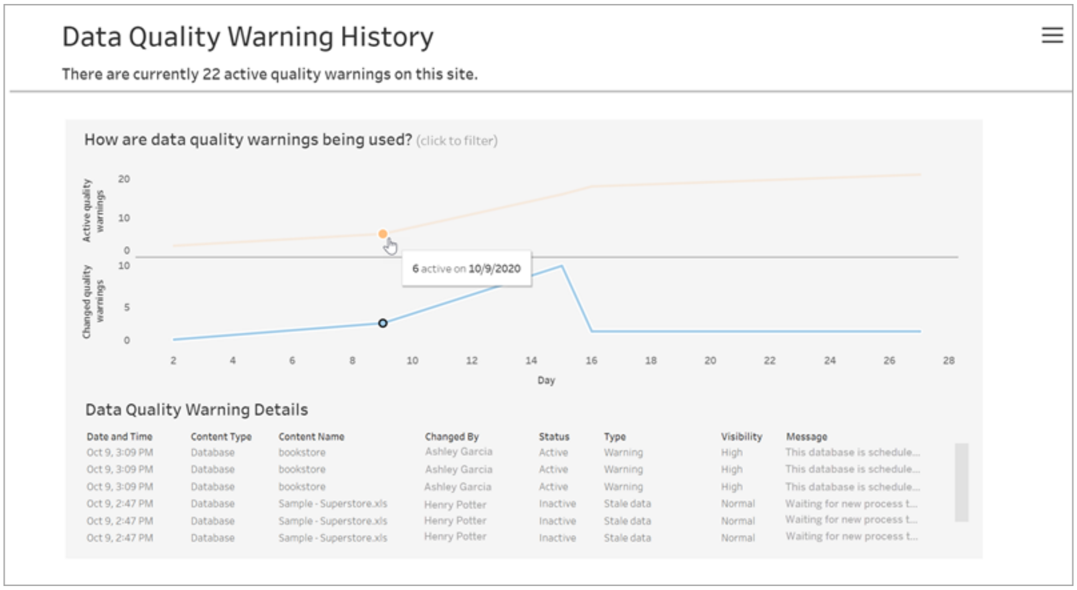
See warning details

Under the line charts are the details about the data quality warnings, including:

- **Date and Time** - When the warning was created or last changed.
- **Content Type** - The type of asset the warning is set on, such as a database, table, or data source.
- **Content Name** - Name of the asset the warning is set on.
- **Changed By** - Name of the person who created or last changed the warning.
- **Status** - If the warning is active or inactive.
- **Type** - Warning type can be Stale data, Warning, Deprecated, Sensitive data, or Under maintenance.
- **Visibility** - The warning can be configured to have normal (the default) or high visibility.
- **Message** - The message the warning creator wrote to display to users when they see the details of the warning.

Filter warning history

When you review data quality warning history, you can click a mark on the view to filter the details shown below the view.



Data Quality Warning History

There are currently 22 active quality warnings on this site.

How are data quality warnings being used? (click to filter)

Active quality warnings
20
10
0
Changed quality warnings
10
5
0
6 active on 10/9/2020
2
4
6
8
10
12
14
16
18
20
22
24
26
28
Day

Data Quality Warning Details

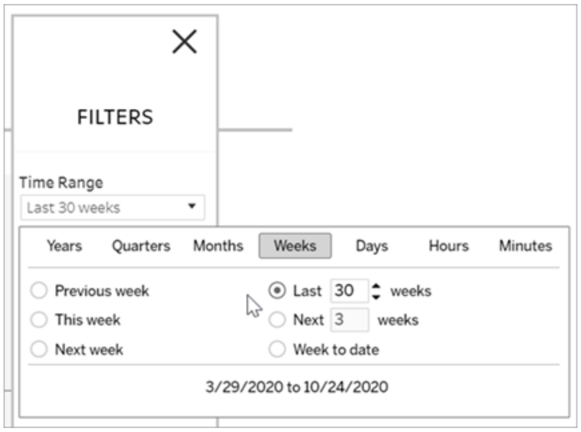
Date and Time	Content Type	Content Name	Changed By	Status	Type	Visibility	Message
Oct 9, 3:09 PM	Database	bookstore	Ashley Garcia	Active	Warning	High	This database is schedule...
Oct 9, 3:09 PM	Database	bookstore	Ashley Garcia	Active	Warning	High	This database is schedule...
Oct 9, 3:09 PM	Database	bookstore	Ashley Garcia	Active	Warning	High	This database is schedule...
Oct 9, 2:47 PM	Database	Sample - Superstore.xls	Henry Potter	Inactive	Stale data	Normal	Waiting for new process t...
Oct 9, 2:47 PM	Database	Sample - Superstore.xls	Henry Potter	Inactive	Stale data	Normal	Waiting for new process t...
Oct 9, 2:47 PM	Database	Sample - Superstore.xls	Henry Potter	Inactive	Stale data	Normal	Waiting for new process t...

The numbers on the Day axis represent the date within the time range. For example, if today is November 18, and you filter for the last 7 days, the Day axis shows 12-18.

More filters are available when you click the filter icon in the upper right corner: filter by time range and by content type.

Filter by time range

The maximum time range you can configure is the past 30 days.



FILTERS
Years
Quarters
Months
Weeks
Days
Hours
Minutes
○ Previous week
○ This week
○ Next week
○ Next 3 weeks
○ Week to date

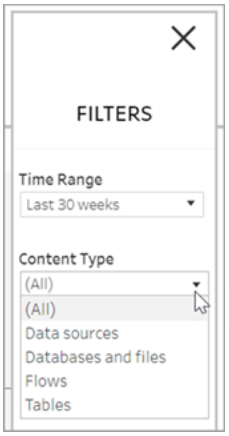
Time Range: Last 30 weeks

● Last 30 weeks

3/29/2020 to 10/24/2020

Filter by content type

You can see all the data quality warnings on your site, or you can filter to see warnings for specific types of assets, like data source or table:



Who can do this

To set a data quality warning, you must be a server or site administrator.

Administrative Views for Flows

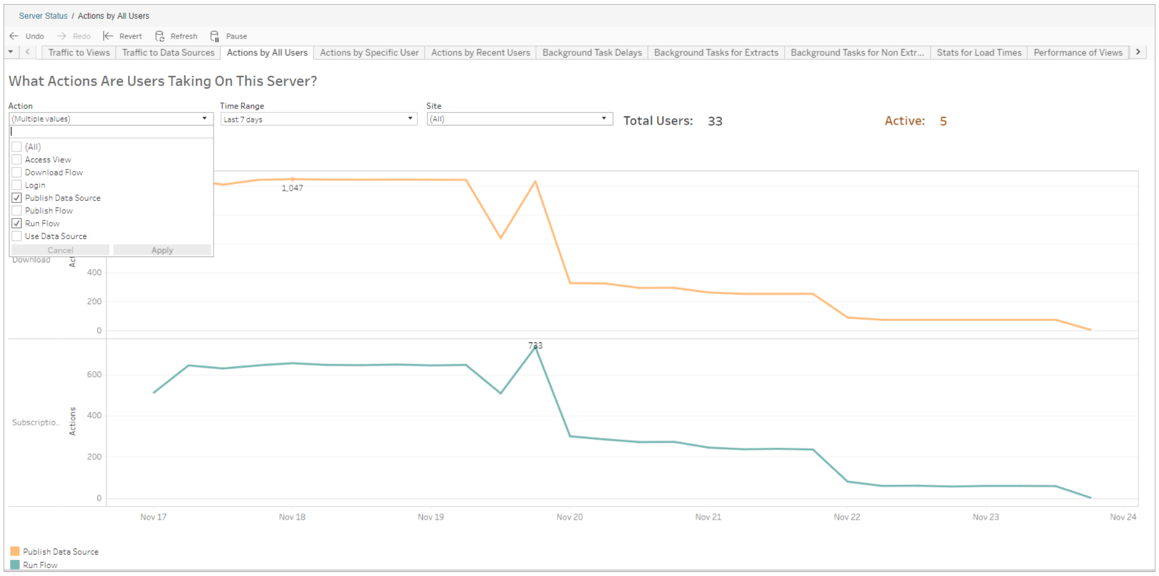
Administrative views can be used to monitor the activities related to flows, performance history, and the disk space used. The **Status** page contains an embedded Tableau workbook with various administrative views that can be used to monitor different types of server or site activity.

Who can do this?

Tableau Site administrators can view and work with Administrative Views.

Action by all users

Use this view to gather insight into how flows are being used. This includes actions like publish, download, and flow runs. You can filter the view by actions, by site, and by time range. The Total Users count shows the number of users who have performed an action. This value is not affected by any filtering. The Active user count shows the number of users who have been active during the selected time period and performed one of the selected actions.



Server Status / Actions by All Users

What Actions Are Users Taking On This Server?

Action: (Multiple values)

Time Range: Last 7 days

Site: (All)

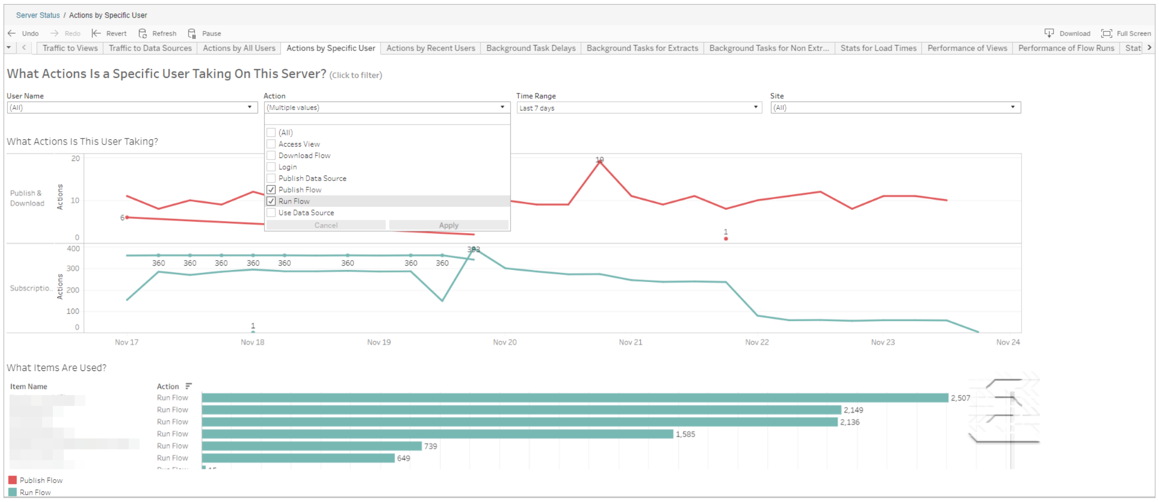
Total Users: 33

Active: 5

Undo
Redo
Revert
Refresh
Pause
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
☐ (All)
☐ Access View
☐ Download Flow
☐ Login
☑ Publish Data Source
☐ Publish Flow
☑ Run Flow
☐ Use Data Source
Cancel
Apply
1,047
Download
400
200
0
733
600
400
200
0
Subscriptio..
Actions
Nov 17
Nov 18
Nov 19
Nov 20
Nov 21
Nov 22
Nov 23
Nov 24
Publish Data Source
Run Flow

Action by Specific User

Use this view to gather insights about how an individual user is working with flows. You can filter the view by user name, the type of action, and by time range.



Server Status / Actions by Specific User

What Actions Is a Specific User Taking On This Server? (click to filter)

User Name: (All)

Action: (Multiple values)

Time Range: Last 7 days

Site: (All)

Undo
Redo
Revert
Refresh
Pause
Download
Full Screen
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
Stat
What Actions Is This User Taking?
☐ (All)
☐ Access View
☐ Download Flow
☐ Login
☐ Publish Data Source
☑ Publish Flow
☑ Run Flow
☐ Use Data Source
Cancel
Apply
20
10
0
Publish & Download
Actions
6
18
1
400
300
200
100
0
Subscriptio..
360
383
1
Nov 17
Nov 18
Nov 19
Nov 20
Nov 21
Nov 22
Nov 23
Nov 24
What Items Are Used?
Item Name
Action
Run Flow
2,507
2,149
2,136
1,585
739
649
Publish Flow
Run Flow

Action by Recent Users

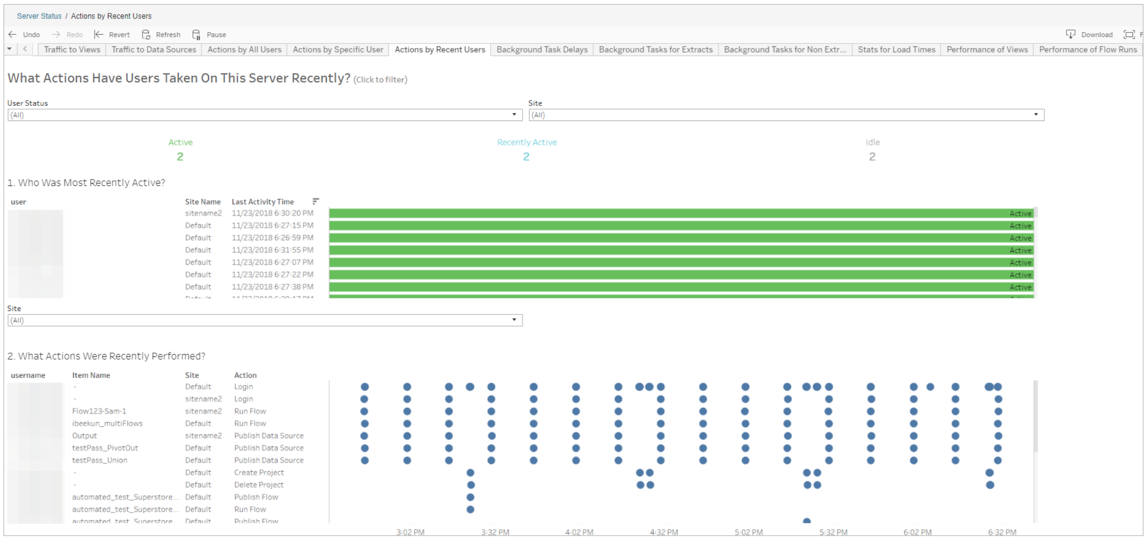
This view shows you which users have been active on Tableau Cloud over the past 24 hours.

This can be useful if you need to do some maintenance activity on the server and want to know which users and how many this will affect, and what they're doing.

The view shows **Active**, **Recently Active**, and **Idle** users that are currently signed in to Tableau Cloud.

For this view, an active user is one who took an action in the last 5 minutes, a recently active user is one who last took an action within 30 minutes, and an idle user is one who last took an action more than 30 minutes ago.

Select a user to see only the actions that user performed recently. Hover over an action to see details of the action.


Server Status / Actions by Recent Users
Undo
Redo
Revert
Refresh
Pause
Download
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
3:02 PM
3:32 PM
4:02 PM
4:32 PM
5:02 PM
5:32 PM
6:02 PM
6:32 PM

What Actions Have Users Taken On This Server Recently? (Click to filter)

User Status: (All)

Site: (All)

Active: 2

Recently Active: 2

Idle: 2

1. Who Was Most Recently Active?

user	Site Name	Last Activity Time	
	sitename2	11/23/2018 6:30:20 PM	Active
	Default	11/23/2018 6:27:15 PM	Active
	Default	11/23/2018 6:26:59 PM	Active
	Default	11/23/2018 6:31:55 PM	Active
	Default	11/23/2018 6:27:07 PM	Active
	Default	11/23/2018 6:27:22 PM	Active
	Default	11/23/2018 6:27:38 PM	Active

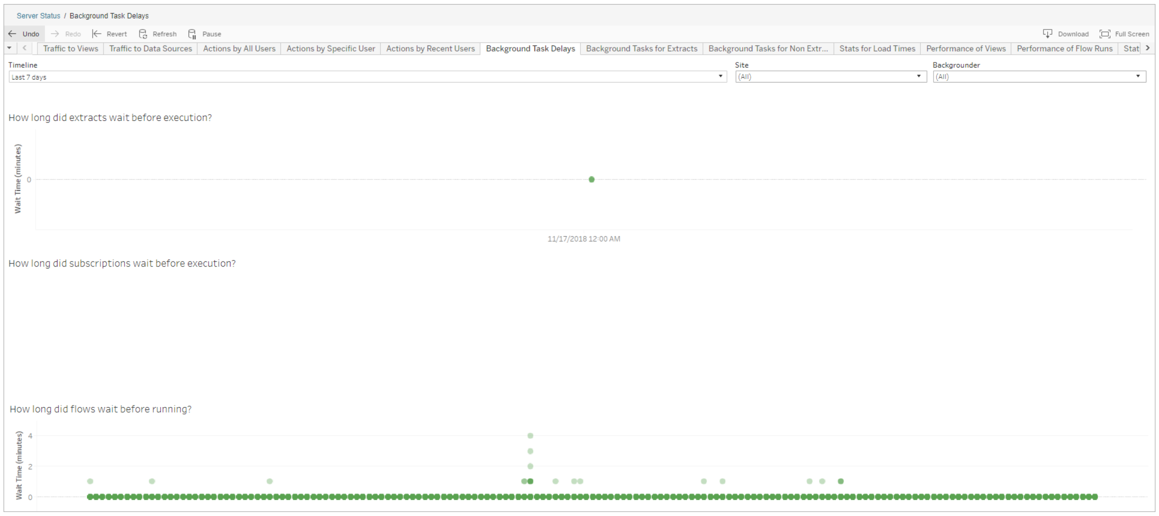
Site: (All)

2. What Actions Were Recently Performed?

username	Item Name	Site	Action
	-	Default	Login
	-	sitename2	Login
	Flow123-Sam-1	sitename2	Run Flow
	ibeekun_multiFlows	Default	Run Flow
	Output	sitename2	Publish Data Source
	testPass_PivotOut	Default	Publish Data Source
	testPass_Union	Default	Publish Data Source
	-	Default	Create Project
	-	Default	Delete Project
	automated_test_Superstore...	Default	Publish Flow
	automated_test_Superstore...	Default	Run Flow

Backgrounder Task Delays

This view shows the delay for extract refresh tasks, subscription, and flow tasks—that is, the amount of time between when they are scheduled to run and when they actually run. You can use the view to help identify places you can improve server performance by distributing your task schedules and optimizing tasks.


Server Status / Background Task Delays
Undo
Redo
Revert
Refresh
Pause
Download
Full Screen
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
Stat
How long did extracts wait before execution?
Wait Time (minutes)
0
11/17/2018 12:00 AM
How long did subscriptions wait before execution?
How long did flows wait before running?
Wait Time (minutes)
4
2
0

Timeline: Last 7 days

Site: (All)

Backgrounder: (All)

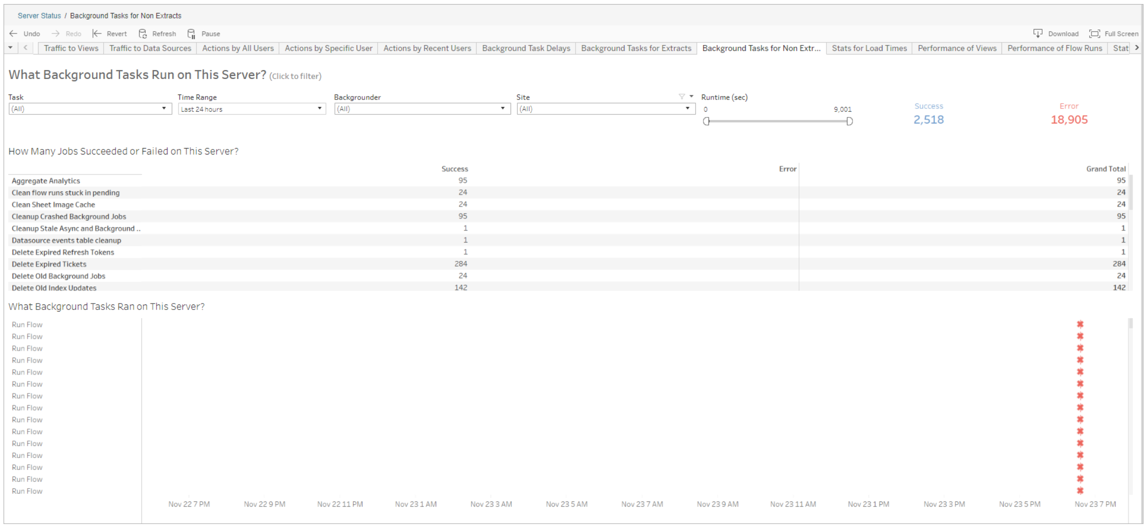
Possible reasons for the delays and ways to reduce the delays include the following:

- Many tasks are scheduled for the same time.

  In the example view, tasks that show long delays are clustered at the same time every day, which creates spikes in the wait time. You can set the Timeline filter to a single day to view task delays by hour and identify the hours of the day when many tasks are scheduled at the same time. One solution is to distribute the tasks to off-peak hours to reduce load on the server.

Background Tasks for Non Extracts

Background Tasks are created to run flows (scheduled and ad hoc). You can use this view to see how many flow tasks succeeded or failed on this site. For details on a task, hover over its icon.


Server Status / Background Tasks for Non Extracts
Undo
Redo
Revert
Refresh
Pause
Download
Full Screen
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
Stat
Nov 22 7 PM
Nov 22 9 PM
Nov 22 11 PM
Nov 23 1 AM
Nov 23 3 AM
Nov 23 5 AM
Nov 23 7 AM
Nov 23 9 AM
Nov 23 11 AM
Nov 23 1 PM
Nov 23 3 PM
Nov 23 5 PM
Nov 23 7 PM

What Background Tasks Run on This Server? (Click to filter)

Task: (All)
Time Range: Last 24 hours
Backgrounder: (All)
Site: (All)
Runtime (sec): 0 – 9,001

Success 2,518

Error 18,905

How Many Jobs Succeeded or Failed on This Server?

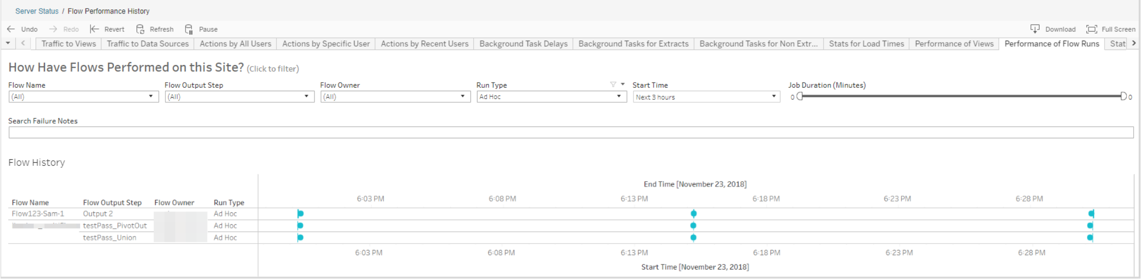
	Success	Error	Grand Total
Aggregate Analytics	95		95
Clean flow runs stuck in pending	24		24
Clean Sheet Image Cache	24		24
Cleanup Crashed Background Jobs	95		95
Cleanup Stale Async and Background ..	1		1
Datasource events table cleanup	1		1
Delete Expired Refresh Tokens	1		1
Delete Expired Tickets	284		284
Delete Old Background Jobs	24		24
Delete Old Index Updates	142		142

What Background Tasks Ran on This Server?

Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow

Performance of Flow Runs

Use this view to see the performance history for all the flows on a site. You can filter by Flow Name, Output Step Name, Flow Owner, Run Type (Scheduled or Ad Hoc), and the time the flow runs were started.


Server Status / Flow Performance History
Undo
Redo
Revert
Refresh
Pause
Download
Full Screen
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
Stat
End Time [November 23, 2018]
6:03 PM
6:08 PM
6:13 PM
6:18 PM
6:23 PM
6:28 PM
Start Time [November 23, 2018]

How Have Flows Performed on this Site? (Click to filter)

Flow Name: (All)
Flow Output Step: (All)
Flow Owner: (All)
Run Type: Ad Hoc
Start Time: Next 3 hours
Job Duration (Minutes): 0 – 0

Search Failure Notes

Flow History

Flow Name	Flow Output Step	Flow Owner	Run Type
Flow123-Sam-1	Output 2	[redacted]	Ad Hoc
[redacted]	testPass_PivotOut		Ad Hoc
	testPass_Union		Ad Hoc

Questions you can answer using this view include:

- **What flow tasks are currently scheduled?** – To do this, use the Start Time filter and select the time frame you want to look at. For example, to see flow tasks that are scheduled in the next 3 hours, select **Hours** -> **Next** -> and enter **3**.

- **What is the duration of flow tasks?** - To answer this, click on a mark in the view to see details, including the task duration.

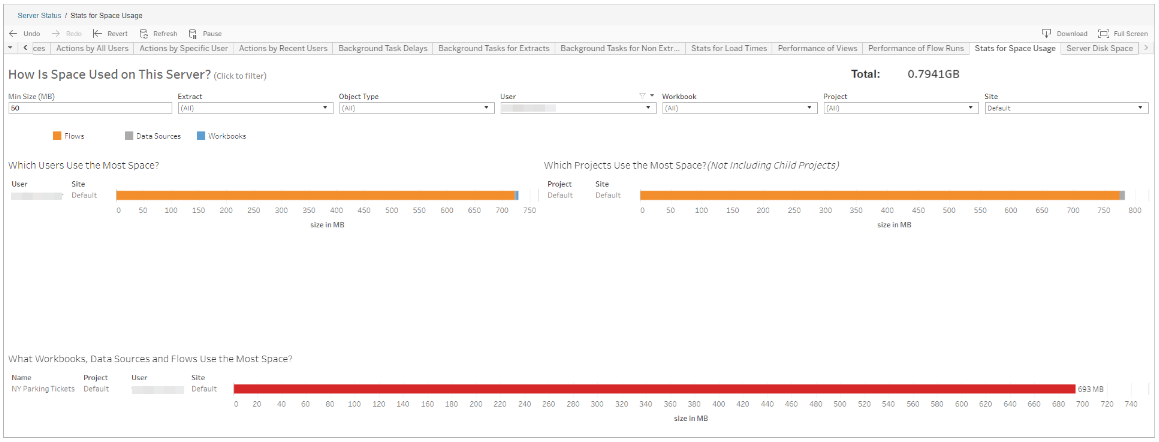
- **How many flows were run ad hoc, and how many were scheduled runs?** - To answer this, use the **Run Type** filter and select **Ad hoc** or **Scheduled**.

This view can also show you the following information:

- Flows with the highest run frequency have the most marks.
- To see flows that are currently running at the same time, hover over a mark that shows “**In Progress**” or “**Pending and select** “**Keep Only**” to filter all flow runs that are currently running.
- To see flows that are running at the same time during a specific time range, select a range for the **Start Time** filter. For example, select “**Next three hours**” to see which flows will be running in the next three hours.

Stats for Space Usage

Use this view to identify which flow outputs are taking up the most disk space on the server. Disk space usage is displayed by user, project, and by the size of flow output and is rounded down to the nearest number.



Total: 0.7941GB

Min Size (MB): 50

Extract: (All)

Object Type: (All)

User: [redacted]

Workbook: (All)

Project: (All)

Site: Default

Server Status / Stats for Space Usage
Undo
Redo
Revert
Refresh
Pause
Download
Full Screen
ces
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
Stats for Space Usage
Server Disk Space
How Is Space Used on This Server? (Click to filter)
🟧 Flows
⬜ Data Sources
🟦 Workbooks
Which Users Use the Most Space?
User
Site
Default
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750
size in MB
Which Projects Use the Most Space? (Not Including Child Projects)
Project
Site
Default
Default
0 50 100 150 200 250 300 350 400 450 500 550 600 650 700 750 800
size in MB
What Workbooks, Data Sources and Flows Use the Most Space?
Name
Project
User
Site
NY Parking Tickets
Default
Default
693 MB
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380 400 420 440 460 480 500 520 540 560 580 600 620 640 660 680 700 720 740
size in MB

Use the Min Size filter to control which flow outputs are displayed, based on the amount of space they take up. Use the object type filter for flows.

- **What Users Use the Most Space** – This section shows the users who own flows (when filtered for flows) that are taking up the most space. Click a user name to filter the next two graphs for that user.
- **What Projects Use the Most Space** – This section shows the projects with flows (when filtered for flows) that are using the most space.
- **What Workbooks, Data Source and Flows Use the Most Space** – This section shows the flows (when filtered for flows) that take up the most space.

Who can do this

- **Tableau Site Administrators**:
  - Set up email notifications at the site level
  - View errors
  - Resume suspended tasks
  - View alerts
- **Flow owners, project leaders and any user who is granted permissions to view the flow**:
  - View errors
  - Resume suspended tasks
  - View alerts (Flow owners)

Notify Owners When Extract Refreshes Fail

A scheduled extract refresh can fail to complete for a variety of reasons, such as outdated embedded credentials or file path. For scheduled refreshes that run directly from Tableau Cloud, after a refresh has failed five consecutive times, Tableau Cloud suspends the schedule until a site admin or the data source owner takes an action to address the cause.

A site admin can enable Tableau Cloud to send email to the owner of a data source when its scheduled extract refresh does not complete successfully. The data source owner can then opt out individually in their account settings.

The email contains the following information:

- Extract or workbook name.
- The date and time of the last successful refresh. Or, if the last refresh was longer than 14 days ago, the email shows “not in the last *N* days.”
- The number of consecutive times the refresh has failed.
- A suggested action to take to address the cause of the failure, such as updating embedded credentials or a file path, and a link to Tableau Cloud to take the action.

When receiving email about data sources refreshed by Tableau Bridge, there will be some differences. For more information, see Differences for Tableau Bridge refreshes later in this topic.

Enable refresh failure emails

As a site admin, you have the ability to enable (or disable) refresh failure emails for your site using the procedure below. If you opt in, each user can potentially opt out from receiving refresh failure emails from his or her individual account.

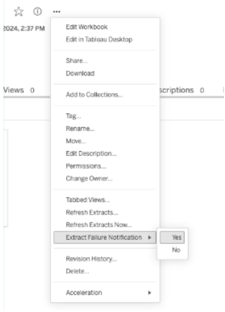
1. Sign in to Tableau Cloud as a site admin and click **Settings**.
2. Under **Manage Notifications** , select or clear the check boxes to allow or disable notifications for all of your site users.

Enable refresh failure emails for non-admins

> **Note:** This option is not available for published data sources created or refreshed from Bridge.

By default, only administrators receive notifications if there is a problem refreshing an extract. However, if a user without administrative privileges is given rights to refresh an extract, they can optionally choose to receive notifications when an extract fails.

To enable email notifications when an extract fails, open the context menu (**...**) in the extract dashboard, select **Extract Failure Notification**, and select **Yes** to receive notifications, or **No** to stop notifications.


...
2024, 2:37 PM
Views 0
scriptions 0
Edit Workbook
Edit in Tableau Desktop
Share...
Download
Add to Collections...
Tag...
Rename...
Move...
Edit Description...
Permissions...
Change Owner...
Tabbed Views...
Refresh Extracts...
Refresh Extracts Now...
Extract Failure Notification
Yes
No
Revision History...
Delete...
Acceleration

> **Note**: If the current user is an owner of the extract, the ability to opt in or out of failure notifications is not available using the context menu.

Differences for Tableau Bridge refreshes

For data sources that are refreshed through Tableau Bridge, notifications will vary. For more information, see Manage Email Alerts for Bridge.

Manage Users and Groups

You can add users to your Tableau Cloud site and set their site roles, which determines each user's level of access. To make it easier to manage multiple users, you can organize users into groups.

Add Users to a Site

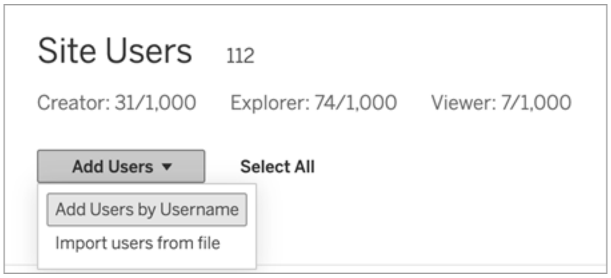
Everyone who needs to access Tableau Cloud—whether to browse, publish, edit content or administer the site—must be added as a user. Administrators have the following options for adding users:

- Enter users' usernames (email addresses) individually.
- Import Users via a CSV file that you create using the CSV Import File Guidelines.

This topic is intended for site administrators and discusses how to add users at the site level. For cloud administrators adding users to Tableau Cloud Manager, see Manage Users With Tableau Cloud Manager.

Add users

1. When you're signed in to the Tableau Cloud site, select **Users**.
2. On the **Users** page, click **Add Users**, and then click **Add Users by Username**.



3. Select the authentication method that you want imported users to sign in to Tableau Cloud with. If no authentication is configured on the site, imported users will be assigned Tableau with MFA authentication method.

   Note: You can go to the **Users** page to change users' authentication type any time after you add them

4. In the **Enter usernames** text box, enter the users' usernames (in email address format). If you add more than one user, separate each username with a semicolon.

   For example, *tdavis@example.com; jjohnson@example.com; hwilson@example.com*

5. Select a site role from the drop-down list, to assign that site role to all users you're adding.

For site role definitions, see Set Users' Site Roles.

6. Click **Add Users**.

If a new user's username is already associated with an account on tableau.com, the user is prompted to sign in using the existing email address and password for that account.

If a new user's username is not already associated with an account on tableau.com, the user is prompted to provide a first and last name and a password.

Until the user provides these values, their entry in the Tableau Cloud user list shows the email address preceded by a period. For example:

```
.snguyen@example.com
```

After the user signs in, the entry is updated to show the full name. For example:

```
Susan Nguyen
```

Set Users' Site Roles

When you add users to a site on Tableau Cloud, independent of their license type, you must apply a *site role* to them. The site role signifies the maximum level of access a user can have on the site. Along with content permissions, the site role determines who can publish, interact with or only view published content, or who can manage the site's users and administer the site itself.

How user licenses, site roles, and content permissions work together

The intersection of a user's license type, site role, and content permissions determines the level of access a user has on the Tableau site.

1. The license type is associated with the user. The site role you want to assign to the user determines the license type they require.

If a user is a member of multiple Tableau Cloud sites, they must have a license for every site they belong to.

2. The site role is also set at the user level. If a user is a member of multiple Tableau Cloud sites, they will have independent site roles. For example, the same user can have the Site Administrator Creator site role on one site and the Viewer site role on another site.

   The site role defines the maximum capabilities the user can have.

3. Whether the site role's maximum capabilities are available to the user depends on the permissions set on the content resources (projects, data sources, workbooks).

For example, let's say that a user has the following access on a site:

- Creator license
- Explorer site role
- Save permission capability on a project

In this scenario, the license allows connecting to and creating new data sources in the web editing environment or Tableau Desktop, and a permission rule allows them to save in a project. However, their site role prevents them from being able to save, so their effective permissions don't include the save capability. Therefore, the user can't publish content to the site.

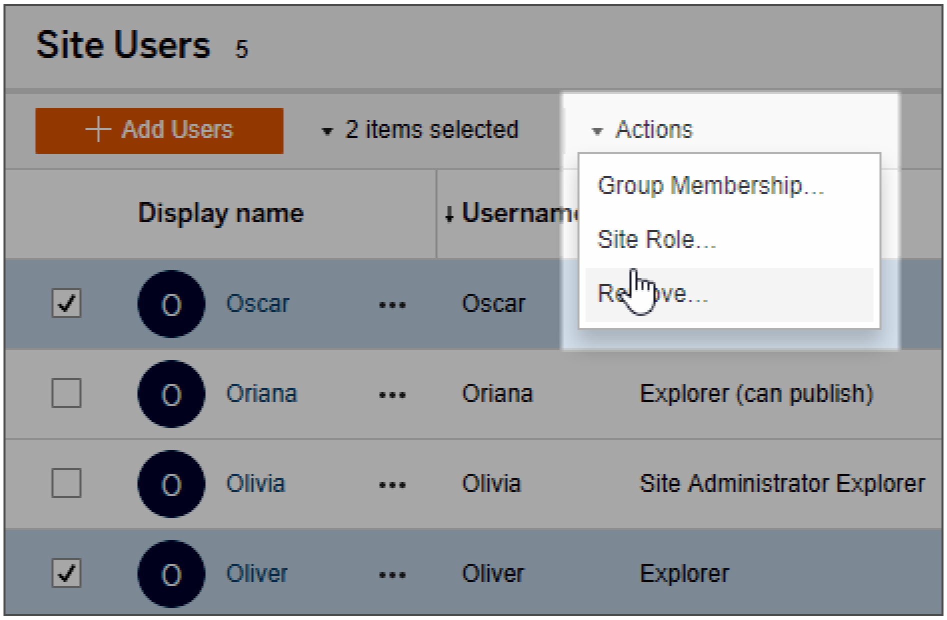
Even if a user has a creator license and a creator site role, if they don't have the save capability on at least one project, they can't publish anything to the site.

For more information, see Permissions.

Change a user's site role

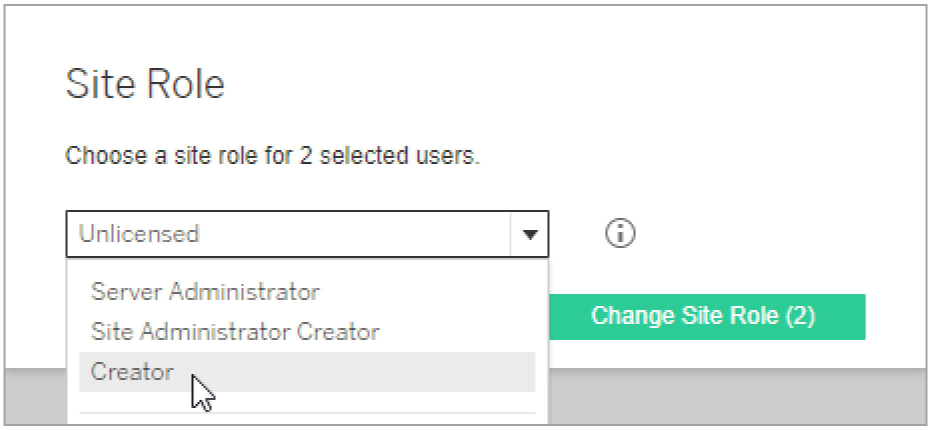
1. Sign in to the site as a site administrator, and go to the **Users** area.

2. Select the users, and then select **Actions** > **Site Role**.


Site Users 5
+ Add Users
2 items selected
Actions
Group Membership...
Site Role...
Remove...

		Display name		↓ Usernam	
☑	O	Oscar	•••	Oscar	
☐	O	Oriana	•••	Oriana	Explorer (can publish)
☐	O	Olivia	•••	Olivia	Site Administrator Explorer
☑	O	Oliver	•••	Oliver	Explorer

3. Select the new site role, and then click **Change Site Role**.


Site Role
Server Administrator
Site Administrator Creator
Creator
Change Site Role (2)

Choose a site role for 2 selected users.

Unlicensed

You can hover the pointer over the information icon to display a matrix that shows the maximum level of general capabilities each site role allows. For more information, continue to General capabilities allowed with each site role.

General capabilities allowed with each site role

Note: This information focuses on *site* roles and is more generalized. For a list of common specific tasks available per *license* role, see the matrix on the For Teams & Organizations tab on the Tableau pricing page.

Tableau site roles

Site role name	Maximum capabilities this site role allows
Tenant roles that don't use a license	
—Users with this role have access to Tableau Cloud Manager.	
Cloud Administrator	Available on Tableau Cloud Manager only; not assignable on Tableau Cloud sites. This role is the highest level of administration within Tableau Cloud, enabling the creation of sites, management of users, and allocation of licenses across your organization at the tenant level. Cloud administrators don’t consume licenses and only have access to Tableau Cloud Manager. To gain site access, cloud administrators can assign themselves a site role through Tableau Cloud Manager, thereby gaining access to any site within the tenant. For more information, see Use Tableau Cloud Manager.
Site roles that use a Creator license	
—Users with these site roles have access to Tableau clients such as Tableau Prep, Tableau Desktop, Tableau Bridge, and Tableau Mobile.	

Site role name	Maximum capabilities this site role allows
Site Administrator Creator	This is the highest level of access for a Tableau Cloud site. Unrestricted access to content as described above, but at the site level. Connect to Tableau or external data in the browser, Tableau Desktop, or Tableau Prep; create new data sources; build and publish content. On Tableau Server, server administrators can determine whether or not to allow site administrators to manage users and assign site roles and site membership. By default, on Tableau Server, and always on Tableau Cloud, site administrators are allowed these capabilities.
Creator	This is similar to the former Publisher site role, but allows new features. This site role offers non-administrators the maximum level of *content* access. Connect to Tableau or external data in the browser, build and publish flows, data sources and workbooks, have access to Dashboard Starters, and use interaction features on published views. Can also connect to data from Tableau Prep or Tableau Desktop, publish (upload/save) and download flows, workbooks and data sources.
Site roles that use an Explorer license	
—Users with these site roles can access the server from the browser or Tableau Mobile.	
Site Administrator Explorer	Same access to site and user configuration as Site Administrator Creator, but can’t connect to external data or virtual connections from the web editing environment. Can connect to Tableau published data sources to create new workbooks, and edit and save existing workbooks.

Site role name	Maximum capabilities this site role allows
	Can't publish Tableau Prep flows.
Explorer (can publish)	Can publish workbooks from the web using existing data sources, browse and interact with published views, and use all interaction features. In the web editing environment, can edit and save existing workbooks. Can't save new standalone data sources from data connections embedded in workbooks, and can’t connect to external data or virtual connections, or create new data sources. Can't publish or run Tableau Prep flows.
Explorer	Can browse and interact with published views. Can subscribe to content, create data driven alerts, connect to Tableau published data sources and open workbooks in the web authoring environment for ad-hoc queries, but they can’t save their work. Can’t connect to a virtual connection. Can't publish or run Tableau Prep flows.
Site roles that use a Viewer license	
Viewer	Can see published views others have created and use most interaction features. Can subscribe to views and download as images or summary data. Can’t connect to data, create, edit, or publish content, or set data alerts. For a list of specific capabilities, see the **Viewer** column in the matrix on the Tableau pricing page. **Note:** Although the Viewer site role existed in previous versions, the new Viewer site role has additional capabilities.
Other site roles	

Site role name	Maximum capabilities this site role allows
Unlicensed	Unlicensed users can’t sign in to Tableau Server or Tableau Cloud. Users are assigned the Unlicensed role in the following circumstances: • You import users from a CSV file and their license level is set to unlicensed. • The number of available licenses is reached at the time you add or import users. • You remove a user who owns content on the site. The user will still own the content but not be able to do anything with it.

Who can publish content

The following site roles allow the specified level of publishing access.

- **Site Administrator Creator**; and **Creator** allow full connecting and publishing access.

  This includes connecting to data and publishing new flows, new workbooks and new data sources from Tableau Desktop and the web editing environment. The site roles also allow editing and saving existing published workbooks, or publishing updates to existing data sources.

- **Explorer (Can Publish)** and **Site Administrator Explorer** have limited publishing capabilities, as described in General capabilities allowed with each site role.

- **Explorer**, **Viewer**, **Read Only**, and **Unlicensed** don’t allow publishing.

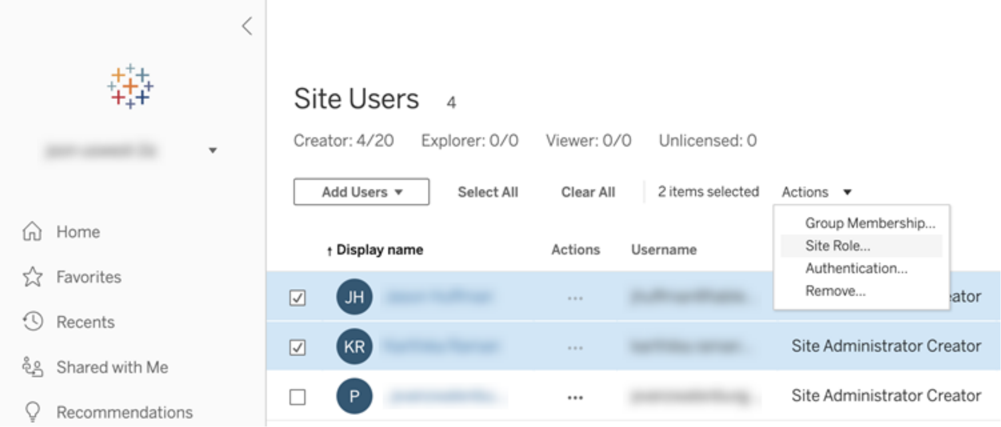
View, Manage, or Remove Users

Administrators can manage a site’s users such as adding and removing users, setting the groups they’re members of, setting their site roles, and so on.

View and manage users on a site

Sign in to a site as an administrator, and then select **Users**. On this page you can do any of the following to manage users:

- Set group membership, set site role, or remove the user from the site. If you've configured the site for single sign-on (SSO), you can set the selected users' authentication method.

  
  Home
  Favorites
  Recents
  Shared with Me
  Recommendations
  Site Users 4
  Creator: 4/20
  Explorer: 0/0
  Viewer: 0/0
  Unlicensed: 0
  Add Users ▾
  Select All
  Clear All
  2 items selected
  Actions ▾
  Group Membership...
  Site Role...
  Authentication...
  Remove...
  ↑ Display name
  Actions
  Username
  ☑ JH
  ☑ KR
  ☐ P
  ...
  ator
  Site Administrator Creator
  Site Administrator Creator

- Select a user's name to see details about them, such as content they own, views they subscribe to, and their account settings.

  The user's **Settings** page is available to you when a user is a member of only the sites that you are a site admin of. Under **Account**, you can update the email address where the user receives notifications. The email address is used for notifications purposes only and not used for sign-in.

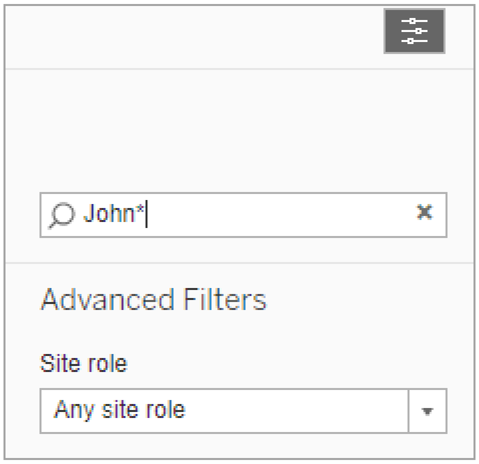
Search for users (or groups)

To search for a specific user (or group), use the filter toggle in the upper right to display the search box and site role filter. Then use the search box or filters to find the users (or group) you want. The search operation checks the display name and user name attributes.

The search box supports the wildcard (*) character. For example, searching for `John*` will return all names that start with *John*.

In addition, you can do the following:

- Use the wildcard character (*) with a special character to search for names that contain special characters. For example, `sync-*` or `*sync-*`.
- Use the wildcard character (*) with AND or OR conditions when filtering user names. For example, searching for `*aw* AND John*` returns all users whose user names contain *aw* and whose names start with *John*.
    - Note that the wildcard with AND or OR is only available when filtering user names, not display names.
- When searching for names with diacritics, names must be entered with exact diacritics to return relevant results. For example, to search for *José*, enter `José`. Searching for `Jose` will not return results.



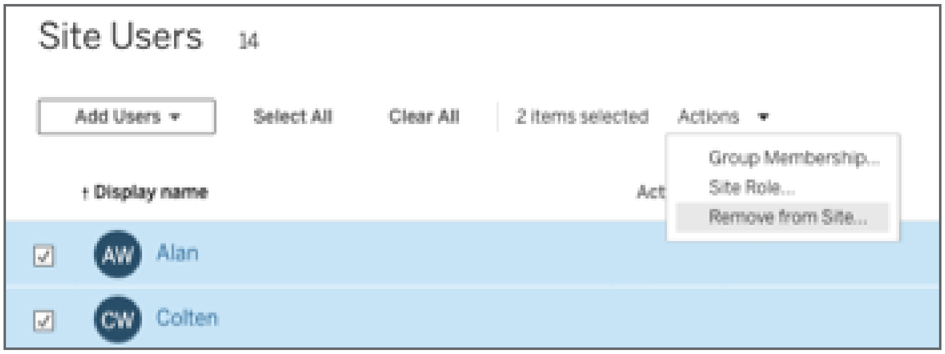
Remove users from a site

You can remove a user only if the user does not own any content (projects, workbooks, views, data sources, collections, or data alerts for example). If you attempt to remove a user who owns content, the user site role will be set to **Unlicensed**, but the user will not be removed.

If the default All Users group has enabled Grant site role on sign in, that user's content must be reassigned to another user or removed before they can be unlicensed or removed. For more information on Grant role on sign in, see Removing users affected by Grant role on sign in. For more information on changing content ownership, see Manage Content Ownership

Note: On Tableau Server, when an administrator removes a user from a site (and the user belongs only to that one site), the user is also deleted from the server.

1. Sign in to a site as an administrator, and go to the **Users** page. Select one or more users to remove, and then select **Actions** > **Remove from Site**.


Site Users 14
Add Users
Select All
Clear All
2 items selected
Actions
Group Membership...
Site Role...
Remove from Site...
Display name
Act
AW Alan
CW Colten

2. Click **Remove Users** button in the confirmation dialog.

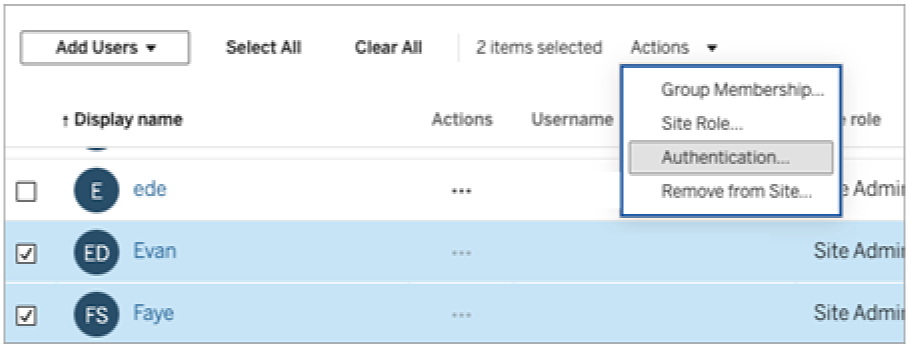
Set the User Authentication Type

On a Google, OIDC, Salesforce, or SAML-enabled siteor Tableau Cloud Manager (TCM) tenant, site or cloud administrators can specify users’ authentication method. For example, which users can access Tableau Cloud or TCM using their single sign-on (SSO) credentials.

You can assign authentication method at the time you add users to Tableau Cloud, as well as any time afterward.

For Tableau Cloud

1. When you’re signed in to the Tableau Cloud site, select **Users**.
2. On the **Users** page, select the check boxes next to the users whose authentication type you want to assign or change.
3. On the **Actions** menu, select **Authentication**.


Add Users ▾
Select All
Clear All
2 items selected
Actions ▾
Group Membership...
Site Role...
Authentication...
Remove from Site...
↑ Display name
Actions
Username
role
☐
E
ede
•••
Admi
☑
ED
Evan
•••
Site Admi
☑
FS
Faye
•••
Site Admi

4. In the Authentication dialog box, select the authentication method or **Tableau with MFA**.

For TCM

1. When you’re signed in to the TCM, select **Users**.
2. On the **Users** page, select the filter icon on the left-side of the page and select the **Show only Cloud Administrators** check box.
3. Select check boxes next to the users whose authentication type you want to assign or change.
4. On the **Actions** menu, select **Site Membership**.
5. In the Site Membership dialog box, under **Authentication for Tableau Cloud Manager** drop-down menu, select the authentication method or **Tableau with MFA**.

Notes

- In Tableau Cloud, if the authentication for the site changes, you'll see a warning symbol in the Authentication column on the Users page when a user is assigned that authentication method. Starting in January 2025 (Tableau 2024.3), if a user is assigned to an authentication method whose configuration is deleted, you'll see "Undefined" in the Authentication column for that user.

  Note: You might also see "Undefined" if the `authSetting` attribute was used instead of the `idpConfigurationId` attribute when assigning an authentication method to a user using the Tableau REST API. For more information, see Add User to Site and Update User methods in the Tableau REST API Help.

- If you change users' authentication from Tableau with MFA to Google, the next time they sign in, they will be directed to your identity provider's site to provide their credentials.

- If users were signing in using their external IdP credentials, and you change their authentication type to Tableau with MFA, if they do not have existing Tableau credentials, they will receive email from Tableau with instructions for creating new Tableau credentials.

- Tableau recommends that you dedicate a site admin or cloud admin account that is always configured for Tableau with MFA authentication. In the event of an issue with your IdP, a dedicated Tableau account ensures that you always have access to your site or tenant.

- See Multi-Factor Authentication and Tableau Cloud or for more information about the **Tableau with MFA** authentication option.

Import Users

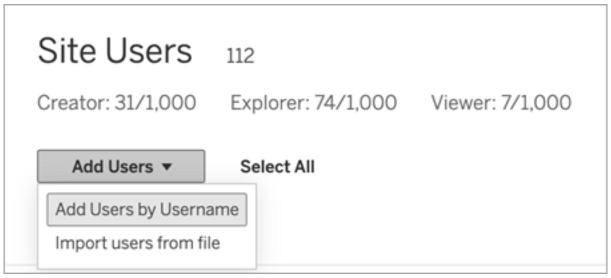
To automate the process of adding users to a site, you can create a CSV file that contains user information, and then import the file. When you import the CSV file, you also specify the users' authentication type.

This topic is intended for site administrators and discusses how to import users to a particular site. For information on how to import users at the tenant level in Tableau Cloud Manager as a cloud administrator, see Manage Users With Tableau Cloud Manager.

Note: This topic contains the steps for importing, assuming that you have already created the CSV file. If you have not created the file yet, see CSV Import File Guidelines for a list of file format requirements and import options.

Add users from a CSV file

1. When you’re signed in to the Tableau Cloud site, select **Users**.
2. Click **Add Users**, and then click **Import Users from File**.



Site Users 112

Creator: 31/1,000 Explorer: 74/1,000 Viewer: 7/1,000

The options you have in the Import Users dialog box depend on how users sign in to the site.

3. If you haven't already created or enabled an authentication configuration on the site, skip to the next step.

   If you've created or enabled an authentication configuration on the site, you can select one authentication method for the new users.

   - Select the authentication method if you have created and enabled Google, OIDC, SAML, or Salesforce authentication and want the imported users to sign in to Tableau Cloud through that external identity provider (IdP).

    - Select **Tableau with MFA** if you want these users to have the default username (email address) and password authentication.

4. For **File name**, click **Browse**, navigate to the CSV file, and click **Open**.

5. To see account-specific information, select **View Details**.

   To continue, click **Import Users**, and then click **Exit** in the final dialog box.

   If a user already exists in the Tableau Cloud site, and the import file defines a different site role for them, they will get the new site role as defined in the CSV file, even if it is more restrictive than their current site role. This includes existing site administrators.

CSV Import File Guidelines

You can bulk add users by creating a comma-separated values (CSV) file with user information and then importing the file. You can include attributes in the CSV file, such as license level and the publishing access, to apply to the users at the same time you import them.

This topic covers the details of the CSV file itself. To import users using the CSV, you can:

- Use the site administration page. For information, see Import Users
- Use the `tabcmd` utility. For information, see createsiteusers filename.csv.
- Use Tableau Cloud Manager. For more information, see Manage Users With Tableau Cloud Manager.

CSV file format requirements

The CSV file for importing users has the following formatting requirements:

- No column headings. Tableau Cloud assumes that every line in the file represents a user.
- UTF-8 format with the byte-order mark (BOM).
    - Character encodings such as BIG-5 must beconverted to UTF-8. You can do this by opening the file in a text editor and using the **Save As** command.
    - If the `@` character is present in the **username** field for anything other than a domain separator, it must be in hexadecimal format: `\0x40`. For example,

`user@fremont@mycompany.com` should be `user-\0x40fremont@mycompany.com`.

Required column structure in the CSV file

The file shouldn't contain a header row. Not all columns need to be filled out, but the required column structure must be preserved by including all the expected comma delimiters.

The column structure varies by product and by import tool. Make sure you're using the appropriate structure for your environment:

- **Tableau Cloud:** username, password, display name, license level, administrator level, publishing capability, email address
- **Tableau Cloud with Tableau Cloud Manager (TCM):** tenant or site URI, username, password, display name, license level, administrator level, publishing capability, email address, authentication type
- **Tableau Server:** username, password, display name, license level, admin level, publishing capability, email address
- **Tableau Server using identity pools:** username, password, display name, license level, admin level, publishing capability, email address, identity pool name, identifier

See the column details section below for more information on the possible values for each column.

Important: The order of the columns is significant. The first column is treated as the user name, the second as the password, the third as display name, and so on, regardless of the content in the columns. If you omit values for a field, you must still include the field’s comma delimiter.

Column details for Tableau Cloud CSV

If the CSV file contains only username values (email addresses), the users will receive an email invitation to the site. Users can join the site to create their accounts, but the accounts remain unlicensed until an administrator configures the accounts (display name, license level, and so on). A user's email address on the site may display on the site with a leading period (such as `.user@domain.com`) until they log in for the first time.

Column structure for the CSV file: *username, password, display name, license level, administrator level, publishing capability, email address*

Column details:

Username: *Required*. The user's email address.

Password: *Ignored*. As a best practice, leave this column blank.

- New users must select a password and a display name when they first sign in to Tableau Cloud. If a user already has a Tableau account they may already have a password.

Display name: *Ignored*. As a best practice, leave this column blank.

License level: This can be **Creator**, **Explorer**, **Viewer**, or **Unlicensed**. If left blank, the license level will be Unlicensed.

Administrator level: This can be **Site** or **None**. If left blank, the administrator level will be None.

- Site = Site administrator, None = Not an administrator.
- **Note**: Cloud is only a relevant value when using Tableau Cloud Manager. For more information, see Manage Users With Tableau Cloud Manager.

Publishing capability: This can be **Yes/True/1** or **No/False/0**. If left blank, the publishing capability will be false.

- If the license level is Creator, the publishing capability must be Yes/True/1
- If the license level is Explorer, the publishing capability value is what distinguishes the site role between Explorer (can publish) and Explorer
- If the license level is Viewer or Unlicensed, the user will not be able to publish regardless of the value of this column

Email address: Starting in July 2025 (Tableau 2025.2), specify an email address if different than username. Email addresses are used for notifications purposes only. If no email address value is provided, Tableau Cloud uses the value in the required username field to send notifications to

Any columns left blank must still be delimited with commas to preserve the column structure.

Authentication type without TCM

If you aren't using Tableau Cloud manager, you can only set a single default authentication type during the upload. You can change authentication type for individual users afterward.

- When uploading a CSV file directly in Tableau Cloud, specify the authentication type when you import the file and that type applies to all imported users.
- When using `tabcmd` to import users, set the authentication type and site role that applies to all users in the CSV file during upload. For information, see createsiteusers filename.csv.

To set a specific authentication type per user at the time of upload, you must use Tableau Cloud Manager. For more information, see Manage Users With Tableau Cloud Manager.

Tableau Cloud CSV example structure

Tip: Remember, the structure is: `username, password, display name, license level, administrator level, publishing capability, email address` with nothing between the commas when a column is left blank.

The following example shows a user who is granted the Explorer (can publish) site role, won't be a site administrator, and will be able to publish to projects to which they have the appropriate content permissions.

```
user1@domain.com,,,Explorer,None,true,user1@domain2.com
```

By changing the administrator-level column, you can import the following user as a site administrator with the Site Administrator Explorer site role.

```
adminuser@domain.com,,,Explorer,Site,true,adminuser@domain2.com
```

Column details for TCM CSV

If the CSV file contains only user name (email address) values, the users will receive an email invitation to the site. Users can join the site to create their accounts, but the accounts remain unlicensed until an administrator configures the accounts (display name, license level, and so on).

Remember that columns left blank must still be delimited with commas to preserve the column structure.

Column structure for the CSV file: `tenant or site URI, username, password, display name, license level, administrator level, publishing capability, authentication type`

Column details:

Tenant or site URI: The uniform resource identifier for the tenant or site.

Username: *Required*. The user's email address.

Password: *Ignored*. As a best practice, leave this column blank.

- New users must select a password and a display name when they first sign in to Tableau Cloud. If a user already has a Tableau account they may already have a password.

Display name: *Ignored*. As a best practice, leave this column blank.

License level: This can be **Creator**, **Explorer**, **Viewer**, or **Unlicensed** for the site. If left blank, the license level will be Unlicensed.

Administrator level: This can be **Site**, **Cloud**, or **None**. If left blank, the administrator level will be None.

- Site = Site administrator, None = Not an administrator, Cloud = Cloud administrator.

Publishing capability: This can be **True** or **False** for the site. If left blank, the publishing capability will be false.

- If the license level is Creator, the publishing capability must be True
- If the license level is Explorer, the publishing capability value is what distinguishes the site role between Explorer (can publish) and Explorer

- If the license level is Viewer or Unlicensed, the user will not be able to publish regardless of the value of this column

Authentication type: The user authentication type for accessing the tenant or site. This can be **Google**, **OpenID**, **Salesforce**, **SAML**, **TableauIDWithMFA**, or **DEFAULT**.

TCM CSV example structure

Tip: Remember, the structure is: `tenant or site URI, username, password, display name, license level, administrator level, publishing capability, email address, authentication type` with nothing between the commas when a column is left blank.

The following example shows a user who is granted the cloud administrator role in Tableau Cloud Manager, and authenticates using Tableau with MFA.

```
MyTCM,cloudadminuser@domain.com,,,,Cloud,,,TableauIDWithMFA
```

By changing the authentication column, you can import the following user with an alternative authentication type if configured in Tableau Cloud Manager settings.

```
MyTCM,cloudadminuser@domain.com,,,,Cloud,,,Salesforce
```

In the following example, you can import the user with Explorer - can publish site role with Tableau with MFA authentication.

```
MySite,user1@domain.com,,,Explorer,None,True,,TableauIDWithMFA
```

CSV settings and site roles

The license level, administrator, and publishing settings for a user determine how the user's site role is set during the import process. The following shows how site roles should be captured in the CSV.

Site Role	License level	Administrator level	Publishing capability
Cloud Administrator	Unlicensed	Cloud	False

This role is valid only if you are importing users while signed in to Tableau Cloud Manager (that is, not signed in to a specific site).			
Site Administrator Creator or **Site Administrator Explorer** *These roles are valid only if you are importing users while signed in to a specific site.*	Creator or Explorer	Site	True
Creator	Creator	None	True
Explorer (can publish)	Explorer	None	True
Explorer	Explorer	None	False
Viewer	Viewer	None	False
Unlicensed	Unlicensed	None	False

Manage Site User Visibility

By default, all site users can see aliases, project ownership and comments by other users when permissions allow. The User Visibility setting lets administrators manage if users with Viewer and Explorer site roles see other users and groups on the site, which can be important for sites that are used by multiple clients. To learn more about site roles, see Set Users’ Site Roles.

Limit user visibility

Setting User Visibility to **Limited** impacts certain collaboration tools and hides user information in Tableau Cloud and Tableau Server. Limited User Visibility either disables the feature for Viewers and Explorers (excluding Site Administrator Explorers), or removes user information from other areas. Note that Creators and administrators will still see user information when User Visibility is set to Limited.

To limit user visibility for Explorers and Viewers (excluding Site Administrator Explorers):

- Navigate to the site's **Settings** page
- Select **Limited** in the **User Visibility** setting

The following is a list of site areas impacted when User Visibility is set to Limited. Unless noted that the feature is disabled for all users, only non-administrator Explorers or Viewers are impacted.

Area	Impact
Search	User information not displayed
Content owners	User information not displayed (Explorers and Viewers can't see themselves, but can see their content in My Content)
Profile pictures	User information not displayed
Subscriptions	User information not displayed
Recommendations	Similar users not displayed (all users)
Add/Edit Tags	Explorers and Viewers can see tags but cannot delete or modify them
"Who has seen this view?"	Disabled
Ask Data usage ana-	Disabled

lytics	
Permissions dialogs	Disabled
Named sharing	Disabled (all users)
Alerts	Disabled (all users) Existing alerts paused
Comments	Disabled (all users)
Public Custom Views	Disabled (all users) Existing public custom views appear as private
Request Access	Disabled (all users)
Tableau Desktop	Publishing workbooks disabled from Desktop User information not displayed on user filters
Tableau Pulse	The button to see and manage followers doesn't appear on metrics
Tableau Catalog (with Data Management)	User information not displayed

When User Visibility is set to Limited, Tableau Server REST API and Metdata API calls behave as described in the table above.

Users on a site can interact with views and modify them, such as applying filters. If that user shares their modified view with others, or if the user creates something from that modified view (like a metric or a private custom view), then that user's name appears in the URL. Make sure that the URL for this modified view is only distributed to users who are permitted to see that person's name.

Note: If a user is a member of multiple sites, entering an email on the sign in page for Tableau Cloud will return the names of all sites the user is a member of.

Best practices for limiting user visibility

Administrators can also check that user and group information is not visible in these ways:

- Configure permissions to only provide content to appropriate parties. For more information, see Permissions.
  - Limited User Visibility hides user identification information from search, but might return content that the user published, including when searching by owner name, if the person searching has viewing permission to that content.
  - A user publishing a workbook with a duplicate title in the same project might see a warning that a workbook with that title already exists.
- Apply row-level security when necessary.
- Check that metadata within dashboards does not contain user information.
- Check that calculations accessible to users don't contain user metadata (e.g., user filters).

Restore Full User Visibility

When administrators set User Visibility back to Full, features disabled for all users by Limited User Visibility (such as comments and alerts) remain off. Administrators can re-enable these features through the site's Settings page.

Any previous feature settings are not retained when User Visibility is set to Full, and affected features are not automatically turned on.

Enable Support Access

Tableau Cloud administrators can allow approved Tableau Support technicians to access their Tableau Cloud site to help troubleshoot a customer support case. By default, this feature is disabled for all sites. Enable the feature to allow support access.

1. In a web browser, sign in to Tableau Cloud as a site administrator and go to the site in which you want to enable support access.

2. From the navigation panel, click **Settings**.
3. Under **Tableau Support Access**, select **Let Tableau Support access your site**.
4. Click **Save**.

When enabled, Tableau Support technicians are assigned the **Support User** role and granted administrator-level access to your site and its content. Tableau Support technicians use this access to gather information to diagnose and reproduce issues. Tableau Support technicians do not make changes to your site unless you authorize them to do so.

Only Tableau Support technicians can be assigned the Support User role. You cannot add this role to new or existing site users. Users assigned the Support User role do not count against the site's user limit. To view users who have the Support User role on the site, click the **Users** tab.

Disable Support Access

When you disable support access, users with the Support User role who are signed on to the site are automatically signed out. If you do not disable support access, any users with the Support User role are required to delete themselves before a maximum of 16 days elapse. Any content owned by the Support User will be reassigned to the longest-tenured site administrator.

Create a Group and Add Users to It

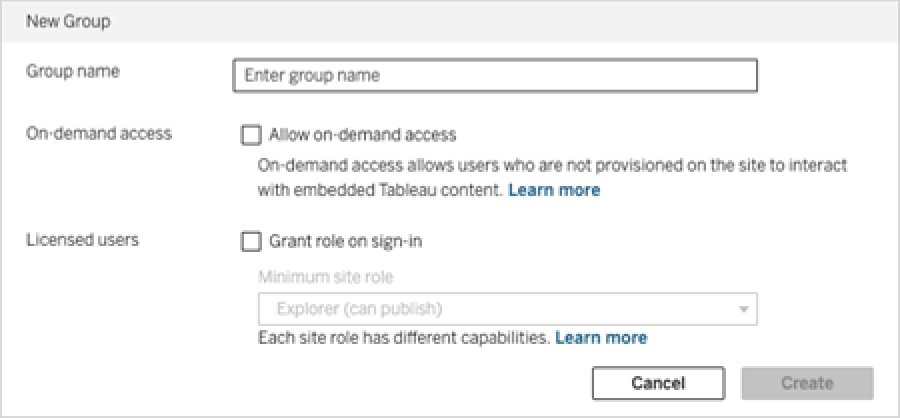
As a site admin, you can organize Tableau Cloud users into groups to make it easier to manage multiple users. Groups can also be used by users (such as site admins, project owners, and content owners) to apply permission rules for Tableau content.

Users can belong to multiple groups.

Create a group

1. On a site, click **Groups**, and then click **New Group**.

2. Type a name for the group.



New Group

Group name: Enter group name

On-demand access: ☐ Allow on-demand access

On-demand access allows users who are not provisioned on the site to interact with embedded Tableau content. Learn more

Licensed users: ☐ Grant role on sign-in

Minimum site role: Explorer (can publish)

Each site role has different capabilities. Learn more

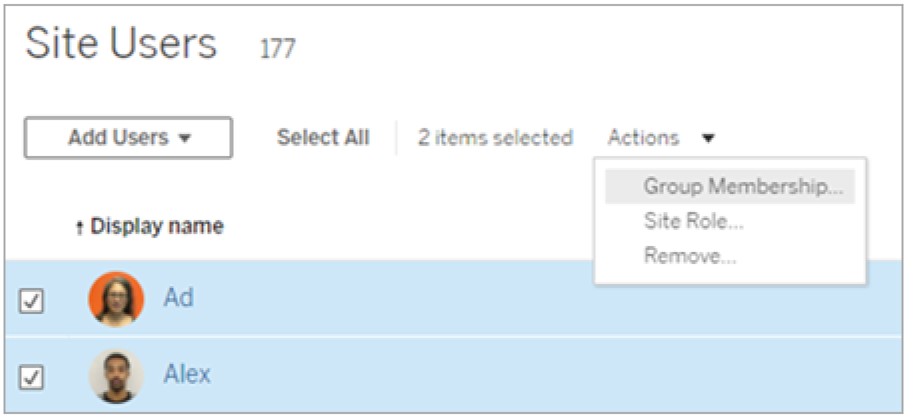
3. Optionally, do one or both of the following:
    a. If your site is licensed with the Embedded Analytics usage-based model, select the **Allow on-demand access** check box to enable the on-demand access capability for embedding workflows.

       For more information, see one of the following: On-demand access using connected apps with direct trust or On-demand access using connected apps with OAuth 2.0 trust.
    b. Select **Grant role on sign in** and select a minimum site role for the group. For more information, see Grant License on Sign In.
4. Click **Create**.

Note: Every user (excluding users with on-demand access) added to a Tableau Cloud site becomes a member of the **All Users** group automatically. The All Users group exists in every site by default. You cannot delete this group, but you can set permissions for it.

Add users to a group (Users page)

1. On a site, click **Users**.
2. Select the users you want to add to the group, and then select **Actions** > **Group Membership**.

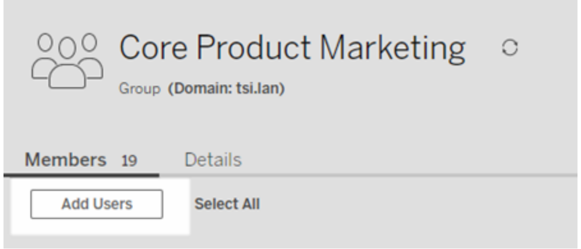

Site Users 177
Add Users ▾
Select All
2 items selected
Actions ▾
Group Membership...
Site Role...
Remove...
↑ Display name
☑ Ad
☑ Alex

3. Select the groups and then click **Save**.

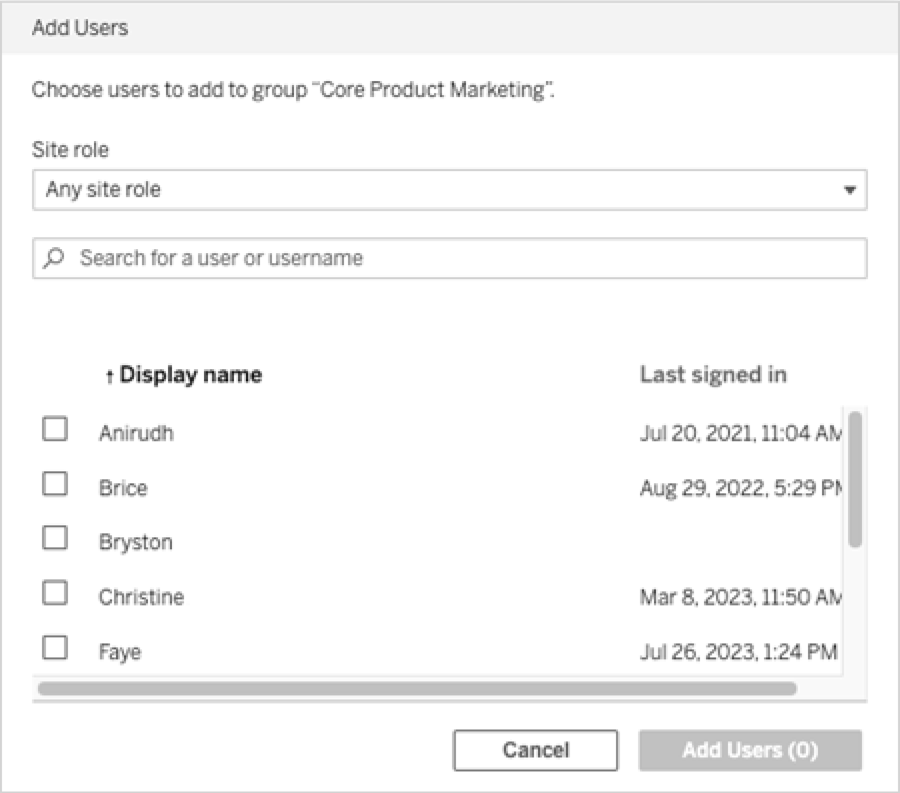
Add users to a group (Groups page)

1. From the left navigation pane, click **Groups**, and then click the name of the group.

2. On the Group's page, click **Add Users**.


Core Product Marketing
Group (Domain: tsi.lan)
Members 19
Details
Add Users
Select All

3. Select the users to be added, and then click **Add Users**.



Choose users to add to group "Core Product Marketing".

Site role: Any site role

Search for a user or username

	↑ Display name	Last signed in
☐	Anirudh	Jul 20, 2021, 11:04 A
☐	Brice	Aug 29, 2022, 5:29 P
☐	Bryston	
☐	Christine	Mar 8, 2023, 11:50 A
☐	Faye	Jul 26, 2023, 1:24 PM

Dynamic group membership using assertions

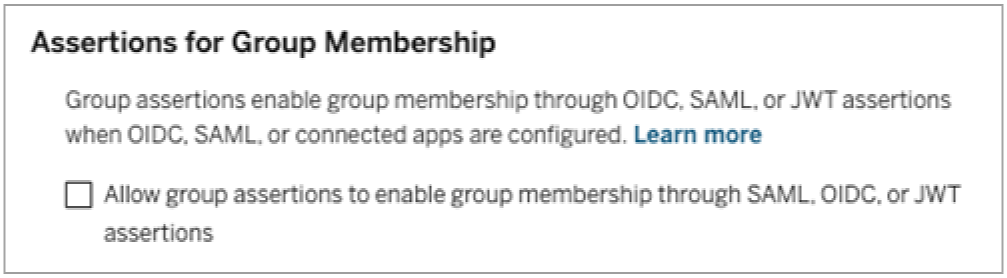
Beginning in June 2024 (Tableau 2024.2), if you have OIDC or SAML authentication configured or use Tableau connected apps for embedding workflows, you can dynamically control group membership through assertions. When configured, at runtime during user authentication, Tableau receives the assertion and then evaluates membership in groups and thus the content whose permissions are dependent on those groups.

The process to dynamically control group membership through assertions requires 1) enabling the setting and 2) ensuring the group membership claims are included in the assertions.

Step 1: Turn on the setting

For security purposes, group membership is only validated in an authentication workflow if the site setting is turned on.

1. Sign in to Tableau Cloud and click Settings > **Authentication**.
2. Under Assertions for Group Membership heading, select the **Allow group assertions to enable group membership through SAML, OIDC, or JWT assertions** check box.



Assertions for Group Membership

Group assertions enable group membership through OIDC, SAML, or JWT assertions when OIDC, SAML, or connected apps are configured. Learn more

☐ Allow group assertions to enable group membership through SAML, OIDC, or JWT assertions

For more information about site settings, see Assertions for Group Membership.

Step 2: Ensure group membership claims are included in the assertion

Two custom group membership claims must be included in the respective OIDC, SAML or JWT assertion to specify group membership. The two custom group membership claims are:

- Group: `https://tableau.com/groups`
- Group names. These names should match local group names in Tableau Cloud exactly.

Note: Group sets can't be asserted.

For example assertions, refer to one of the following sections:

- Dynamic group membership using OIDC assertions
- Dynamic group membership using SAML assertions in Tableau Cloud:
- Connected apps - direct trust: Dynamic group membership (embedding workflows only)
- Connected apps - OAuth 2.0 trust: Dynamic group membership (embedding workflows only)

Grant License on Sign In

Grant license on sign in (Grant role on sign in) lets unlicensed users in specific groups become licensed when they sign into a Tableau site. This streamlines license provisioning for administrators and removes the user’s need to request a license before using Tableau.

For more information about site role capabilities and minimum site roles, see Set Users’ Site Roles.

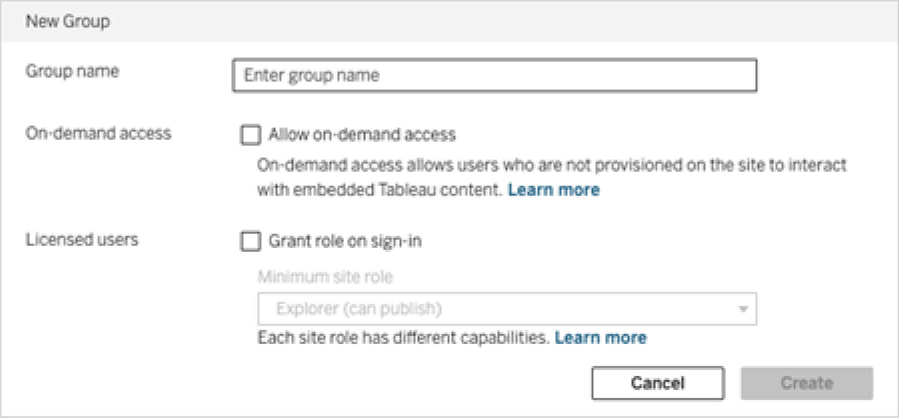
For example, imagine that your company has 100 people in the Marketing group, but only 25 members need to access Tableau Cloud. The Tableau Cloud site administrator isn't sure which 25 need Tableau. That administrator can create a Marketing user group with an Explorer minimum site role, select **Grant role on sign in**, and add all 100 Marketing members to the group. Instead of provisioning licenses to the entire group, the 25 Tableau users in Marketing are provisioned Explorer licenses when they sign in to their Tableau Cloud site. Those who don't need Tableau Cloud remain unlicensed unless they sign in.

Note: For more information about benefits and best practices, see Grant Role on Sign In in Tableau Blueprint, Tableau's planning tool for data-driven organizations.

Activate Grant role on sign in

You can enable Grant role on sign in on new or existing groups. The following steps walk through how to use Grant role on sign in to add new users that are eligible for a license but may not consume one. This may be the case when your company has a lot of eligible users, but limited Tableau licenses.

1. On a site, add a new group:
   a. From the left navigation pane, click **Groups**, and then click **New Group**.
   b. Enter a group name.



New Group

Group name: Enter group name

On-demand access: ☐ Allow on-demand access

On-demand access allows users who are not provisioned on the site to interact with embedded Tableau content. Learn more

Licensed users: ☐ Grant role on sign-in

Minimum site role: Explorer (can publish)

Each site role has different capabilities. Learn more

c. Optionally and if your site is licensed with usage-based model, select the **Allow on-demand access** check box.

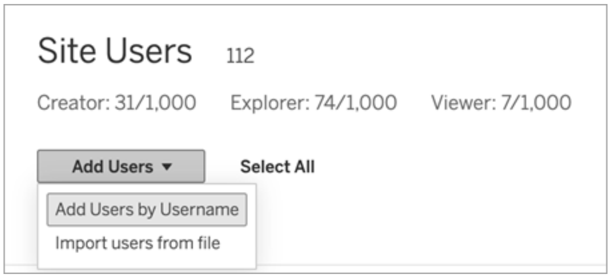
   For more information, see one of the following: On-demand access using connected apps with direct trust or On-demand access using connected apps with OAuth 2.0 trust.

d. Select **Grant role on sign in** and select a minimum site role for the group. This setting means licenses and site roles will only be provisioned to group users who sign into this Tableau Cloud site.

e. Click **Create**.

2. Add users to a site by entering users' usernames (in email address format) individually or bulk import users using a CSV file.

   If bulk adding users, follow the steps described in Import Users via a CSV file that you create using the CSV Import File Guidelines.


Site Users 112
Creator: 31/1,000
Explorer: 74/1,000
Viewer: 7/1,000
Add Users ▾
Select All
Add Users by Username
Import users from file

If adding users by username, do the following

a. On the Users page, click the **Add Users** button.

b. Enter usernames (in email address format). For information on assigning Google, OIDC, SAML, or Salesforce authentication when adding users, see Add Users to a Site.

   If you add more than one user, separate username with a semicolon (;).

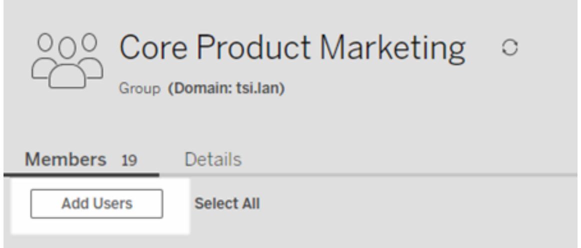
   For example, *tdavis@example.com; jjohnson@example.com; hwilson@example.com*

c. Set the site role for those users to **Unlicensed**.

d. Click **Add Users**.

3. Add those new, unlicensed users to the new group.

   - From the left navigation pane, click **Groups**, and then click the name of the group.
   - On the Group's page, click **Add Users**.


Core Product Marketing
Group (Domain: tsi.lan)
Members 19
Details
Add Users
Select All

   - Select the users to be added, and then click **Add Users**.

For more information, see Create a Group and Add Users to It.

Modifying user roles with Grant role on sign in

If a user is part of a group using Grant role on sign in, then that user role can't be set to unlicensed or downgraded to a role lower than the minimum site role set for the group, whether or not they sign in. Administrators can upgrade a user’s site role manually, however.

To downgrade a user’s site role, or unlicense the user from the site, remove the user from the group(s) that have Grant role on sign in enabled.

In accordance with the terms of the End User License Agreement, licenses granted on an Authorized User basis may be permanently reassigned to new users. Users may only be downgraded to a lower site role (including Unlicensed) when they will permanently discontinue access to Server Software at the higher role.

Removing users affected by Grant role on sign in

You can remove a user from a site only if the user does not own content. If you attempt to remove a user who owns content, the user site role will be set to Unlicensed and removed from all groups, but the user will not be removed from the site. To remove content owners, remove owners from group with Grant site role enabled or reassign content ownership to another user. For more information, see Remove users from a site in the View, Manage, or Remove Users Help topic.

If the default All Users group has Grant site role enabled, users who own content can't be removed from the site or unlicensed. To remove or unlicense these users, reassign content ownership to another user, then remove or unlicense the user.

Tableau REST API can be used to reassign content ownership of a workbook. For more information, see Update Workbook method in the REST API Help. REST API can also be used to remove users from the site and transfer content ownership to another user. For more information, see Remove User from Site method in the REST API Help.

For more information on reassigning content ownership in Tableau Cloud, see Manage Content Ownership.

Buy More Licenses

You can scale your Tableau Cloud deployment at any time by purchasing additional licenses through the Tableau Webstore.

What accounts are eligible?

To buy more licenses through the Webstore, you must meet the following requirements:

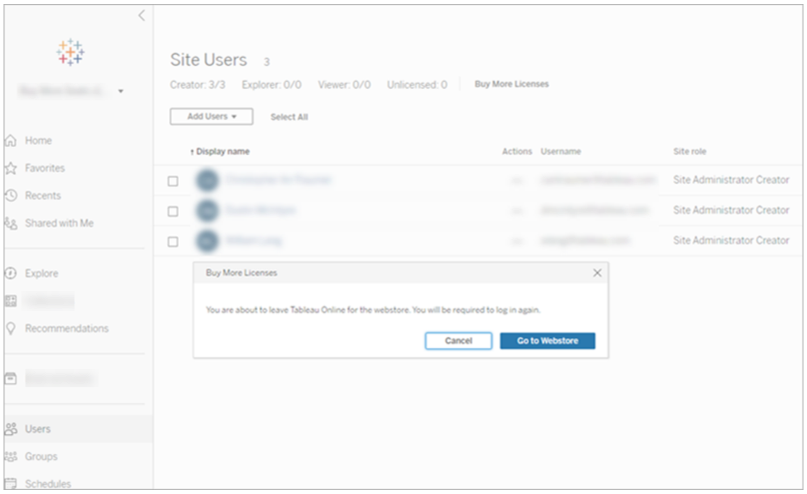
- Customer Portal account administrator or Tableau Cloud Manager cloud administrator
- Not a Government account
- Not licensed with Embedded Analytics

If you are not currently eligible, contact our sales team to complete a transaction.

Access the Tableau Webstore

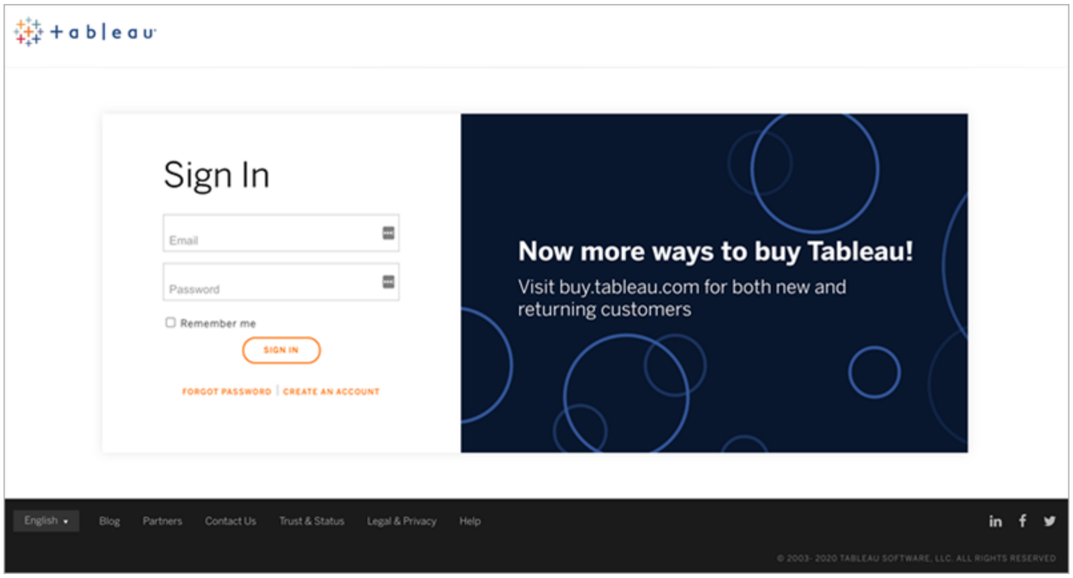
Complete the following steps to redirect and buy more licenses through the Tableau Webstore:

1. Sign in to one of the following locations as an administrator:
   - For site administrators, sign in to a Tableau Cloud site and select **Users**.
   - For cloud administrators, sign in to Tableau Cloud Manager and select **Users**.
2. On the Users page, select **Buy More Licenses**, and then **Go to Webstore**. The Webstore opens in a separate browser tab.

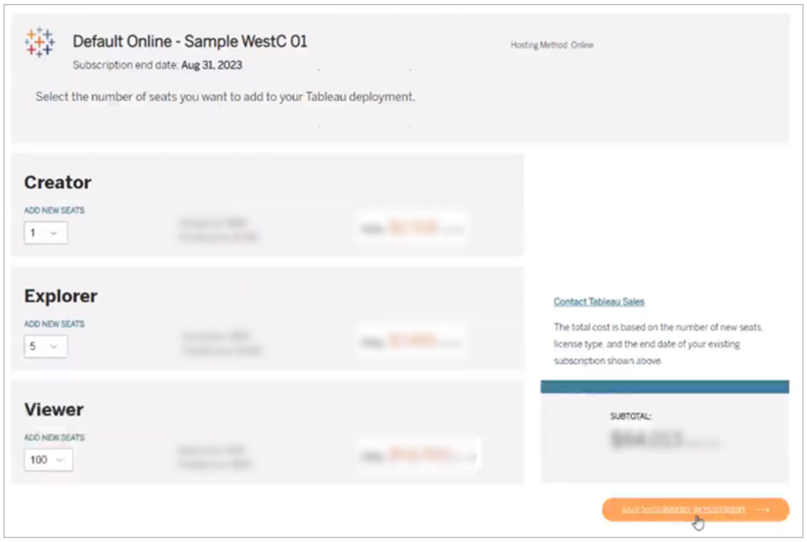

Home
Favorites
Recents
Shared with Me
Explore
Recommendations
Users
Groups
Schedules
Site Users 3
Creator: 3/3
Explorer: 0/0
Viewer: 0/0
Unlicensed: 0
Buy More Licenses
Add Users
Select All
Display name
Actions
Username
Site role
Site Administrator Creator
Site Administrator Creator
Site Administrator Creator
Buy More Licenses
Cancel
Go to Webstore

You are about to leave Tableau Online for the webstore. You will be required to log in again.

3. Sign in to the Webstore using your Tableau account. If you have previously authenticated with your Tableau account, you aren't prompted to sign in again.


Sign In
Email
Password
☐ Remember me
SIGN IN
FORGOT PASSWORD | CREATE AN ACCOUNT
Now more ways to buy Tableau!
Visit buy.tableau.com for both new and returning customers
English
Blog
Partners
Contact Us
Trust & Status
Legal & Privacy
Help
© 2003- 2020 TABLEAU SOFTWARE, LLC. ALL RIGHTS RESERVED

4. On the Webstore, select the number of **Creator**, **Explorer**, and **Viewer** licenses to add to your deployment.



Default Online - Sample WestC 01

Hosting Method: Online

Subscription end date: Aug 31, 2023

Select the number of seats you want to add to your Tableau deployment.

Creator

ADD NEW SEATS: 1

Explorer

ADD NEW SEATS: 5

Viewer

ADD NEW SEATS: 100

Contact Tableau Sales

The total cost is based on the number of new seats, license type, and the end date of your existing subscription shown above.

SUBTOTAL:

5. Select **Add to Current Deployment** and continue to the **Contact & Billing** and **Summary & Payment** sections.

An order confirmation email is sent shortly after payment. If you don’t see an email from Tableau, be sure to check your spam folder. The new licenses are available on the site and Tableau Cloud Manager after the transaction is processed.

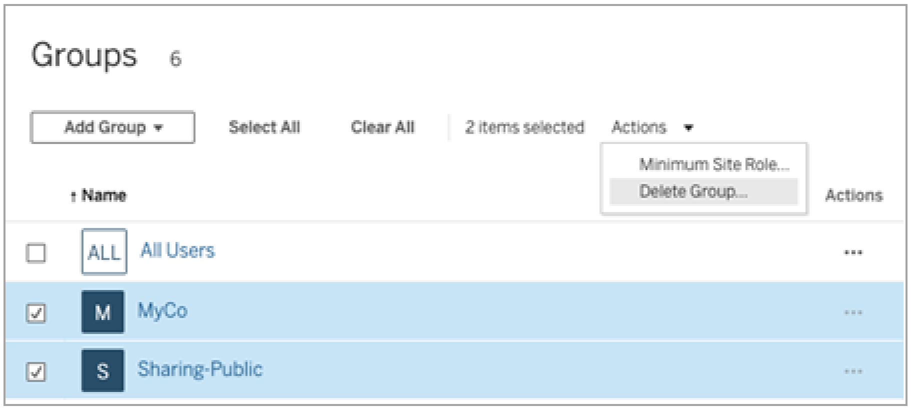
> **Note:** If a site role limit is set, cloud administrators must update site role limits in Tableau Cloud Manager to increase the maximum number of licenses for the site. For more information, see Manage Site Role Limits.

Delete Groups

You can delete any group with the exception of the **All Users** group. When you delete a group, the users are removed from the group but they are not deleted from the site.

1. Sign in to Tableau Cloud as site admin.
2. From the left navigation pane, click **Groups**.
3. On the Groups page, select one or more groups to delete.

4. Select **Actions** > **Delete**.


Groups 6
Add Group ▾
Select All
Clear All
2 items selected
Actions ▾
Minimum Site Role...
Delete Group...
Name
Actions
ALL
All Users
M
MyCo
S
Sharing-Public

Effects of deleting groups

Groups with on-demand access

Beginning in October 2023, some sites can enable the on-demand access capability for groups. When you delete one or more groups with the on-demand access capability enabled, any embedded Tableau content that was accessible to users not provisioned on your site can no longer access the content.

Groups in group sets

Beginning in June 2024 (Tableau 2024.2), groups can be added to group sets. When content permissions are dependent on a group set, content capabilities are evaluated when users belong to all groups in the group set. If a group that belongs to a group set is deleted then it can change user access to Tableau content when content permissions are dependent on the group set.

Work with Group Sets

Beginning in June 2024 (Tableau 2024.2), you can create a container for your groups using group sets. A group set can contain one or more groups and be used to apply more granular rules for content permissions that are dependent on the group set. When enabling capabilities based on a group set, users in the groups that belong to the group set must be members of all the groups for the capability to be evaluated. In this way, group sets enforce AND logic.

Benefits of group sets:

- You can mix and match synchronized groups with local groups in permission rules to enable more dynamic access control scenarios.
- Use AND logic for groups in permission rules, which can simplify access control in some scenarios

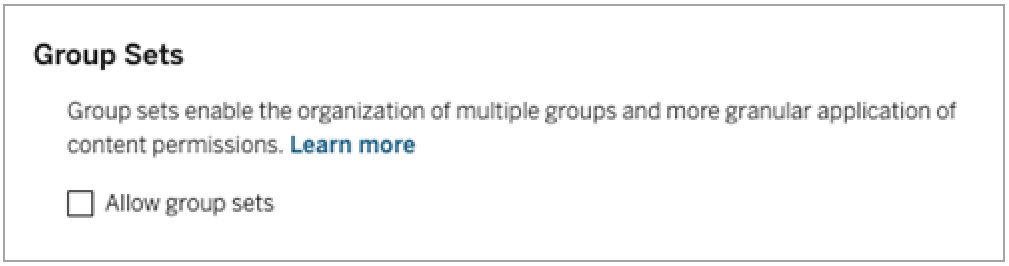
Notes:

- Group set permission rules are evaluated after user and group rules. For more information about those rules, see Evaluate permission rules.
- Group sets can only be created by site admins.
- Group sets are not to be used as a group of groups.

Turn on group sets

Before group sets can be used for permissions, group sets settings must be enabled.

1. Sign in to Tableau Cloud as site admin.
2. Navigate to the **Settings** page.
3. Under the Group Sets section, select the **Allow group sets** check box.



Group Sets

Group sets enable the organization of multiple groups and more granular application of content permissions. Learn more

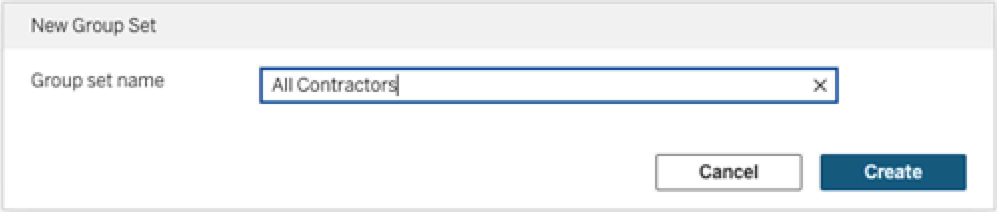
☐ Allow group sets

After enabling group sets, a dedicated **Group Sets** page displays in the navigation pane.

Create group sets

To create a group set, navigate to the Group Sets page and create a group set as you would a group.

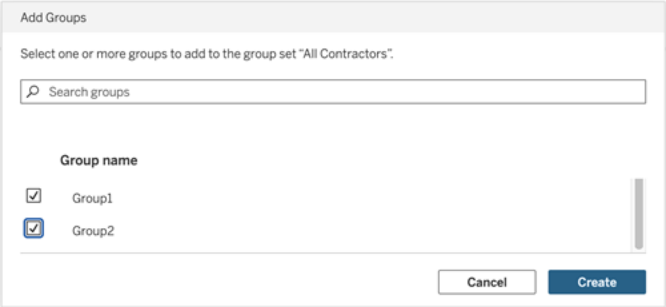
1. Sign in to Tableau Cloud as site admin.
2. Navigate to the Group Sets page and click the **New Group Sets** button.
3. Enter a name for the group set and click **Create**.



New Group Set

Group set name: All Contractors

4. In the Group Sets table, click the name of the group set you just created and click the **Add Groups** button.
5. From the list of available groups, select the groups you want to add to the group set and click the **Add** button.



Add Groups

Select one or more groups to add to the group set "All Contractors".

☑ Group1

☑ Group2

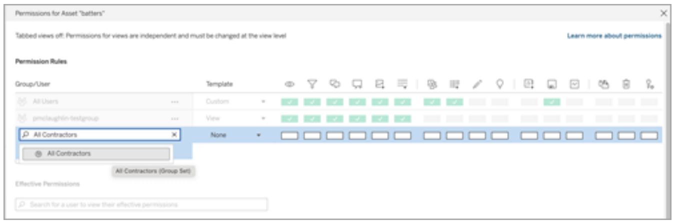
Set permissions on group sets

To use group sets, as a site admin, project leader, or content owner, add or edit the permissions of the content to use the group set.

For example, suppose you are the owner of the "Batters" workbook. To apply permissions based on the group set, do the following:

1. Go to the workbook and select **Permissions** from the actions menu.
2. In the Permissions dialog box, click the **Add Group/User Rule** button, and do the following:
   a. In the text box, enter the group set name, for example "All Contractors."
   b. Select the desired capabilities in the template.

c. Click **Save**.



Permissions for Asset "batters"

Tabbed views off: Permissions for views are independent and must be changed at the view level

Learn more about permissions
Permission Rules
Group/User
Template
All Users
Custom
pmclaughlin-testgroup
View
All Contractors
None
All Contractors
All Contractors (Group Set)
Effective Permissions
Search for a user to view their effective permissions

When permissions are applied using the group set model, you create permissions that affects the users that have membership in *all* groups in the group set.

For example, you might restrict access to different workbook views based on a user's regional group affiliation. Suppose you have users who are, contractors, contractor managers, full time employees, and full time managers accessing these workbook views.

Groups that have default permissions to view the workbook: All, North, South, East, West, Full Time, and Managers.

- For the North Region Detailed view:
  - Permissions are based on group set: North Region
  - Groups in the group set: Full Time, North

  Outcome: Only full time employees and full time managers in the north can see the data in the North Region Detailed view.

- For the All Region Detailed view:
  - Group set is called Managers
  - Groups in the group set: All, Managers

  Outcome: Only contractor managers and full time managers can see the data in the All Region Detailed view.

For more information about permissions, see Configure Projects, Groups, Group Sets, and Permissions for Managed Self-Service.

Manage Content Access

You can manage who can access content on your site and set the permissions that govern content ownership.

Set Web Edit, Save, and Download Access on Content

If you're enabling web authoring functionality on your site, you can configure more precisely which users on the site have access to this functionality. Using site roles and permissions rules at the content level, you can grant or deny **Web edit**, **Save**, or **Download** capabilities on projects, workbooks, and data sources.

> **Note:** This document strives to use the phrase *Web edit* to specify the name of the capability in permissions rules, and *web authoring* to refer to the general functionality of creating and modifying workbooks on the server. However, you might otherwise see these two phrases used interchangably.

Why allow users to work on the site directly

As an administrator, your initial thought about allowing people to populate a site with content, seemingly indiscriminately, might be one of skepticism. However, with a few controls, you can limit where this is done, while providing important benefits that centralized content management offers both you and your users.

Web authoring pros and cons

For publishers and business users, some benefits of web authoring include the following:

- It provides analyst teams who work collaboratively with a central location in which to provide input.
- It enables people who do not have Tableau Desktop to connect to data sources and create workbooks.

- It enables people to access content when they are away from their Tableau Desktop computer or VPN, whether on a computer or a hand-held device.
- It can provide a framework for enabling consistency across Tableau reports.(By making template workbooks available on the site, analysts can download or create new workbooks with data connections, branding, and formatting already in place.

For administrators, benefits can include the following:

- Fewer Tableau Desktop deployments to manage and support.
- Fewer computers that need to have database drivers installed.
- Capacity to govern content.
- More accurate monitoring of what people are doing with Tableau.

Some disadvantages to web editing include the following:

- For analysts, web editing functionality is not as extensive as in Tableau Desktop (although it continues to evolve toward that parity).
- For administrators, more people working on the server might mean upgrading systems.
- Without publishing guidelines, content proliferation on the site is expected.
  This can confuse the people who rely on published Tableau dashboards and data sources, degrade server performance and data quality, and potentially affect data security.

Managing permissions to help users avoid content proliferation

To help users to avoid content proliferation on the site, many Tableau administrators use projects to allow varying levels of access to content. For example, one project can be configured to allow all users to edit and save workbooks; another can allow only approved publishers to save new content.

To get a better idea how this works, see the following resources:

- Configure Projects, Groups, Group Sets, and Permissions for Managed Self-Service
- Governed Self-Service at Scale, a Tableau whitepaper by Rupali Jain.
  To view the PDF, you might need to provide your Tableau website credentials. These are the same ones you use for the community forums or to submit support cases.

Coordinate edit and save capabilities with site roles for the appropriate level of access

To edit, save, and download workbooks, users must have a site role that allows those actions, along with the capabilities—defined in permissions rules—that grant or deny editing-related access.

Site role access

- When the appropriate permissions are set at the content level, the **Creator** or **Explorer (can publish)** site role allows both **Save** (overwrite) and **Save As/Download**.

  Note that **File > Save** is only available to the workbook owner. When the **Save** permission capability has been granted at the project and workbook level, a non-owner user can overwrite the existing workbook in web authoring by selecting **File > Save As** and using the same workbook name. This overwrites the existing content and they become the owner and gain full access to the content.
- The **Explorer** site role can be granted the **Web Edit** and **Save As/Download** capabilities, but they will not be able to save (neither overwriting existing nor saving changes to a new workbook).

For more information, see Web Editing and Web Authoring.

Configure Projects, Groups, Group Sets, and Permissions for Managed Self-Service

Publishing to Tableau Cloud and Tableau Server is easy. For some organizations, it might be a little *too* easy. There is value in creating a controlled framework before letting creators publish their own content.

To keep things tidy and to make sure people can find and access the right content, it may be useful to configure your site for managed self-service. This means having guidelines and settings in place to ensure content is organized, discoverable, and secure without having bottlenecks in the publishing process.

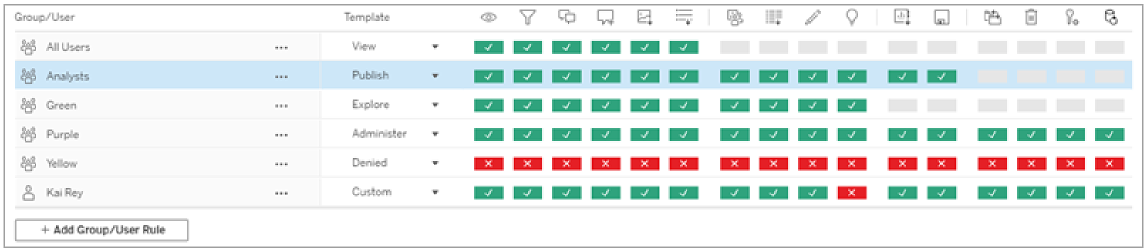
This article lays out a possible path for you as a site administrator to set up your site for managed self-service:

1. Identify the types of groups and projects you'll need
2. Create groups and group sets
3. Remove permissions that will cause ambiguities and establish default permission patterns
4. Create projects
5. Lock project permissions

Note: The information provided here is adapted and simplified from practices of Tableau Visionaries and customers who have shared their experiences.

Plan your strategy

Permissions in Tableau consist of rules that are applied to content (projects, workbooks, etc.) for a group or user. These permission rules are built by allowing or denying specific capabilities.



Group/User	Template																
All Users	View	✓	✓	✓	✓	✓	✓										
Analysts	Publish	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Green	Explore	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
Purple	Administer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Yellow	Denied	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Kai Rey	Custom	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓

Having a comprehensive plan for your projects, groups, and permission rules is useful whether you're starting new or making changes. The details are up to you, but there are two important practices that we recommend for all environments:

- Manage permissions on projects, not individual pieces of content.
- Assign permissions for groups, not individual users.

Setting permissions at the individual user level and on individual content assets becomes unmanageable quickly.

Use a closed permissions model

General models for setting permissions are open or closed. In an open model, users get a high level of access, and you explicitly deny capabilities. In a closed model, users get only the access they need to do their jobs. This is the model security professionals advocate. The examples in this topic follow a closed model.

For more information on how Tableau permissions are evaluated, see Effective permissions.

Identify the types of projects and groups you'll need

Designing a structure to accommodate content (in projects) and categories of users (as groups) or categories of groups (in group sets) can be the most challenging part of setting up a site, but it makes ongoing management much easier.

Projects: Projects function both as a unit for managing permissions and as an organizational and navigational framework. Try to create a project structure that balances how people expect to find content and allows for logical permissioning.

Groups or group sets: Before you create groups it can be useful to find common themes in how people interact with content. Try to identify patterns you can use to create groups or group sets and avoid one-off permissions for individual users.

Example 1: Project and group structure

For example, let's imagine an environment where there is company-wide content that everyone should be able to access, as well as some HR content that needs to be restricted.

Projects include:

- **Acme Corp Conference**. This will include data sources and workbooks for ticket sales, dashboards for content strategy, and project plans for the company conference.
- **Employee Success**. This will include anonymized data sources and workbooks for the internal employee survey

- **Human Resources**. This will include HR data sources and workbooks that should only be available to members of the HR team.

Then, groups should match what people need to do:

- **Core Content Creators**. This group is for users who can publish to top-level projects and have broad access to data sources, but who don't need to be able to move or otherwise manage content.
- **HR Content Creators.** This group is for users who have access to HR data sources and can publish to the HR project.
- **Business Users.** This group is for users who should be able to access the content created by the Core Content Creators, but shouldn't even know the HR content exists.
- **HR Users.** This group is for users who should be able to access content in the HR project but don't have rights to create or publish content.
- **Core Project Leaders.** This group is for users who should be given project leader status on the projects that aren't HR.

Example 2: Group and group set structure

Beginning in June 2024 (Tableau 2024.2), you can use group sets to further control the capabilities granted (or denied) to users by enabling permissions at the group set-level. When permissions are set at the group set-level, users must belong to all groups in the group sets to be evaluated.

Note: Group set permission rules are evaluated after user and group rules.

For example, suppose you've created the groups to match what people need from Example 1 above. You can create the following group set to further lock down HR access:

- **HR Leaders.** This group set consists of HR Content Creators and Core Project Leaders. Only if the users in this group set belong to both groups are they given project leader status, ability to access sensitive HR data sources, and publish to the HR project.

Consider site roles

Remember that permissions are tied to content, not groups or users. This means that you can't give a group **Explore** permissions in a vacuum. Rather, the group can be given **Explore** permissions for a project and its content. Site roles, however, are given to specific users and may define or limit the permissions they can have. For more information on how licenses, site roles, and permissions tie together, see Permissions, Site Roles, and Licenses.

Create the groups and group sets

While it might be tempting to create the groups and projects as soon as you identify what you need, it's important to do things in a certain order.

Projects: Projects shouldn't be created until after the Default project has been properly configured (see the next section). This is because top-level projects use the Default project as a template for their permission rules.

Groups: Groups need to be created before they can be used to build permission rules. Users do not need to be added to the groups yet, but they can be. For more information about creating groups, see Create a Group and Add Users to It.

Group sets: Groups need to be created before they can be used to build permission rules. Users do not need to be added to the groups yet, but they can be. For more information, see Work with Group Sets.

Tip: Creating multiple groups and projects and setting permissions manually can get a little tedious. To automate these processes and make them repeatable for future updates, you can perform these tasks using REST API commands. You can use tabcmd commands for tasks such as adding or deleting a single project or group and adding users, but not for setting permissions.

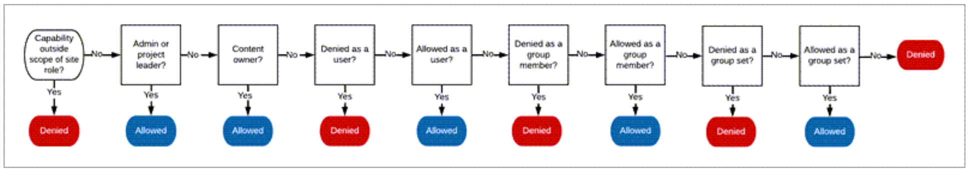
Membership in multiple groups

It’s possible to include the users in the HR Content Creators and HR Users groups in the Business Users group. This would make it easy to assign permissions to Core Content Users versus Business Users for the majority of content. However, in that scenario, the Business Users group couldn’t be denied any capabilities in the Human Resources folder without denying the HR users as well. Instead, the Business Users group would have to be left as unspecified, and the specific HR Content Creators and HR Users groups would be given their applicable capabilities.

This is because Tableau permissions are restrictive. If the Business Users group was denied certain capabilities, that Deny would override the Allow of another permission rule for users in both groups.

Impact of group sets

If assigned permissions are enabled at the group set-level, permissions for every group in the group set must not be specified or not be denied to allow the capability.


Capability outside scope of site role?
No
Yes
Denied
Admin or project leader?
No
Yes
Allowed
Content owner?
No
Yes
Allowed
Denied as a user?
No
Yes
Denied
Allowed as a user?
No
Yes
Allowed
Denied as a group member?
No
Yes
Denied
Allowed as a group member?
No
Yes
Allowed
Denied as a group set?
No
Yes
Denied
Allowed as a group set?
No
Yes
Allowed
Denied

When deciding how group membership should be assigned it’s important to understand how permission rules are evaluated. For more information, see Effective Permissions.

Remove permissions that will cause ambiguities and establish default permission patterns

Every site has an **All Users** group and a **Default** project .

All Users group: Any user added to the site becomes a member of the All Users group automatically. To avoid any confusion with permission rules set on multiple groups, it’s best to remove the permissions from the All Users group.

Default project: The Default project works as a template for new projects in the site. All new top-level projects will take their permission rules from the Default project. Establishing baseline permission patterns on the Default project means you will have a predictable starting point for new projects. (Note that nested projects inherit the permission rules from their parent project, not the Default project.)

Remove the permission rule for the All Users group on the Default project

1. Select **Explore** to see the top-level projects on the site.
2. On the **Default** project's **Action** (…) menu, select **Permissions**.
3. Next to the **All Users** group name, select **…**, and then select **Delete Rule…**.

This lets you establish permission rules for the groups that you have full control over without any conflicting permissions assigned to All Users. For more information on how multiple rules are evaluated to determine effective permissions, see Effective Permissions.

Create permission rules

Now you can set up the basic permission patterns for the Default project that all new top-level projects will inherit. You may choose to keep the Default project's permission rules empty and build permissions for each new top-level project individually. However, if there are any permission rules that should apply to the majority of projects, it can be helpful to set them on the Default project.

Remember that the permissions dialog for a project contains tabs for each type of content. **You must set permissions for each type of content at the project level** or users will be denied access to that content type. (A capability is only granted to a user if they are expressly allowed it. Leaving a capability as Unspecified will result in it being denied. For more information, see Effective Permissions.)

Tip: Every time you create a permission rule at the project level, make sure you look through all the content type tabs.

Create permission rules as desired:

1. Click **+ Add Group/User Rule** and start typing to search for a group name.
2. For each tab, choose an existing template from the drop-down or create a custom rule by clicking the capabilities.
3. When finished, click Save.

For more information on setting permissions, see Set Permissions.

Example: Project level permissions for each content type

For our example, the majority of projects should be available to most people. For the default project, we'll use the permission rules templates to give the core content creators publishing rights and everyone else the ability to interact with workbooks and not much else.

Group	Projects	Workbooks	Data Sources	(Other content)
Core Content Creators	Publish	Publish	Publish	View
HR Content Creators	View	Explore	View	None
Business Users	View	Explore	View	None
HR Users	View	Explore	View	None
Core Project Leaders	Set as project leader	n/a	n/a	n/a

This pattern follows a closed model and limits permissions to basic usage for most content for most users. As new top-level projects are created, these rules are what will be inherited by default, but the permission rules can be modified per project as needed. Remember that the

Human Resources project should have these permissions removed and its own pattern established.

Create projects and adjust permissions

After the Default project is set with your custom permissions templates, you can create the rest of your projects. For each project, you can adjust the default permissions as appropriate.

To create a project

1. Select **Explore** to see the top-level projects on the site.
2. From the **New** dropdown, select **Project**.
3. Name the project and, if desired, give it a description.

It can be useful to establish a naming convention. For example, a basic structure might be <DepartmentPrefix><Team> - <ContentUse>; such as DevOps - Monitoring.

The description appears when you hover over a project thumbnail and on the **Project details** page. A good description can help users know they’re in the right place.

4. Adjust permissions as necessary.
   a. Open the new project.
   b. From the Action menu (...), select Permissions
   c. Modify any permission rules as desired. *Remember to check all the content tabs*.

Lock content permissions

In addition to permission rules, projects have a content permission setting. This setting can be configured in two ways, either **Locked** (recommended) or **Customizable**.

Locking a project is a way of maintaining consistency and ensuring that all content in the project has uniform permissions (per content type). A customizable project permits authorized users set individual permission rules on pieces of content. For more information, see Lock content permissions.

Regardless of the content permission setting, permissions are always enforced on content.

Possible project structures

Some organizations find it useful to have projects that serve specific purposes. Here are some example projects and their intended uses. Note that these are example templates and you should always test the configuration in your environment.

For information about what capabilities are included with each content type's permission rule templates, see Permission capabilities.

Examples: permission settings for specific purposes

Workbooks shared for open collaboration on the server

Anyone in the department can publish to the open-collaboration project while their content is in development. Colleagues can collaborate using web editing on the server. Some people call this a sandbox, some call it staging, and so on. On this project you can allow web editing, saving, downloading, and so on.

Here you want not only to enable collaboration, but also to enable people who don't have Tableau Desktop to contribute and provide feedback.

Group	Projects	Workbooks	Data Sources	(Other content)
Data Stewards	Publish	Publish	Publish	*TBD*
Analysts	Publish	Publish	Explore	*TBD*
Business Users	Publish	Publish	Explore	*TBD*

Remember that some capabilities in the Publish template (such as Overwrite) may be prevented by a user's site role even if they are allowed that capability.

Note: "*TBD*" indicates these permission rules aren't easily determined by the scenario and can be set however makes sense for a given environment.

Shared reports that cannot be edited

This could be a project that people who create workbooks and data sources (Analysts and Data Stewards) could publish to when they want to make content available to business users for viewing, with confidence that their work cannot be “borrowed” or modified.

For this type of project, you would deny all capabilities that allow editing or getting the data off of the server for reuse. You would allow viewing capabilities.

Group	Projects	Workbooks	Data Sources	(Other content)
Data Stewards	Publish	*TBD*	Publish	*TBD*
Analysts	Publish	Publish	View	*TBD*
Business Users	View	View	None	None

Vetted data sources for Analysts to connect to

This would be where Data Stewards publish the data sources that meet all of your data requirements and become the “source of truth” for your organization. Project leaders on this project can certify these data sources, so that they rank higher in search results and are included in recommended data sources.

You would allow authorized Analysts to connect their workbooks to data sources in this project, but not download or edit them. You would deny the view capability to the Business Users group for this project, so those users would not even see this project.

Group	Projects	Workbooks	Data Sources	(Other content)

Data Stewards	Publish	*TBD*	Publish	*TBD*
Analysts	View	None	View	None
Business Users	None	None	None	None

Inactive content

Another possibility is to segregate workbooks and data sources that the site’s administrative views show haven’t been used for a period of time. You could give content owners a time limit before their content is removed from the server.

Whether you do this or delete directly from the working projects is up to your organization. In an active environment, don’t be afraid to be intentional about removing content that is not being used.

Group	Projects	Workbooks	Data Sources	(Other content)
Data Stewards	None	None	None	None
Analysts	View	View	*TBD*	*TBD*
Business Users	None	None	None	None

Source for workbook templates

This is a project that people can download from but not publish or save to, where authorized publishers or project leaders make template workbooks available. Templates that have your organization’s approved fonts, colors, images, and even data connections built in can save authors a lot of time and keep your reports looking consistent.

Group	Projects	Workbooks	Data Sources	(Other content)
Authorized	Publish	Publish	Publish	*TBD*

Author				
Data Stewards	None	None	None	None
Analysts	View	*Template*: Explore + *Capability*: Download Workbook/Save a Copy	View	None
Business Users	None	None	None	None

Next steps

Besides projects, groups, and permissions, other data governance themes include:

User education

Help *all* of your Tableau users become good data stewards. The most successful Tableau organizations create Tableau user groups, have regular training sessions, and so on.

For a common approach to orienting users to the site, see Dashboard-based Custom Portals.

For publishing and data certification tips, see the following topics:

- Use Certification to Help Users Find Trusted Data
- Prepare for Publishing a Workbook (links to Tableau Help)
- Best Practices for Published Data Sources (links to Tableau Help)

Optimize extract refresh and subscription activity

If you use Tableau Server, create policies for extract refresh and subscription schedules, to avoid them dominating the site’s resources. The TC customer presentations by Wells Fargo and Sprint address this subject in detail. In addition, see the topics under Performance Tuning.

If you use Tableau Cloud, see the following topics to become familiar with the ways people can refresh extracts:

- Keep Data Fresh
- Use Tableau Bridge to Expand Data Freshness Options

Monitoring

Use administrative views to keep an eye on the site's performance and content use.

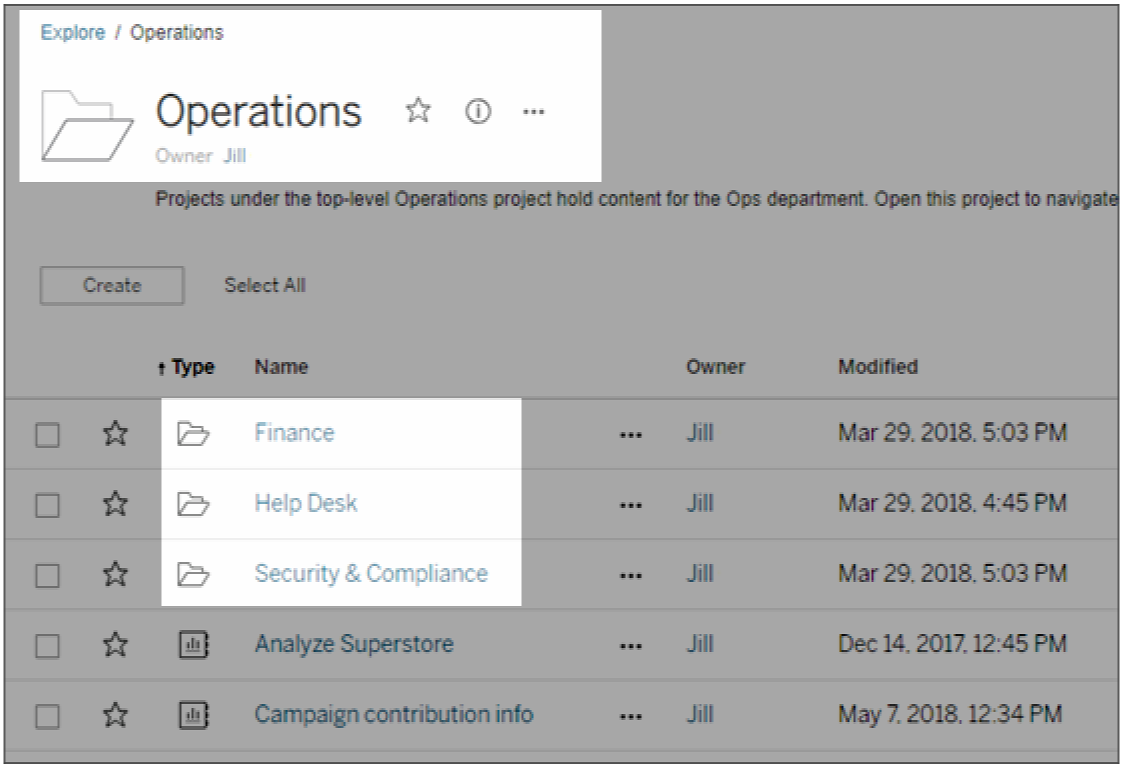
Administrative Views

Use Projects to Manage Content Access

When Tableau Desktop users publish content to a site on Tableau Cloud, they can select a *project* to publish it to.

Projects can be used for navigation, organization, and access management for assets like workbooks, data sources, lenses, and nested projects. Starting in Tableau Cloud October 2022 / Server 2022.3, if Data Management is licensed and Catalog is enabled, a project can also contain external assets like databases.

The following image shows content within the top-level Operations project in the web authoring environment. The Operations project contains a few nested projects (highlighted) and published workbooks. A project can also contain other asset types.



Explore / Operations

Operations

Owner Jill

Projects under the top-level Operations project hold content for the Ops department. Open this project to navigate

Create Select All

		Type	Name		Owner	Modified
☐	☆		Finance	•••	Jill	Mar 29, 2018, 5:03 PM
☐	☆		Help Desk	•••	Jill	Mar 29, 2018, 4:45 PM
☐	☆		Security & Compliance	•••	Jill	Mar 29, 2018, 5:03 PM
☐	☆		Analyze Superstore	•••	Jill	Dec 14, 2017, 12:45 PM
☐	☆		Campaign contribution info	•••	Jill	May 7, 2018, 12:34 PM

Why use projects

Projects help you to create a scalable process for managing access to the content published to Tableau Cloud. Advantages they have include:

- They enable administrators to delegate content management to project leaders who work with the content more closely, without having to give them administrator access to site or server settings.
  - Project leaders can create nested projects under their top-level project, enabling them to maintain their team’s content within a single hierarchy.
  - **Note:** Project owners can delete top-level projects they own. Project leaders cannot delete top-level projects.
- They can make the site easier to navigate for self-service users.
  - They segment the Tableau Cloud site into areas that give users access based on how they use the data published to those areas, or on the Tableau user group they work with.

  - You can hide projects from groups who don’t need to use them, create a distinguishable project-naming scheme, and take advantage of project descriptions to clarify how to use the project.
- They enable you to track permissions effectively.
  - You can create groups based on the level of content access users in the group need, and set default permissions on projects. This enables you to know exactly which capabilities new users get by default, and likewise which capabilities all users get when a new project is created.

When to create project hierarchies (example)

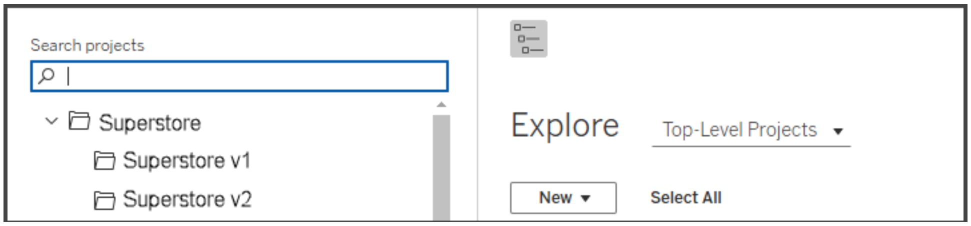
Many organizations have several or more distinct groups of Tableau users, each with its own priorities and leaders. These groups might share some organization-wide content (or even draw from an org-wide pool of data sources), but primarily they use data and reports that are specific to their team. In this or similar scenario, an example for using project hierarchies might look as follows:

1. You, as a site or server administrator, can create top-level projects for each of your distinct Tableau teams.
2. On each top-level project, you assign the Project Leader status to team leads, and change project ownership. Project leaders effectively are the content administrators, so it’s important that they understand how permissions work in Tableau, along with Tableau content management best practices.
3. Each project leader can manage their project, creating the structure within the project that works for their team. That is, they can create child projects they need, based on how their team members collaborate and share data and reports.

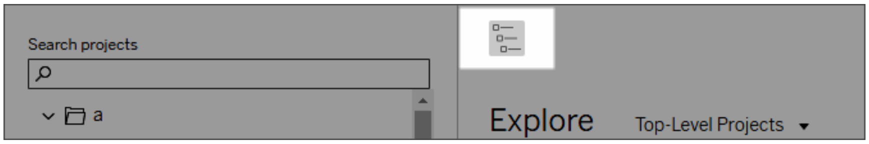
The benefit to you as the site administrator is that you can focus on system health. The benefit to your Tableau users is that people who know the best practices for working with Tableau and data can manage these things for their teams, without having to submit IT requests to change permissions or add projects.

Use the project tree to navigate projects

By default, the Explore pane displays a project tree to help you easily navigate your projects. You can use the project tree to find sub-projects within a project folder. You can also use the project tree to search for projects.


Search projects
Superstore
Superstore v1
Superstore v2
Explore
Top-Level Projects
New
Select All

You can hide and unhide the project tree by clicking the project tree icon located on the Explore pane.


Search projects
a
Explore
Top-Level Projects

Note: If you decrease the size of your browser window, the project tree may be hidden. To see the project tree again, increase the size of your browser window.

Project-level administration

For more information about administering projects, see Manage Permissions with Projects.

Add Projects and Move Content Into Them

Tableau content (such as workbooks or data sources) must be in a project. Starting in Tableau Server 2022.3 and Tableau Cloud October 2022, if Data Management is licensed and Catalog is enabled, external assets (such as databases and tables) can also be in projects. Server and site administrators can add or remove top-level projects on a site, and move published content from one project to another. Project leaders with appropriate site roles can add or remove child projects and move content between projects on which they have Project Leader access.

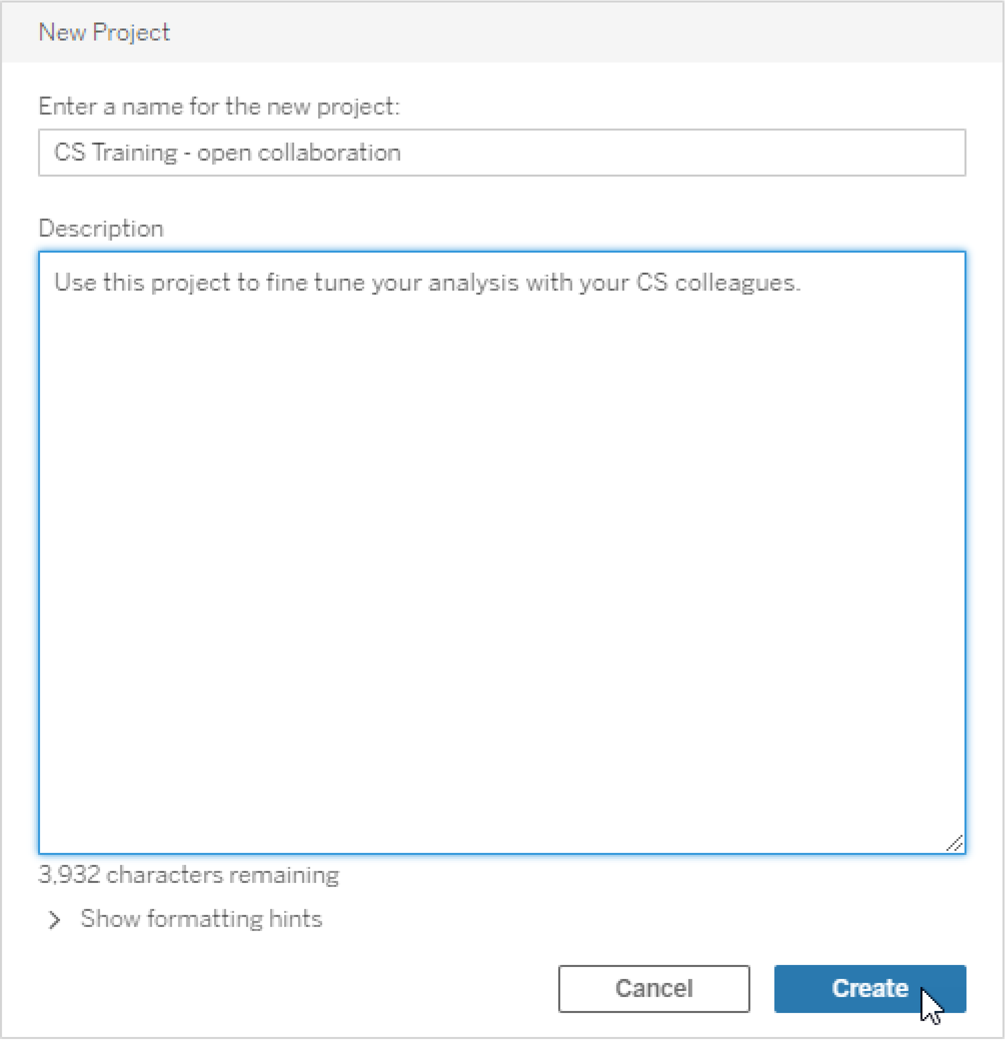
This article contains the steps for creating and moving projects. We recommend becoming familiar with the following related content as well:

- To learn about projects and when or why to use them, see Use Projects to Manage Content Access.
- Before you create project hierarchies, become familiar with Permissions.

- To see the specific site roles that allow full Project Leader access, see Project-level administration.

Add a top-level or child (nested) project

1. While you’re signed in to Tableau Cloud as an administrator or project leader, select **Explore**, and then do one of the following:
    - Select **New** > **Project** to create a new top-level project (only administrators can do this).
    - Navigate to and open the project in which you want to create a sub-project, and then select **New** > **Project**. If you’re not sure where to find the child project, select **All Projects** from the drop-down menu next to **Explore**, or use the filters in the upper right.
2. Enter a name and description for the project, and then click **Create**.


New Project
Enter a name for the new project:
Description
3,932 characters remaining
Show formatting hints
Cancel
Create

CS Training - open collaboration

Use this project to fine tune your analysis with your CS colleagues.

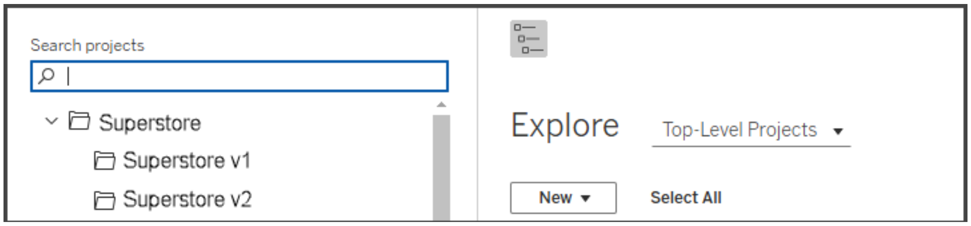
You can include formatting and hyperlinks in the project description. Select **Show formatting hints** for syntax.

When entering a project description, include a space between capital letters and parentheses to display content inside them, such as "PROJECT (a)". Omitting this space will cause display issues in the project description.

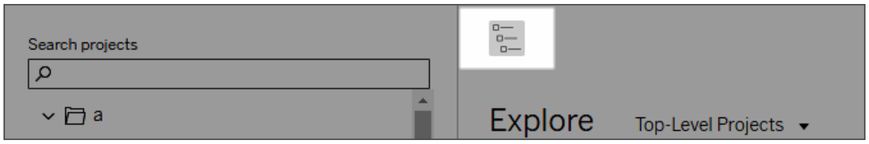
Note: To edit a project description later, select it to open it, select the information icon next to its name, and then click **Edit**.

Use the project tree to navigate projects

By default, the Explore pane displays a project tree to help you easily navigate your projects. You can use the project tree to find sub-projects within a project folder. You can also use the project tree to search for projects.


Search projects
Superstore
Superstore v1
Superstore v2
Explore
Top-Level Projects
New
Select All

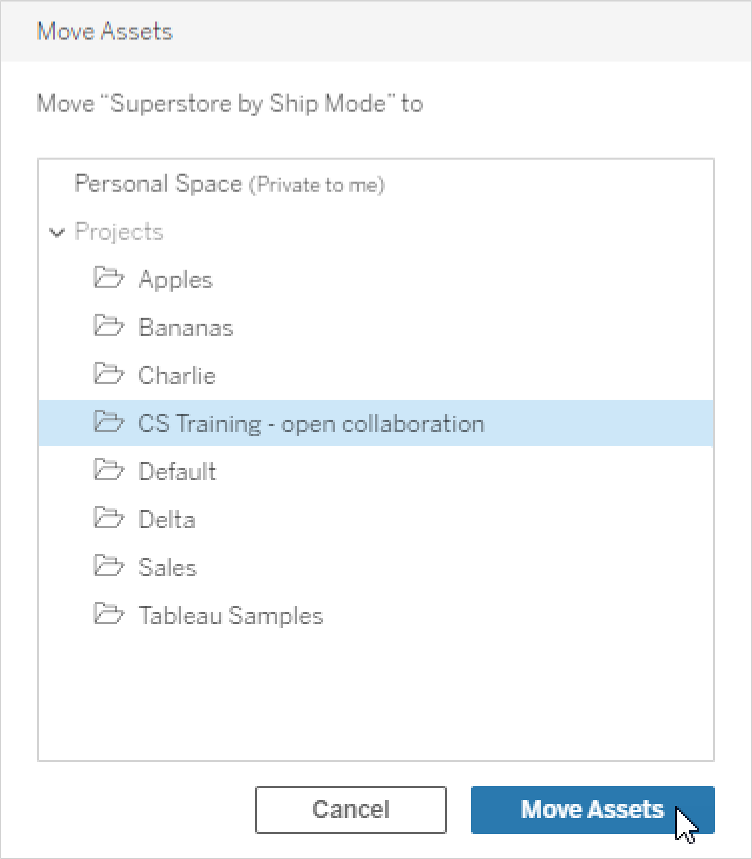
You can hide and unhide the project tree by clicking the project tree icon located on the Explore pane.


Search projects
a
Explore
Top-Level Projects

Note: If you decrease the size of your browser window, the project tree may be hidden. To see the project tree again, increase the size of your browser window.

Move an asset to another project

1. In the **Explore** section, find the asset you want to move. You can use the filters in the upper right to search, or you can navigate through the project hierarchy.
2. On the workbook’s **Actions**(**…**) menu, select **Move**.
3. Select the new project for the workbook, and then click **Move Content**.


Move Assets
Move "Superstore by Ship Mode" to
Personal Space (Private to me)
Projects
Apples
Bananas
Charlie
CS Training - open collaboration
Default
Delta
Sales
Tableau Samples
Cancel
Move Assets

Moving a project includes moving everything in it, including child projects and their assets.

How moving projects affect permissions

When you move a project, Project Leader permissions adapt to the new project environment.

- When the target project hierarchy is **Locked**, previous Project Leader permissions are removed, and new Project Leader permissions are granted according to those set at the top-level of the target hierarchy.
- When the target project hierarchy is **Customizable**, previous implicitly granted Project Leader permissions are removed, explicitly set Project Leader permissions are retained, and new Project Leader permissions are granted according to those set at the top-level of the target hierarchy.

When you move a project and assets, permissions may be impacted. For more information, see Permissions.

Delete a project

When you delete a project, all of the Tableau content in the project is also deleted. If you want to delete a project but not its content, move the content to another project, and then delete the project.

External assets, such as databases and tables, are not deleted, but are moved to the **External Assets Default Project**. (In Tableau Server 2022.3 and earlier, the assets can be found in **External Assets**.)

Important

- You cannot undo deleting a project.
- Deleting a project deletes all Tableau content in it, including child projects and their content, but not external assets.
- You cannot delete the **Default** project or the **External Assets Default Project**.

To delete a project:

1. In the **Explore** section, find the project you want to remove. If you're not sure where to find the project, select **All Projects** from the drop-down menu next to **Explore**, or use the filters in the upper right.
2. On the project's **Actions** (**…**) menu, select **Delete**.
3. Confirm that you want to delete the project.

Requirements for moving assets

Moving an asset is effectively like removing it from one project and publishing it to another. For non-administrators, the permissions needed on the source project are different from those needed on the destination project.

Required site role

To move assets, users must have one of the following site roles:

- Server Administrator (Tableau Server only)
- Site Administrator Creator or Site Administrator Explorer
- Creator or Explorer (can publish)

Users with a Server Administrator or Site Administrator site role do not need any additional capabilities.

Required permissions for the project that users move content *to*

Non-administrators must have the **Publish** permission capability for the destination project.

Required permissions for the project that users move content *from*

Non-administrator users must

- Be the project owner, project leader, or content owner for the original project

  OR

- Have the **Move** permission capability for the content (or, for data sources, be the data source owner). When moving a database with its tables, the user must have the Move capability for both the database *and* its tables.

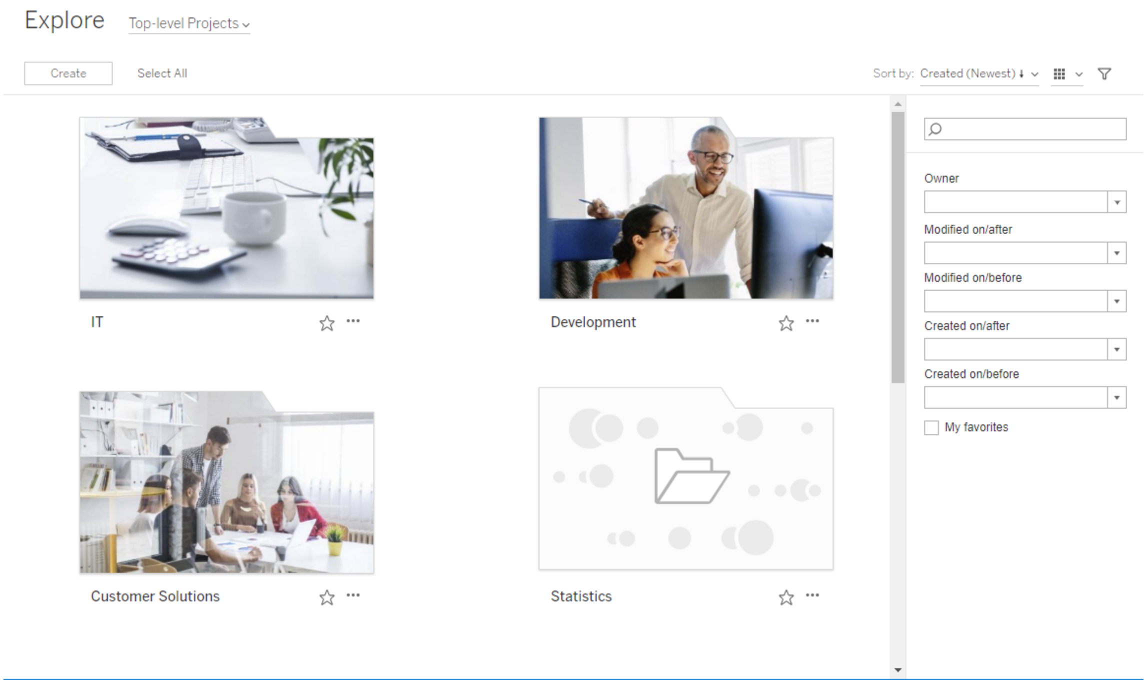
For more information on moving assets, see Move content.

Add a Project Image

To help distinguish projects you manage on Tableau Cloud (and help your users find them), you can add an image that appears in the thumbnail. Your image must meet the following requirements:

- The image must be accessible using HTTPS protocol. Shared network directory and related protocols (UNC, SMB, AFP, NFS, etc) are not supported. HTTP protocol for project images is not supported by Google Chrome.

- All users who access the project must have, at a minimum, "read-only" permission on the target image.
- The image must be common internet format: .jpg, png, or gif.

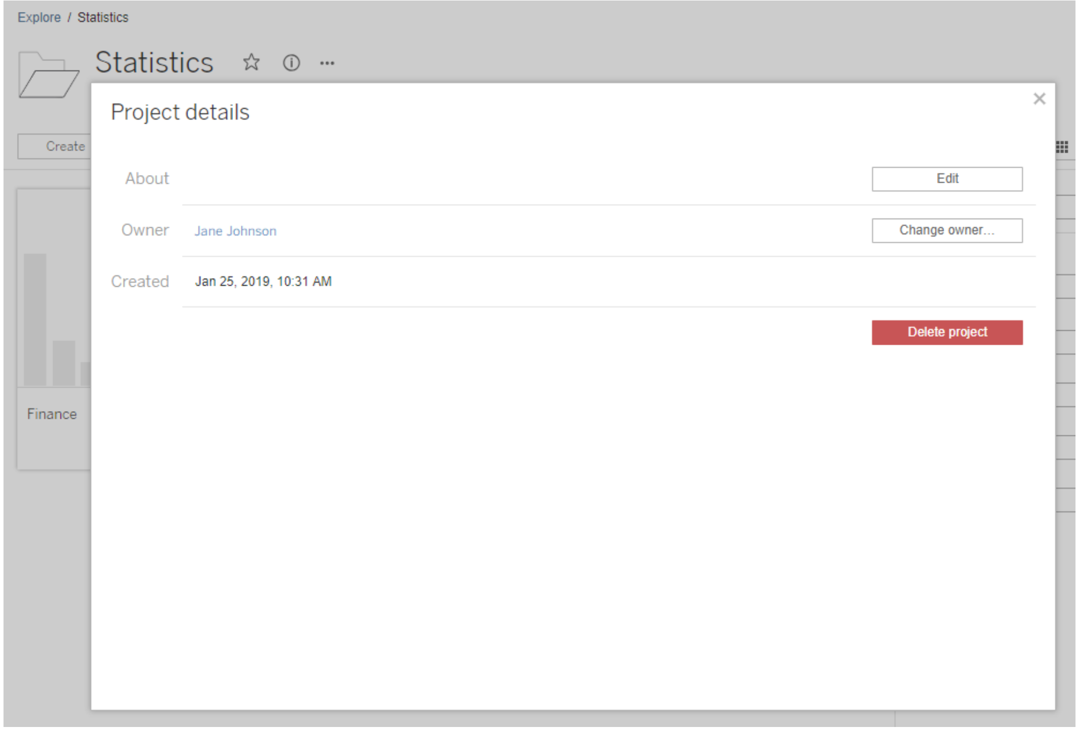

Explore
Top-level Projects
Create
Select All
Sort by: Created (Newest)
IT
Development
Customer Solutions
Statistics
Owner
Modified on/after
Modified on/before
Created on/after
Created on/before
My favorites

Set a project image

1. Sign in to a site on Tableau Cloud. In the list of **Top-level Projects** you have access to, select or navigate to the project you want to update. In this example, we'll add an image to the Statistics project folder.

   If you're not sure where to find a child project, use the **Explore** drop-down list and select **All Projects**.

2. Click the **Details** icon (i), to open the **Project details** dialog box, and then click **Edit**.


Explore / Statistics
Statistics
Create
Finance
Edit
Change owner...
Delete project

Project details

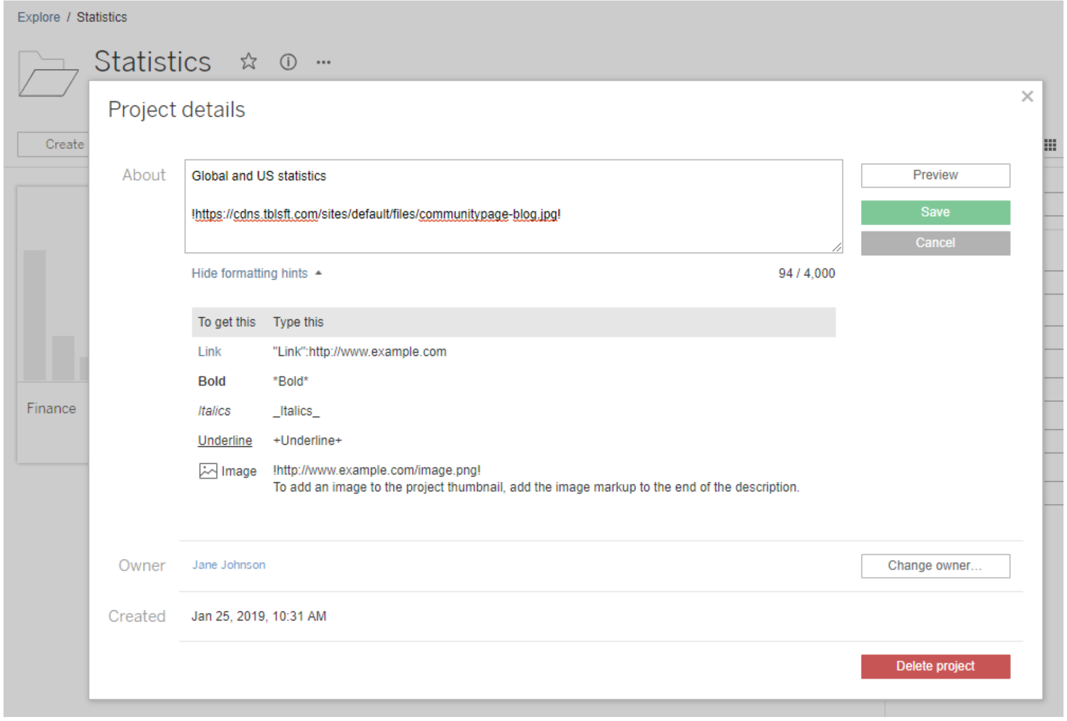
About

Owner: Jane Johnson

Created: Jan 25, 2019, 10:31 AM

3. In the **About** field, you can enter a description for your project (optional), for example "Global and US statistics." At the end of the project description, add the URL for your image using the following syntax:

   `!http://www.example.com/image.png!`


Explore / Statistics
Statistics
Create
Finance
Preview
Save
Cancel
Hide formatting hints
Change owner...
Delete project

Project details

About: Global and US statistics

!https://cdns.tblsft.com/sites/default/files/communitypage-blog.jpg!

94 / 4,000

To get this	Type this
Link	"Link":http://www.example.com
Bold	*Bold*
Italics	_Italics_
Underline	+Underline+
Image	!http://www.example.com/image.png! To add an image to the project thumbnail, add the image markup to the end of the description.

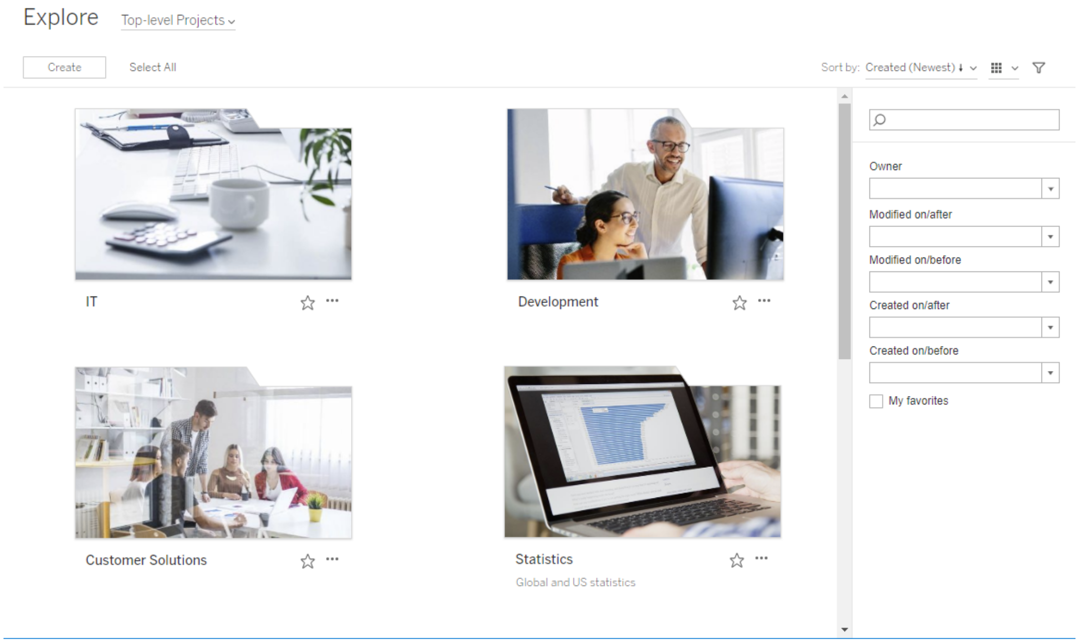
Owner: Jane Johnson

Created: Jan 25, 2019, 10:31 AM

Select **Show formatting hints** to see how you can format description text.

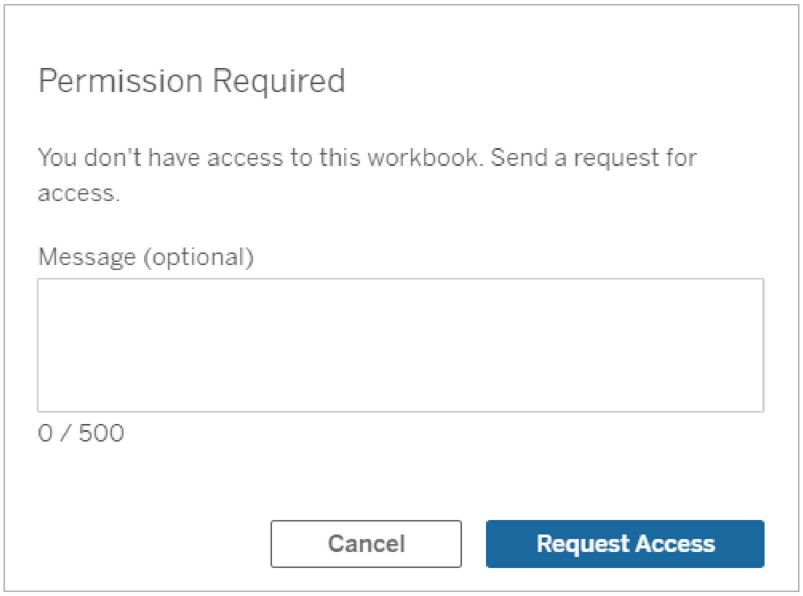
> **Note:** Images embedded in project descriptions cannot be resized or positioned. Recommended size is (300 x 184 pixels). Images that are not 300 x 184 pixels may be stretched, shrunk, or cropped to fit the width of the thumbnail. In addition, they must be added at the end of the project description and be enclosed in **!** (exclamation marks), otherwise they will not be displayed as the thumbnail.

4. Click **Save**.


Explore
Top-level Projects
Create
Select All
Sort by: Created (Newest)
IT
Development
Customer Solutions
Statistics
Global and US statistics
Owner
Modified on/after
Modified on/before
Created on/after
Created on/before
My favorites

Let Site Users Request Access to Content

Permissions determine if a user has viewing access to a workbook, view, or other content inside a project. If a user clicks on content or a project they don’t have access to, they can send a request for access to the owner who controls permissions for that content.



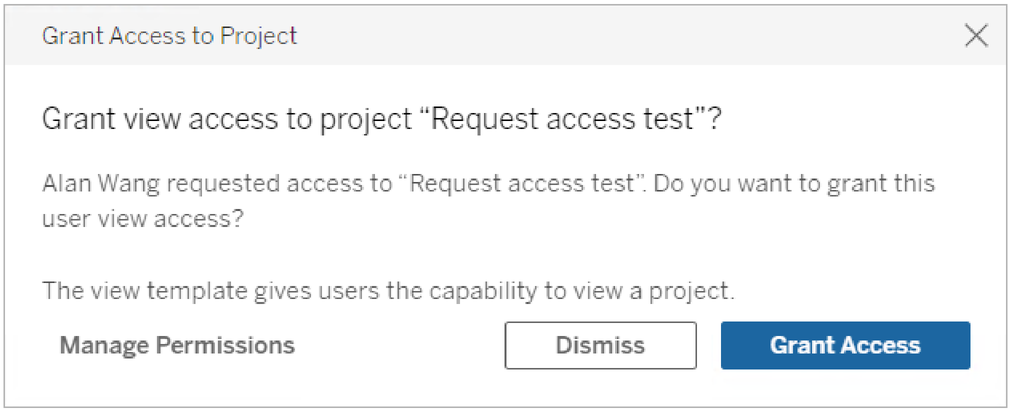
Permission Required

You don't have access to this workbook. Send a request for access.

Message (optional)
0 / 500
Cancel
Request Access

When someone requests access, the owner who controls permissions for that content (either at the project or workbook level) receives an email with the name and email of the requester, the content or project requested, and a link to grant access to the content. In Tableau Server version 2022.3 and earlier, the owner receives a link to the content to manage permissions instead of a link to directly grant access.

1. On the email notification, select **Grant Access**.
2. On the dialog that appears, to grant the view permissions template, select **Grant Access**. To grant permissions other than the view template, select **Manage Permissions**.



Grant Access to Project

Grant view access to project "Request access test"?

Alan Wang requested access to "Request access test". Do you want to grant this user view access?

The view template gives users the capability to view a project.

If a user requests access to a workbook and content permissions are locked to the project, then the project owner receives the request. Likewise, if a user requests access to a workbook and project permissions are managed by the workbook owner, then the workbook owner receives the request.

After permission is granted, the owner can email the requester to let them know they have view capability to the project or workbook.

Default settings

The Request Access setting is enabled by default on a new site. To enable the setting if it's been disabled:

1. Go to the General tab of the Settings page for your site.
2. On the General tab, scroll down to Request Access and select **Let users request access to projects, workbooks, and views**.
3. Click **Save**.

Configure project permissions

You can control who receives the access request by adjusting the project's content permissions. If content permissions are:

- Locked to the project: the project owner receives the request.
- Managed by the owner: The workbook owner receives the request.

To manage content access using projects, see Use Projects to Manage Content Access and Permissions.

For more information about how permission rules are evaluated, see Permissions: Evaluate permission rules.

Change project permissions

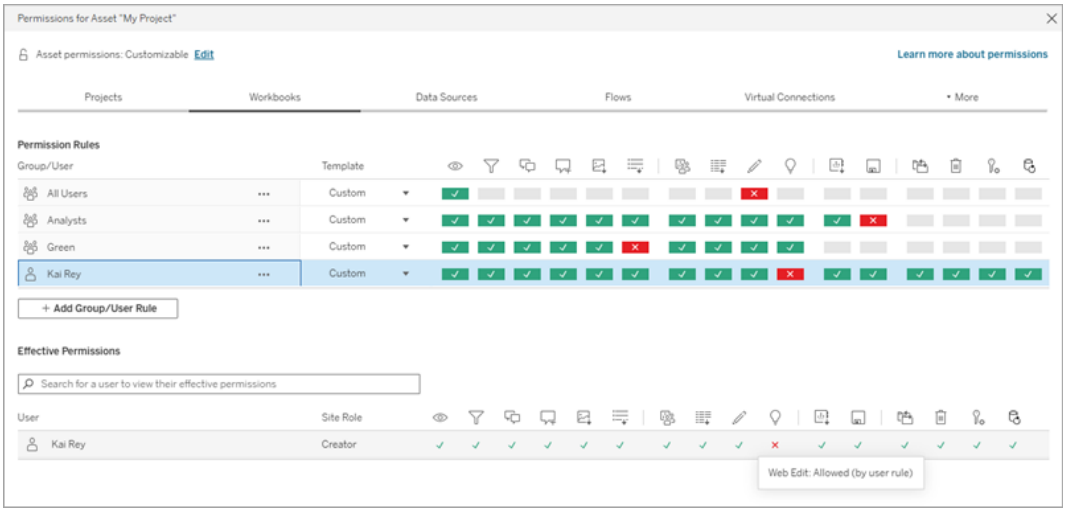
For administrators and project leaders

Permissions can be set at the project level for both the project itself and for any content in the project. For example, if workbook permissions are configured at the project level, all workbooks published into that project inherit those default permissions. However, the Creator can choose to change the permissions during publishing, or certain users can change the permissions on published content. To enforce the permissions established at the project level, **Content Permissions** can be locked to the project. For more information, see Lock asset permissions.

To set permissions at the project level:

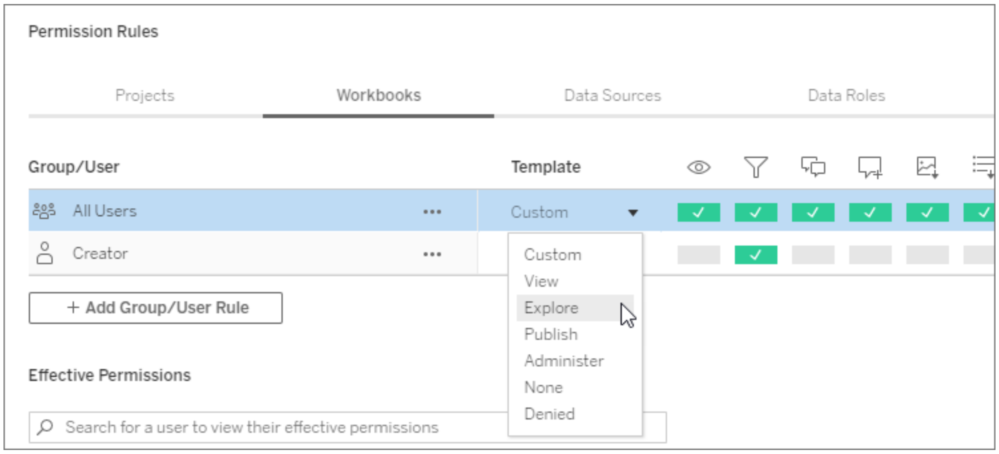
1. Navigate to the project
2. Open the Actions menu (...) and click **Permissions**. The permissions dialog box opens.

This dialog box has two main areas: permission rules at the top and the effective permissions grid below. Use the tabs to navigate between types of content.


Permissions for Asset "My Project"
Asset permissions: Customizable Edit
Learn more about permissions
Projects
Workbooks
Data Sources
Flows
Virtual Connections
• More
Permission Rules
Group/User
Template
All Users
Custom
Analysts
Custom
Green
Custom
Kai Rey
Custom
+ Add Group/User Rule
Effective Permissions
Search for a user to view their effective permissions
User
Site Role
Kai Rey
Creator
Web Edit: Allowed (by user rule)

With a row selected at the top, the effective permissions grid populates. Use this to verify permissions. Hovering over a capability indicator provides information about why the capability is allowed or denied for that specific user.

3. To modify an existing permission rule, select the rule and click the capability boxes to toggle through allowed/denied/unspecified.
4. To create a new rule,
   a. Select **+ Add Group/User Rule**.
   b. Select a group or user from the drop-down box. This creates a row where you can configure the permission rule.
5. In the row for the permission rule
   a. choose an existing permission role template from the drop-down box for each content type tab.


Permission Rules
Projects
Workbooks
Data Sources
Data Roles
Group/User
Template
All Users
Custom
Creator
Custom
View
Explore
Publish
Administer
None
Denied
+ Add Group/User Rule
Effective Permissions
Search for a user to view their effective permissions

   b. Or create a custom rule by navigating to a content type tab and clicking the capabilities. One click sets the capability to **Allowed**, two clicks sets it to **Denied**, and a third click clears the selection (**Unspecified**).

6. When finished, click **Save**.

Change content permissions

For administrators, project leaders, and content owners

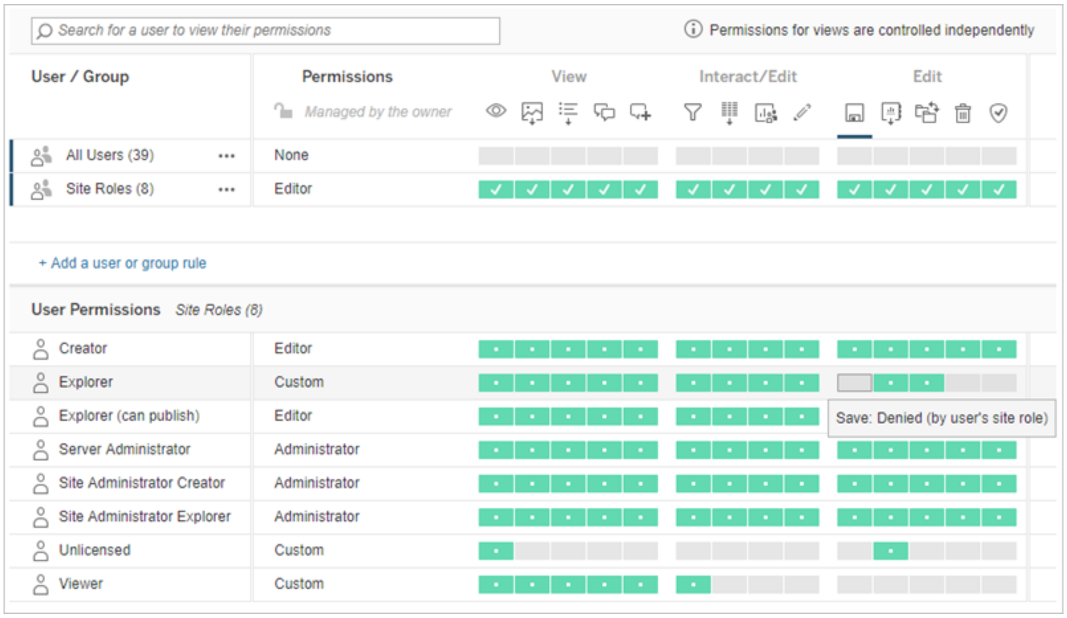
If project permissions are not locked, permissions for individual pieces of content can be modified.

Warning: Tableau recommends managing permissions at the project level within the Tableau site. These steps are relevant only for content in projects where permissions are managed by the owner.

Set permissions on content

1. Navigate to the content (workbook, data source, flow, data role)
2. Open the Actions menu (...) and click **Permissions**. The permissions dialog box opens.

   This dialog box has two main areas: permission rules at the top and the effective permissions grid below.



Search for a user to view their permissions

Permissions for views are controlled independently

User / Group	Permissions	View					Interact/Edit				Edit				
	Managed by the owner														
All Users (39)	None														
Site Roles (8)	Editor	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

+ Add a user or group rule

User Permissions *Site Roles (8)*															
Creator	Editor	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩
Explorer	Custom	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩		🟩	🟩		
Explorer (can publish)	Editor	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩					
Server Administrator	Administrator	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩
Site Administrator Creator	Administrator	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩
Site Administrator Explorer	Administrator	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩	🟩
Unlicensed	Custom	🟩										🟩			
Viewer	Custom	🟩	🟩	🟩	🟩	🟩	🟩								

Save: Denied (by user's site role)

With a row selected at the top, the effective permissions grid populates. Use this to verify permissions. Hovering over a capability square provides information about why the capability is allowed or denied for that specific user.

3. To modify an existing permission rule, open the Actions menu (...) for that row and click **Edit**.
4. To create a new rule,
   a. Select **+ Add a user or group rule**.
   b. If necessary, use the drop-down box on the right to change between groups and users.
   c. Select a group or user from the drop-down box. This creates a row where you can configure the permission rule.
5. In the row for the permission rule, choose an existing permissions role template from the drop-down box or create a custom rule by clicking the capabilities.

   One click sets the capability to **Allowed**, two clicks sets it to **Denied**, and a third click clears the selection (**Unspecified**).
6. When finished, click **Save**.

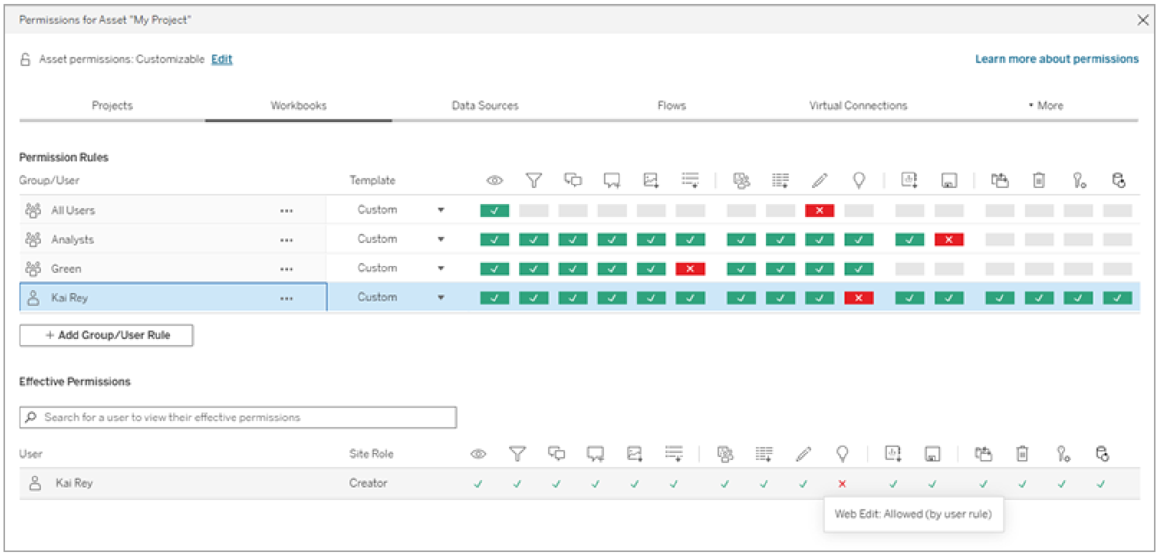
Set permissions on a view

In some situations, it may be valuable to specify permissions on a view independently from the workbook that contains it. To set permissions on a published view, navigate to the view within a published workbook and follow steps above.

Warning: While it is possible to set view-level permissions within a workbook, we strongly recommend managing permissions at the project (or workbook) level as much as possible. For views to inherit permissions, the project must be locked or the workbook must be published with **Show Sheets as Tabs**. See Let Site Users Request Access to Content for more information.

Permissions

Permissions determine how users can interact with content such as workbooks and data sources. Permissions are set in the permission dialog or via the REST API. At the top of the dialog, permission rules configure capabilities for groups or users. Below, the permissions grid displays the effective permissions for users.



Permissions for Asset "My Project"
Asset permissions: Customizable Edit
Learn more about permissions
Projects
Workbooks
Data Sources
Flows
Virtual Connections
• More

Permission Rules

Group/User	Template																
All Users	Custom	✓								✗							
Analysts	Custom	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗				
Green	Custom	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓						
Kai Rey	Custom	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓

+ Add Group/User Rule

Effective Permissions

Search for a user to view their effective permissions

User	Site Role																
Kai Rey	Creator	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓

Web Edit: Allowed (by user rule)

There are several interrelated topics that discuss how to think about, set, and manage permissions. The main topics are:

- This topic, which covers the fundamentals, how to set permission rules for projects and other content, and permission considerations for specific scenarios.
- Permission Capabilities and Templates, which covers in detail the various capabilities that are used to build permission rules.
- Manage Permissions with Projects, which covers using projects to manage permissions and how nested and locked projects impact permissions.
- Effective permissions, which covers how permission rules are evaluated and how final permissions are determined.
- Permissions, Site Roles, and Licenses, which covers how permissions interact with site roles and licenses to determine what a user can do on a site.

Additionally, if Data Management is licensed, permissions for external assets have additional considerations. For more information, see Manage Permissions for External Assets.

Permissions fundamentals

Projects and groups

Tableau sites use *projects* to organize content and *groups* to organize users. Managing permissions is easier when permission rules are:

- Set at the project level instead of on individual pieces of content.
- Established for groups instead of individuals.

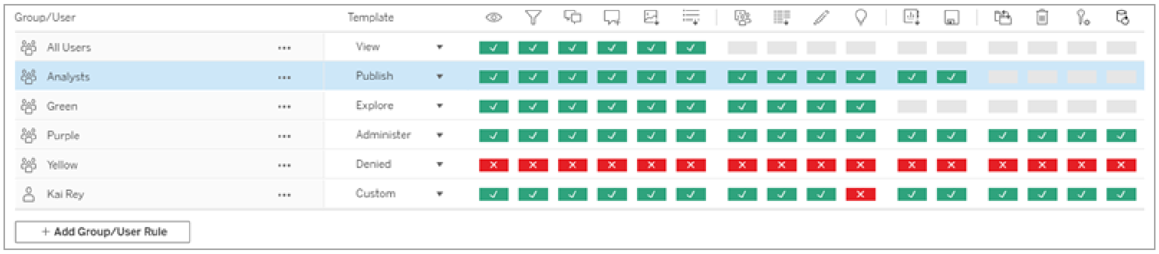
Permissions can only be established for users, groups, projects, or assets that already exist. For more information about creating users and groups, creating projects, and publishing content, see Manage Users and Groups, Use Projects to Manage Content Access , and Publish Data Sources and Workbooks.

Capabilities and permission rules

Permissions are made up of *capabilities*—the ability to perform actions like view content, web edit, download data sources, or delete content. *Permission rules* establish what capabilities are allowed or denied for a user or group on an asset.

For more information about capabilities and permission rule templates, see Permission Capabilities and Templates.

> **Note:** When talking about permissions in general, it’s common to see a phrase like "a user must have the delete *permission*." This is easy to understand in a broad context. However, when working with permissions at a technical level like in this article, it’s more accurate to say "the delete *capability*." In this topic we’ll use the more precise term *capability*, but you should be aware that you might see *permission* in other places.



Group/User	Template																		
All Users	View	✓	✓	✓	✓	✓	✓												
Analysts	Publish	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						
Green	Explore	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓								
Purple	Administer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Yellow	Denied	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗
Kai Rey	Custom	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✓	✓	✓	✓

For a breakdown of the capability icons and their meanings, see Permission Capabilities and Templates.

The interplay between license level, site role, and potentially multiple permission rules factor into the final determination of what a user can or can’t do. For each user this becomes their *effective permissions*. For more information, see Effective permissions.Some tasks such as creating new workbooks from a browser (web authoring) or moving content might require specific configurations of several capabilities rather than being captured in a single capability. For more information, see Permission settings for specific scenarios.

Set permissions

Permission rules are set differently at the project level, at the content level, or when publishing content from Tableau Desktop.

> **Note**: The phrase "project permissions" can have two meanings. There are the permission capabilities for a project itself—View and Publish—that control how a user can interact with a project. There is also the concept of project-level permission rules for other content types. In this article “project-level permissions” means permission rules for

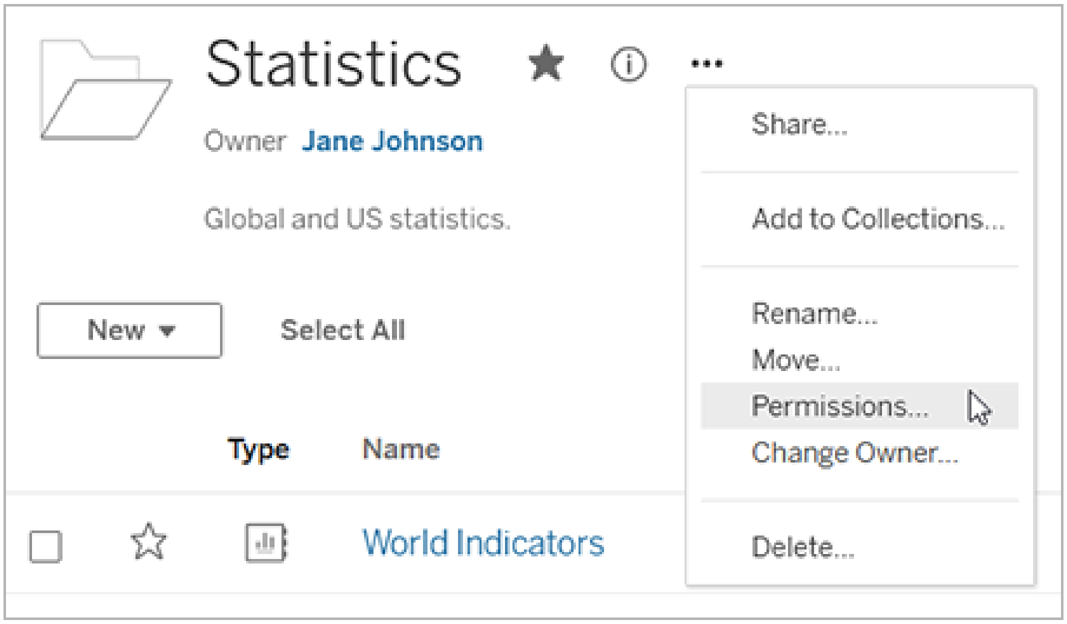
workbooks, data sources, and the other assets that are configured in the permission dialog for a project. This is in contrast to “content-level” permission rules that can be set on a specific workbook, data source, etc.

Project-level permissions

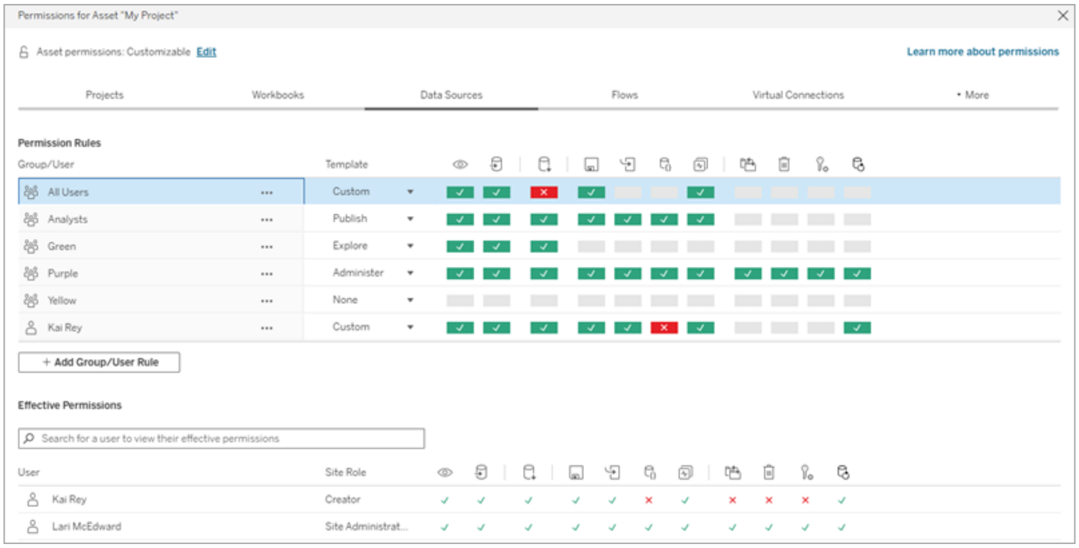
For administrators, project owners, and project leaders

To set permissions at the project level:

1. Navigate to the project
2. Open the Actions menu (...) and click **Permissions**.


Statistics
Owner Jane Johnson
Global and US statistics.
New ▾
Select All
Type
Name
World Indicators
Share...
Add to Collections...
Rename...
Move...
Permissions...
Change Owner...
Delete...

The permissions dialog opens. This dialog has two main areas: permission rules at the top and the effective permissions grid below. Each content type has a tab. The image below shows the Data Sources tab.



Permissions for Asset "My Project"

Asset permissions: Customizable Edit

Learn more about permissions

Permission Rules

Group/User	Template											
All Users	Custom	✓	✓	✗	✓			✓				
Analysts	Publish	✓	✓	✓	✓	✓	✓	✓				
Green	Explore	✓	✓	✓								
Purple	Administer	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Yellow	None											
Kai Rey	Custom	✓	✓	✓	✓	✓	✗	✓				✓

Effective Permissions

Search for a user to view their effective permissions

User	Site Role											
Kai Rey	Creator	✓	✓	✓	✓	✓	✗	✓	✗	✗	✗	✓
Lari McEdward	Site Administrat...	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

With a row selected at the top, the effective permissions grid populates. Use this to verify permissions. Hovering provides information about why the capability is allowed or denied for that specific user.

3. To modify an existing permission rule, select the appropriate tab for that content type and click a capability.
4. To create a rule, click **+ Add Group/User Rule** and start typing to search for a group or user. For each tab, choose an existing template from the dropdown box or create a custom rule by clicking the capabilities.

   One click sets the capability to **Allowed**, two clicks sets it to **Denied**, and a third click clears the selection (**Unspecified**).

5. When finished, click **Save**.
   - If the "None" template is selected, the button will say "Delete Rule".

Set project permissions for all content types

Remember that the permissions dialog for a project contains tabs for each type of content. **You must set permissions for each type of content at the project level or users will be denied access to that content type**. A capability is only granted to a user if they’re expressly allowed it. Leaving a capability as Unspecified will result in it being denied.

Tip: Every time you create a permission rule at the project level, make sure you look through all the content type tabs.

Configure the asset permissions setting

Permission rules set at the project level act as a default for content saved in that project and any nested projects it contains. Whether those project-level default rules are kept uniform or are able to be edited depends on the **Asset permissions** setting. This setting can be configured in two ways, either **Locked** or **Customizable**. For more information, see Lock asset permissions.

Content-level permissions

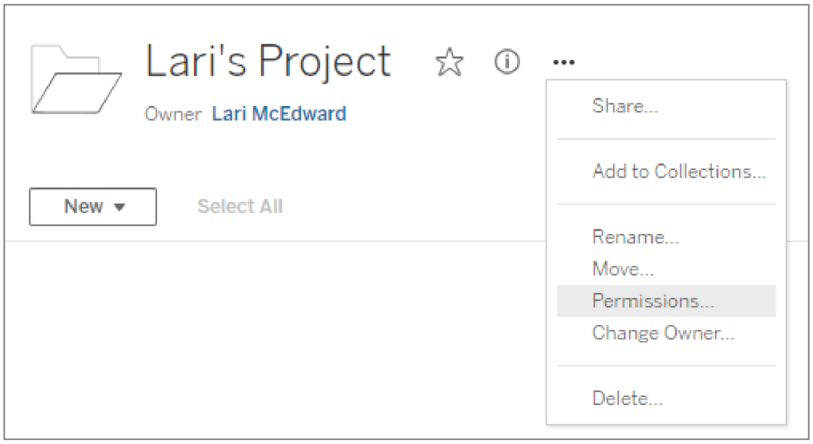
For administrators, project leaders, and content owners

If project **Asset permissions** are **Customizable**, permissions for individual assets can be modified. The information below isn’t relevant to assets in locked projects. For more information, see Lock asset permissions.

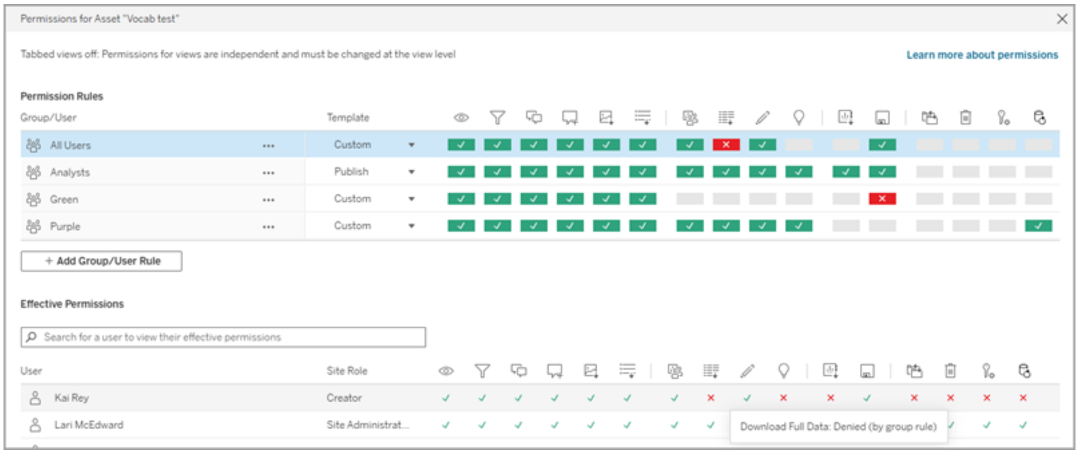
Tip: While it is possible to set permissions on individual assets in **Customizable** projects, we recommend managing permissions at the project level.

Set permissions on assets

1. Navigate to the asset (such as a workbook, data source, or flow)
2. Open the Actions menu (...) and click **Permissions**.


Lari's Project
Owner Lari McEdward
New ▾
Select All
Share...
Add to Collections...
Rename...
Move...
Permissions...
Change Owner...
Delete...

The permissions dialog opens. This dialog has two main areas: permission rules at the top and the effective permissions grid below. (Note the lack of tabs across the top—an asset-level permissions dialog has no tabs.)


Permissions for Asset "Vocab test"

Tabbed views off: Permissions for views are independent and must be changed at the view level

Learn more about permissions

Permission Rules

Group/User	Template																
All Users	Custom ▾	✓	✓	✓	✓	✓	✓	✓	✗	✓			✓				
Analysts	Publish ▾	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓				
Green	Custom ▾	✓	✓	✓	✓	✓	✓						✗				
Purple	Custom ▾	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓						✓

+ Add Group/User Rule

Effective Permissions

Search for a user to view their effective permissions

User	Site Role																
Kai Rey	Creator	✓	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✓	✗	✗	✗	✗
Lari McEdward	Site Administrat...	✓	✓	✓	✓	✓	✓	✓	✓						✓	✓	✓

Download Full Data: Denied (by group rule)

With a row selected at the top, the effective permissions grid populates. Use this to verify permissions. Hovering over a capability square provides information about why the capability is allowed or denied for that specific user.

3. To modify an existing permission rule, click a capability.

4. To create a rule, click **+ Add Group/User Rule** and start typing to search for a group or user. Choose an existing template from the dropdown or create a custom rule by clicking the capabilities.

   One click sets the capability to **Allowed**, two clicks sets it to **Denied**, and a third click clears the selection (**Unspecified**).

5. When finished, click **Save**.
   - If the "None" template is selected, the button will say "Delete Rule".

Set permissions on a view

Tip: While it's possible to set view-level permissions within a workbook, we strongly recommend managing permissions at the project (or, if necessary, workbook) level.

If a workbook is published with **Show Sheets as Tabs** checked, the views in that workbook will inherit all permissions set for the workbook. The permission dialog for a view will be read-only.

In some situations, it may be valuable to specify permissions on a view independently from the workbook that contains it. If the workbook is published with **Show Sheets as Tabs** unchecked (sheet tabs hidden), the views will start with the workbook permissions but will be independent thereafter and can be set independently. Note that this means if the permission rules are modified for the workbook, those changes won't be applied to the views—each view's permissions will need to be managed individually.

See Show or Hide Sheet Tabs for more information.

Set permissions at publish

For content publishers

If project **Asset permissions** are **Customizable**, permissions for individual assets can be set when publishing from Tableau Desktop. The information below isn't relevant for content in locked projects. For more information, see Lock asset permissions.

Tip: While it’s possible to set permissions on individual assets in **Customizable** projects, we recommend managing permissions at the project level.

1. From the publishing dialog , click the Edit link for **Permissions**.
   If the Edit link is unavailable, permissions are locked to the project and can’t be modified except by the project owner, project leader, or an administrator.
2. The Add/Edit Permissions dialog shows any existing permission rules. Click **Add** to add a permission rule or **Edit** to modify an existing permission rule
   a. Select the group or user from the left pane. You can expand a group to see which users it contains.
   b. Use the selector at the top of the right pane to choose an existing template, or use the radio buttons to create a custom rule.

   Note that effective permissions can’t be inspected from the publishing dialog.
3. When finished, click **OK** and resume publishing.

Note: Permissions can’t be set while publishing flows from Tableau Prep Builder. To set permissions on a flow, refer to the steps for Project-level permissions or Content-level permissions.

Clean up the All Users group

By default, all users are added to an "All Users" group that has basic permissions for content. To start with a clean slate when building your own permission rules, we recommend that you delete the rule entirely or edit the rule for All Users to remove any permissions (set the permission role template to None). This helps prevent any ambiguity down the road by reducing the number of rules that applies to any given user and therefore making effective permissions easier to understand.

Permission settings for specific scenarios

Certain actions require combinations of permission capabilities and possibly site roles. The following are some common scenarios and their necessary permission configurations

Saving, publishing, and overwriting

In the context of permissions, saving is essentially publishing. As such, the **Overwrite** and **Save a Copy** capabilities can only be given to users with a site role that allows publishing: Administrator, Creator, or Explorer (can publish). Explorer or Viewer site roles can't publish, overwrite, or save a copy.

- The **Publish** capability for a project allows a user to publish content into that project.
- The **Overwrite** capability for content allows a user to save over an existing piece of content. By saving over the content, the user becomes the owner of that content. The Overwrite capability also allows users to edit minor aspects of existing pieces of content, such as the description for a metric or the synonyms for a data role. Editing the existing content in this way doesn't change the owner of the content.
- The **Download / Save a Copy** or **Save a Copy** capability for content allows a user to use the **Publish As...** menu option to save a new copy of the content. This is usually done in conjunction with web authoring and means the user can save their modifications.
  - Saving a copy of a workbook is distinct from autosave, which maintains any changes as a draft.

A place to publish

It's important to note that users aren't able to Publish or Publish As a piece of content unless they have the **Publish** capability for at least one project, because all content must be published into a project. Without the **Publish** capability at the project level, the content can't be published.

Overwrite and claim ownership

In web editing, the **Publish** option in the File menu only appears to the content owner. If a user who isn't the owner has the **Overwrite** capability (allowing them to save the content), they must use **File > Publish As...** and name the workbook the exact same name. This prompts a warning that they're about to overwrite the existing content, which they can do. Conversely, a user with only the **Save a Copy** capability trying to use the same name gets an error stating they don't have permission to overwrite the existing content.

If a user who isn’t the content owner overwrites content, they become the owner, with all the permissions that entails. The original owner’s access to the content is then determined by their permissions as a user rather than the owner.

> **Note**: **Download/Save a Copy** is a joint capability for workbooks. Explorers can be given this capability but they’re only able to download the workbook, not save a copy using **Publish As**. Giving the capability to Explorer (can publish), Creator, or Administrator site roles gives them both the ability to download workbooks *and* save a copy using the publishing options in the File menu.

Web Editing and Web Authoring

Web editing and web authoring allows users to edit or create workbooks directly in the browser.

The permission capability is called *Web Edit* and the site setting is called *Web Authoring*. This section refers to any web-based editing or publishing action as *web authoring*.

To enable this functionality, there are several requirements.

- **User site role**: The user must have the appropriate site role.
  - Viewers can never web edit.
  - Explorers can be given the web edit capability but can’t publish. Essentially, they can use web editing to answer deeper questions based on existing content on the fly, but can’t save their edits.
  - Explorers (can publish) or Site Administrator Explorers can publish, but they can only use data that is already published to the site.
  - Creators, Site Administrator Creators, and Server Administrators can publish and create data sources.
- **Permission capabilities**: The user must have the necessary permission capabilities based on the desired functionality.

Required Permission Capability Settings

Desired functionality	Minimum Site Role	✎	Down-	Over-	Pub-	Con-

		Web Edit	load/ Save a Copy	write *(workbook)*	lish *(project)*	nect (*data source*)
Web author without being able to save	*Explorer*	✓ Allow	✗ Deny	✗ Deny	Optional	✓ Allow
Web author and save as new content	*Explorer (can publish)*	✓ Allow	✓ Allow	✗ Deny	✓ Allow	✓ Allow
Web author and save (overwrite) content	*Explorer (can publish)*	✓ Allow	✓ Allow	✓ Allow	✓ Allow	✓ Allow
Web author with new data and save new content	*Creator*	✓ Allow	Optional	Optional	✓ Allow	Optional

Optional indicates this capability isn’t involved in the desired functionality

Data access for published Tableau data sources

Data sources published to a Tableau site can have native authentication as well as permissions within the Tableau environment.

When the data source is published to the Tableau site, the publisher can choose how to Set Credentials for Accessing Your Published Data, which addresses how data source credentials are handled (such as requiring users to log into a database or enter their credentials for Google Sheets). This authentication is controlled by whatever technology holds the data. This can be embedded when the data source is published, or the data source publisher can choose to prompt the user for their credentials to the data source. For more information, see Publish a Data Source.

There are also data source capabilities that allow or deny users the ability to see (**View**) and connect to the published data source (**Connect**) in the context of Tableau. These capabilities are set like any other permissions in Tableau.

When a workbook is published that uses a published data source, the author can control how the Tableau authentication behaves for someone consuming the workbook. The author sets the workbook's access to the published data source, either as **Embed password** (using the author's Connect access to the data source) or **Prompt users** (using the Connect access of the person viewing the workbook), which may require data source authentication as well.

- When the workbook is set to **Embed password**, anyone who looks at the workbook sees the data based on the author's access to the data source.
- If the workbook is set to **Prompt users**, the Tableau-controlled access is checked for the data source. The person consuming the workbook must have the Connect capability for the published data source to see the data. If the published data source is also set to Prompt user, the viewer must also enter their credentials for the data source itself.

Workbook authentication to the data source	Data source authentication to the data	How data access is evaluated for someone consuming the workbook
Embed password	Embed password	User sees the data as if they were the workbook author
Embed password	Prompt user	User sees the data as if they were the workbook author. (The author is prompted for data source authentication, not the user.)
Prompt user	Embed password	User must have their own **Connect** capability to the published data source
Prompt user	Prompt user	User must have their own **Connect** capability to the published data source and are prompted for their credentials to the underlying data

Note that this applies to consuming a workbook, not web editing. To web edit, the user must have their own Connect capability.

For information on embedding passwords when you publish Tableau content such as a data source or workbook that uses a virtual connection, see Virtual connections in the Tableau Server help.

Allow other users to refresh extracts

Users with the Explorer (can publish) site role or higher can be granted the Refresh Extracts capability on workbooks or data sources. This capability provides users with the same interface as the asset owner for triggering an extract refresh. The extract must either be a published data source or, if it's local to a workbook, have embedded credentials.

Because extract refreshes can be resource intensive and may already be scheduled, consider the following best practices when assigning the Extract Refresh capability:

- **Infrequently used extracts**: Grant users the ability to refresh extracts on demand and consider turning off redundant or unneeded scheduled refreshes.
- **Regularly used extracts**: Consider scheduling extract refreshes and limiting the Extract Refresh capability for on-demand refreshes.
  - Assign the extract refresh capability as a backup to prevent bottlenecks dependent on the asset owner or administrators, rather than granting these permissions broadly.

Move content

To move an item, open its Action menu (...) and click **Move**. Select the new project for the item, then click **Move Assets**. If **Move** is unavailable or there are no available destination projects, verify the appropriate conditions are met:

- Administrators can always move assets and projects to any location.
- Project leaders and project owners can move assets and nested projects among their projects.
  - Note that non-administrators can’t move projects to become top-level projects
- Other users can move assets only if all three of the following requirements are met:
  - Creator or Explorer (Can Publish) site role.
  - Publishing rights (**View** and **Publish** capabilities) for the destination project

- Owner of the content, or—for workbooks and flows—having the **Move** capability.

When moving a database with its tables, the user must have the **Move** capability for both the database *and* its tables.

For information about how permissions are handled when moving content and projects, see Move projects and content.

Metrics (retired 2024.2)

Tip: The information in this section is for the legacy metrics feature, which was retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. For information about permissions for Tableau Pulse metrics, see Set Up Your Site for Tableau Pulse.

Retirement of the legacy metrics feature

Tableau's legacy metrics feature was retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. In October 2023, Tableau retired the ability to embed legacy metrics in Tableau Cloud and in Tableau Server version 2023.3. With Tableau Pulse, we've developed an improved experience to track metrics and ask questions of your data. For more information, see Create Metrics with Tableau Pulse to learn about the new experience and Create and Troubleshoot Metrics (Retired) for the retired feature.

Metrics are created from views in published workbooks. Users can create metrics if they:

- Are a Creator or Explorer (can publish) site role
- Have the **Publish** capability on a project
- Have the **Create/Refresh Metric** capability for the relevant workbook

For more information, see Create and Troubleshoot Metrics (Retired) and Set Up for Metrics.

Note: Prior to 2021.3, the ability to create a metric on a view was controlled by the Download Full Data capability.

Because metrics are independent assets, it’s important to note that the permissions for metrics are managed independently from the view they were created from. (This is unlike data-driven alerts and subscriptions, where the content of the alert or subscription can only be seen if the user has the correct permissions for the view itself.)

Although the capabilities for metrics are straightforward, the **View** capability should be considered carefully. It may be possible for a workbook with restricted permissions to be the basis for a metric with more open permissions. To protect sensitive data, you might want to deny metric creation for specific workbooks.

Metrics display data from their owner’s perspective

When you create a metric, you capture your perspective of the data from that view. This means that any users who can access your metric will see the data as it appears to you. If the data in the view is filtered based on your credentials, the data you see might be different from what other users see when they access the same view. Limit the **View** capability for your metric if you're concerned about exposing your perspective of the data.

Explain Data

When Explain Data is available, a user can select a mark in a view and click Run Explain Data in the mark’s Tooltip menu. A combination of settings must be enabled to make Explain Data available in editing mode and viewing mode.

Requirements for authors to run Explain Data or edit Explain Data settings in editing mode:

- Site setting: **Availability of Explain Data** set to **Enable**. Enabled by default.
- Site role: Creator, Explorer (can publish)
- Permissions: **Run Explain Data** capability set to **Allowed**. Unspecified by default. If you open a workbook (Tableau version 2022.1 or earlier) that used this permission in Tableau version 2022.2 or later, you must reset the Run Explain Data capability to Allowed.

Note: The **Download Full Data** capability for a Creator or Explorer (can publish) controls whether they see the View Full Data option in Extreme Values explanations. Viewers are always denied the Download Full Data capability. However, all users can see record-level details when the Extreme Values explanation type is enabled in Explain Data settings.

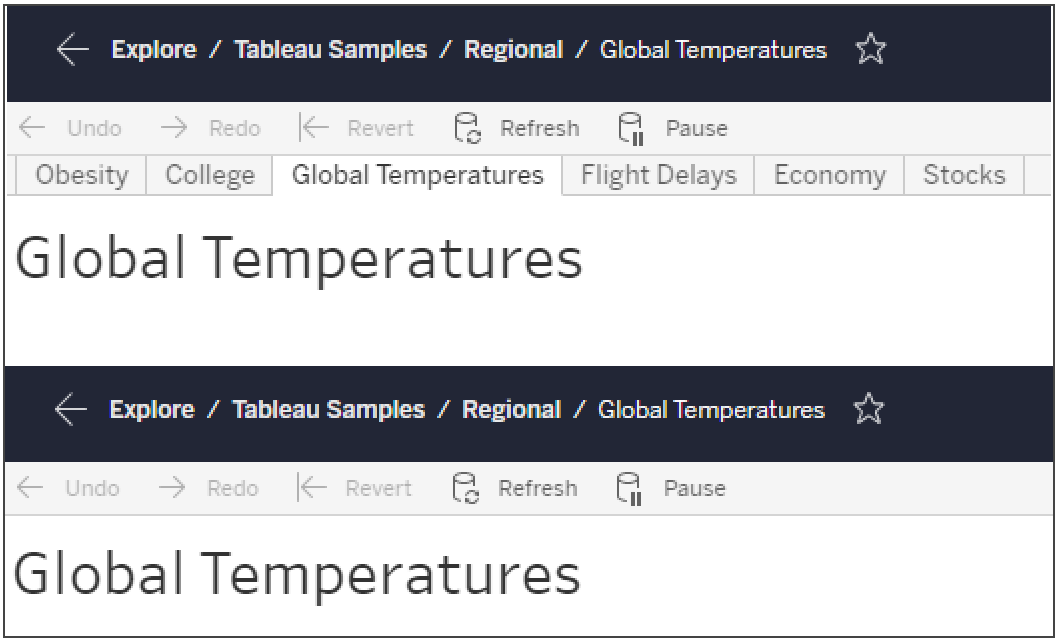
Requirements for all users to run Explain Data in viewing mode:

- Site setting: **Availability of Explain Data** set to **Enable**. Enabled by default.
- Site role: Creator, Explorer, or Viewer
- Permissions: **Run Explain Data** capability set to **Allowed**. Unspecified by default. If you open a workbook (Tableau version 2022.1 or earlier) that used this permission in Tableau version 2022.2 or later, you'll need to reset the Run Explain Data capability to Allowed.

Show or Hide Sheet Tabs

In the context of published content, sheet tabs (also referred to as tabbed views) is a distinct concept from sheet tabs in Tableau Desktop. Showing and hiding sheet tabs in Tableau Desktop refers to hiding sheets in the authoring environment. For more information, see Manage Sheets in Dashboards and Stories.

Showing and hiding sheet tabs (turning tabbed views on or off) for published content refers to navigation in a published workbook. When sheet tabs are shown, published content has navigational sheet tabs along the top of each view.


Explore / Tableau Samples / Regional / Global Temperatures
Undo
Redo
Revert
Refresh
Pause
Obesity
College
Global Temperatures
Flight Delays
Economy
Stocks
Global Temperatures
Explore / Tableau Samples / Regional / Global Temperatures
Undo
Redo
Revert
Refresh
Pause
Global Temperatures

This setting also impacts how permissions function and may have security implications (see note).

> **Note:** It’s possible to have the **View** capability for a view without the **View** capability for the workbook or project that contain it. Normally if a user lacks the View capability for a project and workbook, they wouldn’t know those assets exist. If they have the View capability for a view, however, a user may be able to see the project and workbook name when looking at the view, such as in the navigational breadcrumb. This is expected and accepted behavior.

Turn off tabbed views to allow independent view permissions

Although it isn’t recommended as a general practice, there are times when it can be useful to set permissions on views independently of the workbook that contains them. To do so, three conditions must be met:

1. The workbook must be published—there’s no way to set view permissions during publishing.

2. The workbook must be in a customizable project.
3. The workbook can’t show sheets as tabs (tabbed views must be hidden).

When a workbook shows sheets as tabs, all views inherit the workbook permissions and any changes to the workbook permissions affect all of its views. **When a workbook in a customizable project doesn’t show tabbed views, all views assume the workbook permissions upon publication, but any subsequent changes to the workbook’s permission rules *won’t be inherited by the views*.**

Changing the configuration of sheets as tabs on a published workbook will also impact the permission model. Show Tabs overrides any existing view-level permissions and reinstate the workbook-level permissions for all views. Hide Tabs breaks the relationship between the workbook and its views.

- To configure sheets as tabs on a published workbook, open the Actions menu (...) for the workbook and select **Tabbed Views**. Choose **Show Tabs** or **Hide Tabs** as desired.
- To configure sheets as tabs during publishing, refer to Show sheets as tabs.
- To set view-level permissions, see Set permissions on assets.

Important: In a customizable project, any modifications to the workbook-level permissions won’t be applied if navigational sheet tabs are hidden (aka tabbed views are off). Changes to permissions must be made on individual views.

Collections

For information on managing permissions in Collections, refer to Collections.

Permission Capabilities and Templates

Permissions are made up of capabilities, or the ability to perform a given action on a piece of content, such as view, filter, download, or delete. Each row in the Permission Rules area of the dialog is a *permission rule*. Permission rules are the setting for each capability (allowed, denied, or unspecified) for the group or user in that row. Permission rules have *templates* available that make it easier to assign capabilities quickly. Permission rules can also be copied and pasted.

Note: In the permission dialog for projects, there are tabs for each content type: **Projects**, **Workbooks**, **Data Sources**, **Data Roles**, **Flows**, **Ask Data Lenses**, **Metrics** and—if you have the Data Management—**Virtual Connections**, **Databases**, and **Tables**. (Virtual connections were added in Tableau Server 2021.4 and Tableau Cloud December 2021. Databases and tables were added in Tableau Server 2022.3 and Tableau Cloud October 2022.) When a permission rule is added, the default for all capabilities across all content types is Unspecified. To allow or deny capabilities for each content type, you must go to each tab in turn. In the permission dialog for a specific piece of content, there are no tabs and the permission rules only apply to that piece of content.

Templates

Templates group sets of capabilities that are often assigned together based on common user scenarios, **View**, **Explore**, **Publish**, and **Administer**. When you assign a template, its included capabilities are set to **Allowed**, with the rest left as **Unspecified**. The templates are cumulative, so the Explore template includes everything from the View template plus additional capabilities. All content also has a template for **None** (which sets all capabilities to unspecified) and **Denied** (which sets all capabilities to denied).

Templates are meant to be a starting point and can be adjusted after they are applied. Capabilities can also be granted or denied without using a template at all. In both cases, the template column then shows **Custom**.

Copy and paste permissions

If there is a permission rule that needs to be assigned to multiple groups or users, you can copy and paste from one rule to another. You can’t copy from or paste onto a rule that involves Project Leader status.

1. Open the action menu (...) for the existing rule you want to copy from and select **Copy Permissions**. This is available only when the rule is not in edit mode.
2. Select an existing rule you want to paste over. You can also create a new rule by clicking **+ Add Group/User Rule** and selecting a group or user.
3. Open the action menu (...) and select **Paste Permissions**.

Capabilities

Each content type has specific capabilities:

Projects

Projects have only two capabilities and two templates. For more information about project leaders and how to assign them, see Project administration.

View template

View lets a user see the project. If a user hasn’t been granted the view capability, the project won’t be visible to them. Granting the view capability for a project does not mean a user can see any content in the project, just the existence of the project itself.

Publish template

Publish lets a user publish content to the project from Tableau Desktop or Tableau Prep Builder. The publish capability is also required to move content into the project or save content to the project from web authoring.

Workbooks

View template

View lets a user see the workbook or view. If a user hasn’t been granted the view capability, the workbook won’t be visible to them.

Filter lets a user interact with filters in the view, including keep only and exclude filters. Users lacking this capability won’t see filter controls in the view.

View Comments lets a user view the comments associated with the views in a workbook.

Add Comments lets a user add comments to views in a workbook.

Download Image/PDF lets a user download each view as a PNG, PDF, or PowerPoint.

Download Summary Data lets a user view the aggregated data in a view, or in the marks they've selected, and download that data (as a CSV).

Explore template

Share Customized lets users add their custom views to the list of "Other Views" visible on a workbook.

- When this capability is denied, users won't see the "Make visible to others" option when they create a custom view. For more information, see Use Custom Views. This capability doesn't impact the ability to share a custom view with the share dialog or by copying the link.

Download Full Data lets a user view the underlying data in a view, or in the marks they've selected, and download that data (as a CSV).

Web Edit lets a user edit the view in a browser-based authoring environment.

- Note that creating new content in the browser or saving views from the web edit interface requires a specific combination of capabilities. For more information, see Web Editing and Web Authoring.
- The Web Editing feature must also be enabled for the entire site or even users with this capability allowed won't be able to web edit. For more information, see Set a Site's Web Authoring Access.

Run Explain Data lets a user run Explain Data on marks in editing and viewing mode.

- Note that for Explain Data to be displayed as an option when a user selects a mark in a workbook, the feature must also be enabled as a site setting. To make Explain Data available in viewing mode, the feature must also be allowed by the author from within a workbook in Explain Data settings. For more information, see Control Access to Explain Data.

Publish template

Download Workbook/Save a Copy lets a user download a packaged workbook (as a TWBX). Lets a user save (publish) a copy from the web edit interface as a new workbook.

Overwrite lets a user overwrite (save) the content or asset on the server.

- When allowed, the user can re-publish a workbook, data source, or flow, or save a workbook or flow in web authoring, thereby becoming the owner and gaining access to all permissions. After this change in ownership, the original owner’s access to the workbook is determined by their permissions just like any other user.

Create/Refresh Metrics lets a user create metrics on the views in a workbook and lets any metrics that a user creates from those views refresh. The legacy Metrics feature was retired in February 2024 for Tableau Cloud and in Tableau Server version 2024.2. For more information, see Create and Troubleshoot Metrics (Retired).

Administer template

Move lets a user move workbooks between projects. For more information, see Move content.

Delete lets a user delete the workbook.

Set Permissions lets a user create permission rules for the workbook.

Refresh Extracts lets a user trigger an extract refresh for that workbook.

Views

In a workbook that is not in a locked project and does not show sheets as tabs for navigation, views (sheets, dashboards, stories) inherit the workbook permissions at publication, but any changes to permission rules must be made on individual views. View capabilities are the same as those for workbooks, except for **Overwrite**, **Download Workbook/Save a Copy**, and **Move** which are only available at the workbook level.

We recommend showing navigational sheet tabs whenever possible so views continue to inherit their permissions from the workbook.

Data Sources

View template

View lets a user see the data source on the server.

Connect lets a user connect to a data source in Tableau Desktop, Tableau Prep Builder, Ask Data, or web editing.

- If a workbook author embeds their credentials to a published data source in a published workbook, they are essentially embedding their **Connect** capability. Therefore, users can see the data in the workbook regardless of their own **Connect** capability for that data source. If the workbook author doesn't embed their credentials to the published data source, the user needs their own **Connect** capability to the data source to consume the workbook. For more information, see Data access for published Tableau data sources.
- A user must have the **Connect** capability for a data source to use Ask Data and to create Ask Data lenses. For more information, see Enable Ask Data for Sites and Data Sources.

Explore template

Download Data Source lets a user download the data source from the server (as a TDSX).

Publish template

Overwrite lets a user publish a data source to the server and overwrite the data source on the server.

API Access lets a user query the data source with the VizQL Data Service. For more information, see VizQL Data Service.

Create Metric Defintions lets a user connect to a data source to create Tableau Pulse metric definitions. For more information, see Create Metrics with Tableau Pulse.

Administer template

Delete lets a user delete the data source.

Set Permissions lets a user create and edit permission rules for the data source.

Refresh Extracts lets a user trigger an extract refresh for the data source.

Other types of assets

	View template	Explore template	Publish template	Administer template
Flows	**View** lets a user view the flow.	**Download flow** lets a user download the flow (as a TFLX).	**Run** lets a user run the flow. **Overwrite** lets a user publish a flow and overwrite the published flow.	**Move** lets a user move assets between projects. For more information, see Move content. **Delete** lets a user delete the asset. **Set Per-**

missions lets a user create permission rules for the asset.

Data Roles	**View** lets a user view data roles.	n/a	**Overwrite** lets a user publish data roles, overwrite published data roles, and edit published data roles' synonyms.
Metrics (retired)	**View** lets a user view metrics.	n/a	**Overwrite** lets a user overwrite a metric and edit a metric's details.
Ask Data Lenses	**View** lets a user see the lens.	n/a	**Overwrite** lets a user edit the lens.
Virtual Connections	**View** lets a user see the virtual connection. **Connect*** lets a user connect to data using a virtual connection.	n/a	**Overwrite** lets a user edit the virtual connection.
Databases	**View** lets a user see the database.	n/a	**Overwrite** lets a user edit the metadata for the data-

			base.	
Tables	**View** lets a user see the table.	n/a	**Overwrite** lets a user edit the metadata for the table.	
Collections	**View** lets a user view collections.	n/a	n/a	n/a

*By default, virtual connections have a Custom template that sets the View capability to Allowed but not the Connect capability. Be sure to set the Connect capability to Allowed so users can connect using the virtual connection.

Manage Permissions with Projects

Projects can simplify permission management with features such as nested projects, project visibility, non-admin project leaders, and locking permissions.

Tip: How permissions are set at the project level is important, especially for the Default project. When a new top-level project is created, it inherits its default permission rules (for all content types) from the Default project. When a new project is created nested inside another project, the child project inherits its default permission rules from the parent project.

Project administration

Projects are containers used to organize and manage access to content. By giving non-administrators privileges to manage projects, certain content administration tasks can be handled at the project level.

Project Leaders: Projects can have project leaders, users who have been set as a **project leader**. This setting automatically grants a user their maximum capabilities—depending on their site role—for that project and all content in that project. Project leaders with site role of Explorer (can publish) and above have all capabilities. Project leaders are essentially local admins for the project without access to site or server settings.

Hierarchy: Only administrators can create top-level projects. Project owners and project leaders can create nested projects inside their projects.

Project owners and leaders have full administrative access to the project and its content, as well as any nested projects it contains. In a hierarchy, project leaders are implicitly given project leader access to all child content. To remove project leader access, you must do so at the level in the hierarchy where the role was explicitly assigned.

Ownership: A project can have multiple project leaders, but each project has exactly one owner. By default, a project is owned by the user who created it.

A project’s owner can be changed by the existing owner or an administrator. (Project leaders can't change project ownership, only content ownership). Projects can be owned by users with a site role of Explorer (can publish), Creator, or administrator. Project ownership can be changed even if a project is locked.

Deleting: Most content can only exist inside a project. Only administrators can create and delete top-level projects, but project leaders can create or delete nested projects.

Deleting projects also deletes all the Tableau content and nested projects they contain. To delete a project without losing its content, move the content to another project first. Deleting projects can’t be undone.

External assets are handled differently. They don’t have to be in a project. External assets aren’t deleted if their project is deleted and continue to appear in **External Assets**. See External assets that aren’t in projects for more information.

For a deeper dive into project administration, see Use Projects to Manage Content Access and Add Projects and Move Content Into Them.

Special projects

Default: The project named "Default" is a special project. When other top-level projects are created, they use the Default project as a template, and copy all their permissions rules from it (but not the **Asset permissions** setting). The **Default** project can’t be deleted, moved, or renamed, but its description can be changed. It has no owner by default, but one can be assigned.

External Assets Default Project: In Tableau Cloud and Tableau Server 2023.1 and later, if you have a Data Management license with Catalog enabled, the project named "External Assets Default Project" appears when Catalog needs to move new or existing external assets to it. Catalog puts new external assets and external assets from deleted projects in the **External Assets Default Project**. The project has no permissions rules by default, so server administrators and site administrators are the only users who can see it unless permissions are added. It can’t be deleted, moved, or renamed, but its description can be changed. It has no owner by default, but one can be assigned.

Set a project leader

Project leaders are users who have administrator-like access for a specific project or project hierarchy.

To assign project leader status to a group or user

1. Open the permission dialog for the appropriate project.
2. Select an existing permission rule, or click **+ Add Group/User Rule** and chose the desired group or user.
3. Open the action menu (...) for that permission rule and select **Set Project Leader...**.

> **Note**: If the action menu includes an option for **Enable "Set Project Leader"**, this needs to be selected before the group or user can be set as a project leader. This option only appears when that group or user was denied the Project Leader capability (prior to 2020.1). That denied capability needs to be removed before they can be set as a project leader.

After a permission rule establishes a project leader, the templates and capabilities can't be edited because all capabilities are allowed for project leaders. If a project leader is established on a project that contains nested projects, they have inherited project leader status on all nested projects and their content.

Project leader status is always applied downward through the entire project hierarchy and can only be removed from the level where it was set. To remove project leader status, follow the same steps but select **Remove as Project Leader** from the action menu. After a group or user has been removed as project leader, that permission rule has all capabilities set to Unspecified. This may mean their access to and capabilities for that project is removed if there’s no other permission rule giving them permissions to the content. To keep their access to the project and its content, they need to have capabilities set like any other group or user.

> **Note**: Project leaders can refresh extracts in their projects in most circumstances. They can't refresh extracts if they're only the project leader of a nested project (instead of a top-level project) and the top-level project is *locked (including nested projects)*.

Lock asset permissions

Permission rules set at the project level act as a default for content saved in that project and any nested projects it contains. Whether those project-level default rules are enforced or only preliminary depends on the **Asset permissions** setting. This setting can be configured in two ways, either **Locked** (recommended) or **Customizable**. Locking a project removes the ability for content owners to modify the permission rules on their content. Locking permissions can be applied to nested projects or just to the parent project itself.

- When **Asset permissions** is **Locked** (including nested projects), permission rules set at the project level are enforced for all assets in the project and all nested projects.
- When **Asset permissions** is **Locked** (*not* including nested projects), permission rules set at the project level are enforced for assets in the project. Nested projects can be configured independently with their own permission rules and set as locked or customizable.

- When **Asset permissions** is **Customizable**, permission rules set at the project level are applied to all assets in the project by default. However, permission rules can be modified for individual assets during or after publishing.

> **Note**: Whether permission rules are locked or customizable, the permissions on content are always applied. *Locked* and *customizable* refer only to how project-level permissions are inherited by content in the project and who can change them. Even in a project with customizable permissions, only specific users can modify permissions (content or project owner, project leader, admins, or those with the Set Permission capability).

In a locked project:

- The project permission rules per content type are applied to all assets.
- Only administrators, project owners, and project leaders can modify permissions.
- Content owners lose the Set Permission capability but retain all other capabilities on their content.
- Permissions are predictable for all content in the project.

In a customizable project:

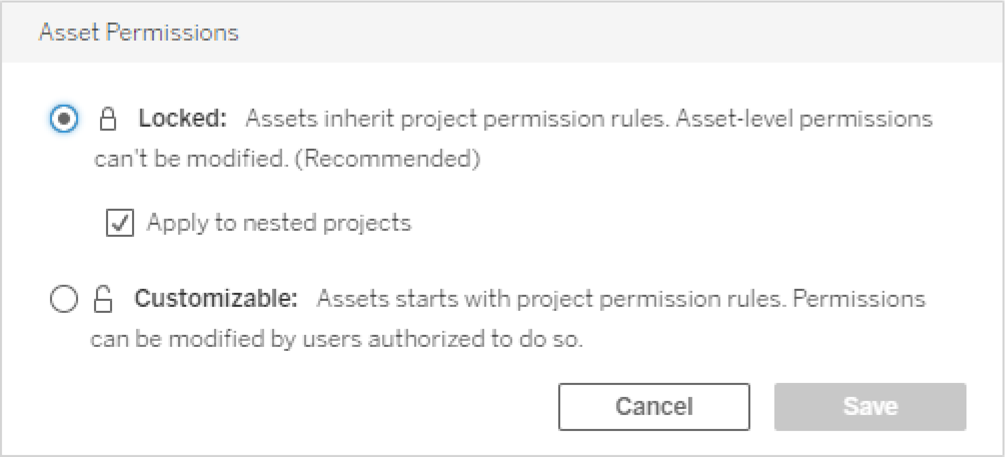
- The project permission rules are applied by default when content is published into the project or nested projects are created, but permissions can be modified during publication or after the content is created.
- Any user with the Set Permissions capability can modify permission rules for that content.
- Content owners have all capabilities on their content.
- Permissions can be different across content in the project.

Set asset permissions (lock a project)

New top-level projects inherit all initial permission rules from the Default project but not the **Asset permissions** setting, which is set to **Customizable**. This can be changed to **Locked** if desired.

To configure **Asset permissions**:

1. You must be logged into the site as an administrator, project owner, or project leader
2. Open the permissions dialog for a project
3. Next to **Asset permissions** in the upper left, click the **Edit** link and select the desired option in the **Asset permissions** dialog


Asset Permissions

● **Locked:** Assets inherit project permission rules. Asset-level permissions can't be modified. (Recommended)

☑ Apply to nested projects

○ **Customizable:** Assets starts with project permission rules. Permissions can be modified by users authorized to do so.

> **Note**: If the upper left corner doesn't show an **Edit** link in step 3 above, you may be on the permissions dialog for a (a) nested project or a piece of content in a locked project, in which case the link should bring you to the managing project, (b) piece of content in a customizable project, which won't show anything, or (c) view, which will indicate how the view permissions are tied to the workbook. For more information on the interplay of permissions for views and workbooks, see Show or Hide Sheet Tabs.

Change asset permissions

When the **Asset permissions** setting for a project is changed, the outcome depends on the new setting. Changes to permission rules in a locked hierarchy must be done at the level of the managing project.

Changing from	Changing to	Outcome
Locked (including nested projects)	Locked	Doesn't modify existing permission rules. Any nested projects become customizable.

	Customizable	Doesn’t modify existing permission rules, though they become customizable. Any nested projects become customizable.
Locked	Locked (including nested projects)	Overwrites existing custom permission rules for all nested projects and their content. This can’t be undone.
	Customizable	Doesn’t modify existing permission rules, though they become customizable. Any nested projects retain their content permission settings and permission rules.
Customizable	Locked (including nested projects)	Overwrites existing custom permission rules for content in the project, and all nested projects and their content. This can’t be undone.
	Locked	Overwrites existing custom permission rules for content in the project. This can’t be undone. Any nested projects retain their permission rules and remain customizable.

Move projects and content

Move Tableau content and external assets

When *Tableau content* or *external assets* are moved between projects with different permission settings, **Asset permissions** settings determine the logic of how permissions are applied.

- Moving assets into a locked project overrides the existing permission rules and enforce the destination’s permissions.
- **Moving assets into a customizable project maintains the existing permission rules on the asset.**

Note: Prior to Tableau Server 2022.3 and Tableau Cloud June 2022, external assets couldn’t be in projects, and permissions on tables were managed through the **Table permissions** setting of the parent database. Beginning with Tableau Server 2022.3 and Tableau Cloud June 2022, external assets can be in projects. If a database or a table is moved into a project, older settings to control table permissions through the database are ignored, and the database or table permissions follow the logic of other assets.

Move projects

When a *project* is moved into another project, the permissions settings on the item being moved are maintained unless the destination project is scoped to include nested projects. (Project permissions in this case mean the View and Publish capabilities for the project itself.)

- If the destination project is set to **locked (including nested projects)**, the permissions for the project being moved *and its content* are overwritten.
- If the destination project is set to **locked** (not including nested projects), the permissions for the project being moved aren’t overwritten. Whether the moved project is locked or customizable is preserved from its original setting.
- If the destination project is set to **customizable**, the permissions for the project being moved aren’t overwritten but they’re now editable.

  If the project being moved was previously nested under a parent that was *locked (including nested projects)*, when moved, the project takes on the setting of *locked (including nested projects)* and becomes the managing project for any projects it contains.
  Note: This is the same outcome if a project is moved to become a top-level project.

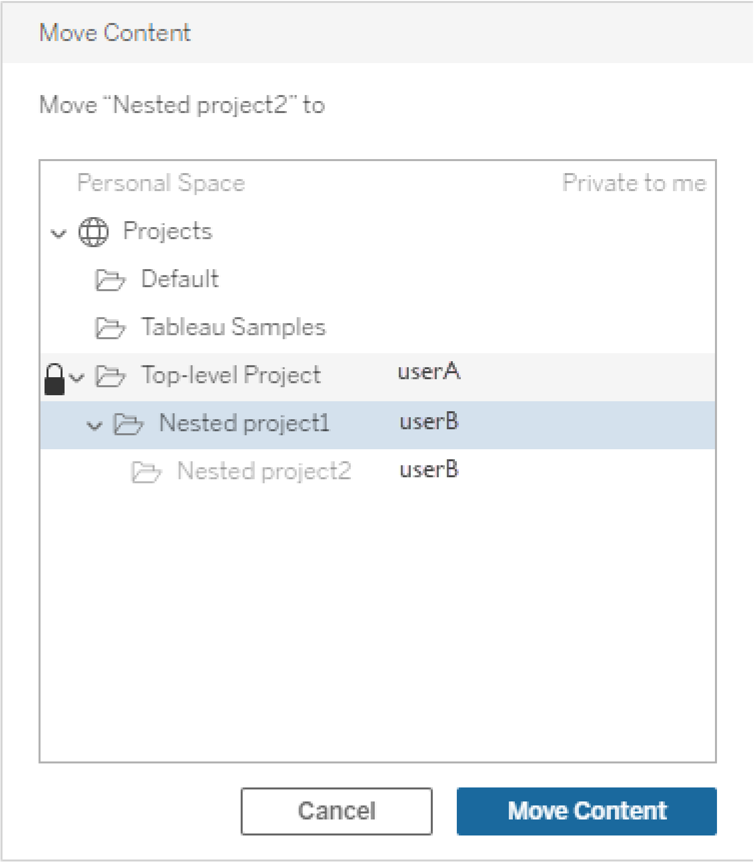
Use care moving locked nested projects

Moving nested projects inside *locked (including nested projects)* environments can be tricky. A project can be moved into situation that prevents the user from moving it out again.

If a nested project is owned by a different user than the managing project, and the managing project is set to *locked (including nested projects)*, a nested project can wind up unable to be moved by anyone except an admin.

For example, consider a locked (including nested projects) top-level project owned by userA, and two nested projects owned by userB. If userB moves one nested project inside the other, they aren't then able to move it back out—and neither is userA.

- UserB can't move **Nested project2** because they don't have rights to move rights on **Top-level Project** as a destination.
- UserA can't move **Nested project2** because they don't have move rights on it.
- A project leader on **Top-level Project** can't move it even though project leader trickles down to nested projects.
- Only an admin can move **Nested project2** in this setup.



Move Content
Move "Nested project2" to
Personal Space
Private to me
Projects
Default
Tableau Samples
Top-level Project
userA
Nested project1
userB
Nested project2
userB
Cancel
Move Content

Collections

Unlike projects, which contain content, a collection can be thought of as a list of links to content. Project permissions can be inherited by the content in the project, but permissions for a collection have no effect on the content added to the collection. This means that different users might see different numbers of items in a collection, depending on which items they have permission to view. To make sure that users can see all items in a collection, adjust the permissions for those items individually.

Permissions for a collection can be changed either by using the permissions dialog or by granting access upon sharing a collection, if you’re an administrator or the collection owner. For more information, see Manage Collection Permissions.

Private collections

When a collection is created, it’s private by default. A private collection appears on the owner’s My Collections page, but it doesn't appear in the list of all collections on a site. Private collections are simply collections with no permission rules added. Unlike other types of content, collections don't have the “All Users” group added by default. When you add permission rules to a collection, it’s no longer flagged as private. To return a collection to a private state, remove the permission rules.

Private collections can be viewed by the collection owner as well as by administrators, whose site role gives them effective permissions to view all collections.

Effective permissions

A permission rule establishes who is impacted (a group set, group, or user) and what Capabilities they are **Allowed**, **Denied**, or **Unspecified**. While it seems straightforward to simply set a permission rule and have that be the whole story, whether a user has a capability may be unclear because of membership in multiple groups and the interplay of site roles and ownership with permission rules.

Multiple factors are evaluated in a specific order, yielding *effective permissions* on a piece of content.

Tip: To help keep things as straightforward as possible, we recommend (1) setting permission rules for groups instead of users, (2) managing permissions locked at the project level instead of setting permissions on individual content, and (3) deleting the All User group's permission rule or setting all capabilities to None.

A capability is allowed for a user if and only if the following three conditions are all met:

- The capability is within the scope of their site role.
- They have that capability:
    - based on a specific user scenario (such as being the content owner or a project leader, or they're an administrator site role),
      OR
    - because they have been allowed the capability as a user,
      OR
    - because they are both in a group that has been allowed the capability and no rules deny them the capability as a user or member of another group.
- There is no conflicting permissions settings at another content level that takes precedence.

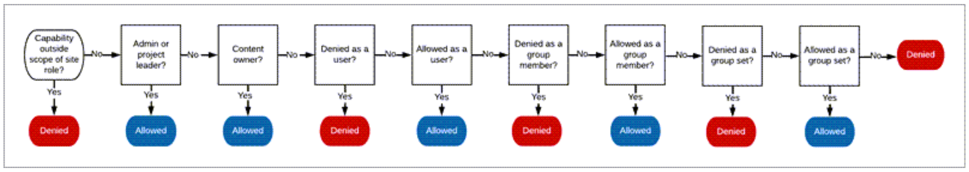
Any other situation denies the user the capability.

Hovering over a capability brings up a tooltip that explains the effective permission. Here are some common examples of why effective permissions—what the user can or can't do in actuality—might appear different than what a given permission rule states:

- A user might have a capability they are denied in a permission rule because their site role includes it (administrators).
- A user might have a capability they are denied in a permission rule because their user scenario allows it (because they own the content or are a project owner or leader).
- A user might lack a capability they are allowed in a permission rule because their site role doesn't allow it.
- A user might lack a capability they are allowed in a permission rule because a conflicting group or user rule denied it.
- A user might lack a capability they are allowed in a permission rule at one level of content (such as a workbook) because another level of content denied it (such as a view).

Evaluate permission rules

Permissions in Tableau are restrictive. Unless a capability is granted to a user, they are denied permission. The following logic evaluates if a capability is allowed or denied for an individual:


Capability outside scope of site role?
No
Yes
Denied
Admin or project leader?
No
Yes
Allowed
Content owner?
No
Yes
Allowed
Denied as a user?
No
Yes
Denied
Allowed as a user?
No
Yes
Allowed
Denied as a group member?
No
Yes
Denied
Allowed as a group member?
No
Yes
Allowed
Denied as a group set?
No
Yes
Denied
Allowed as a group set?
No
Yes
Allowed
Denied

1. **Site role:** If a site role doesn’t permit a capability, the user is denied. If the user's site role does permit the capability, then specific user scenarios are evaluated.
    - For example, a Viewer site role can’t web edit. See General capabilities allowed with each site role for more information on what each site role can do.
2. **Specific user scenarios:**
    - If the user is an admin they have all capabilities on all content.
    - If the user is a project owner or project leader, they have all capabilities on all content in their projects.
    - If the user is the content owner, they have all capabilities* on their content.
    - If these scenarios do not apply to the user, then user rules are evaluated.

    *Exception: Content owners won’t have the **Set Permissions** capability in projects where permissions are locked. Only administrators, project owners, and project leaders can set permission rules in locked projects.

3. **User rules:** If the user is denied a capability, it is denied. If they are allowed a capability, it is allowed. If a capability is unspecified, then group rules are evaluated.
4. **Group rules:** If the user is in *any* group that is denied a capability, it is denied. If the user is in a group that is allowed a capability (and not in any groups that are denied that capability), it is allowed.
    - That is to say, if a user is a member in two groups, and one is allowed a capability and one is denied the same capability, the denial takes precedence for that user and they are denied.
5. **Group set rules:** If a user is a member of a group in a group set, any group in the group set that is denied a capability, is then denied.
6. If none of the above conditions apply, the user is denied that capability. In effect, this means that capabilities left as unspecified will result in denied.

A final effective permission of **Allowed** therefore occurs in three circumstances:

- Allowed by site role (Server Administrator, Site Administrator Creator, Site Administrator Explorer)
- Allowed because the user is the content owner, project owner, or project leader
- Allowed by a group, group set, or user rule (and not denied by a rule of higher precedence)

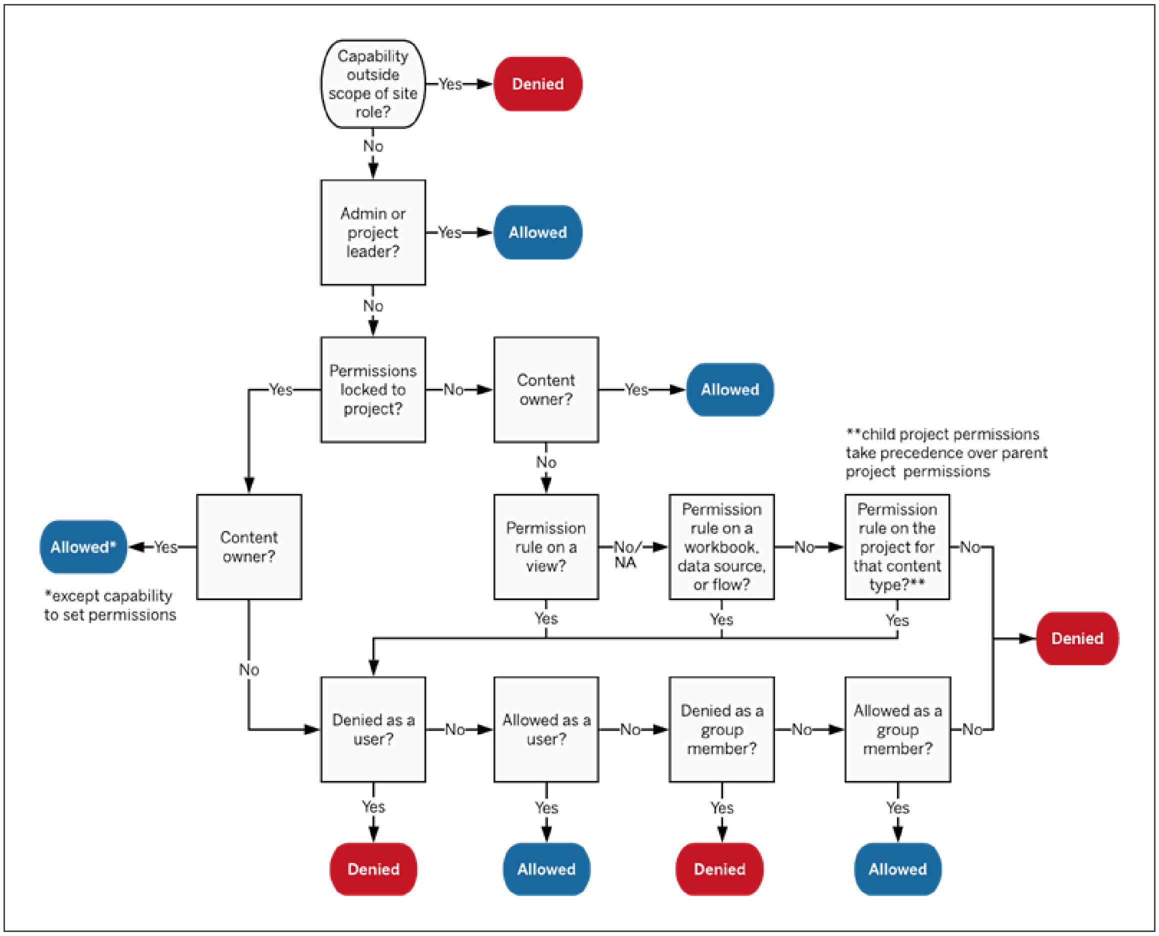
Denied occurs in three circumstances:

- Denied by site role
- Denied by a rule (and not allowed by a rule of higher precedence)
- Not granted by any rule

Evaluate permissions set at multiple levels

If **Asset permissions** are set to **Customizable**, it’s possible to configure permission rules in multiple places. There are specific rules that determine what permissions are applied on the content.

- If there are nested projects, permissions set at the child level take precedence over permissions set at the parent level.
- Changes to permissions at the project level are not enforced for existing content.
- If there are permissions set on content (workbook, data source, or flow) during or after publication, these take precedence over rules set at the project level.
- If a workbook doesn’t show navigational sheet tabs, any changes to the workbook-level permissions *won’t* be inherited by the views and any changes to permissions must be done on the view.
- Configuring the workbook to show navigational sheet tabs will override existing view-level permissions and sync them with the workbook-level permissions. See Show or Hide Sheet Tabs.


Capability outside scope of site role?
Yes
Denied
No
Admin or project leader?
Yes
Allowed
No
Permissions locked to project?
Yes
No
Content owner?
Yes
Allowed
No
**child project permissions take precedence over parent project permissions
Allowed*
Yes
Content owner?
*except capability to set permissions
Permission rule on a view?
No/NA
Permission rule on a workbook, data source, or flow?
No
Permission rule on the project for that content type?**
No
Yes
Yes
Yes
Denied
No
Denied as a user?
No
Allowed as a user?
No
Denied as a group member?
No
Allowed as a group member?
No
Yes
Yes
Yes
Yes
Denied
Allowed
Denied
Allowed

This image shows how capabilities are evaluated through multiple levels of content.

Permissions on views

In a workbook that is not in a locked project and does not show sheets as tabs for navigation, views (sheets, dashboards, stories) inherit the workbook permissions at publication, but any changes to permission rules must be made on individual views. View capabilities are the same as those for workbooks, except for **Overwrite**, **Download Workbook/Save a Copy**, and **Move** which are only available at the workbook level.

We recommend showing navigational sheet tabs whenever possible so views continue to inherit their permissions from the workbook. For more information, see Show or Hide Sheet Tabs.

Effective permissions and on-demand access

When on-demand access is enabled for a group, you'll see an inline alert. On-demand access indicates that when permissions for Tableau content are dependent on the group, there might be users who are not provisioned on the site that can access the content. Users who might be accessing the content are not provisioned on the site and do not have effective permissions. As a result, these users are not listed in the Effective Permissions area. For more information, see On-demand access using connected apps with direct trust or On-demand access using connected apps with OAuth 2.0 trust.

Permissions, Site Roles, and Licenses

Adding a user to Tableau Cloud requires an available license. (Users can also be added as unlicensed and configured so they will consume a license only when they first sign in. For more information, see Grant License on Sign In.) For each site the user belongs to they have exactly one site role, restricted by their license. A user has permissions for content on the site, restricted by what their site role allows.

Licenses and site roles apply to users. Permission capabilities apply to content.

Licenses are assigned to a user when they are created (or sign in for the first time) on the Tableau Server or Tableau Cloud site. Users are licensed as a **Creator**, **Explorer**, or **Viewer**.

- License levels are consumed based on the maximum *site role* a user can have on that server.
  - Site Administrator Creator and Creator site roles use a Creator license.
  - Site Administrator Explorer, Explorer (can publish), and Explorer site roles use at least an Explorer license.
  - Viewer site role uses at least a Viewer license.
  - An unlicensed user can exist on the site, but they cannot sign in unless they were added with grant site role on sign in.
- In Tableau Cloud, a user consumes only one license per tenant, even if they're a member of multiple sites. If a user is a member of multiple sites, their license level is determined by their highest site role. For example, if a user has a Creator site role on one site and a Viewer site role on two others, they consume a Creator license. For more

information about how site role limits and licenses are handled in Tableau Cloud Manager, see Manage Site Role Limits.

Site roles are assigned to a user for each site they are a member of.

- Site roles determine the maximum capabilities a user can have in that site. (For example, a user with a site role of Viewer will never be able to download a data source even if that capability is explicitly granted to them on a specific data source.)
- Site roles do not inherently grant any capabilities in and of themselves—with the exception of the administrator site roles. Administrators always have all capabilities applicable to their license level.

Permissions consist of *capabilities*, like the ability to save to a project, web edit a workbook, connect to a data source, etc. They apply to group or user on a specific piece of content (project, data source, workbook, view, or flow).

- Permission capabilities are not given to a group or user in a vacuum but rather in the context of content. A user can have different capabilities for different content assets.
- Permissions are evaluated based on the interplay of a user’s site role and the permission rules for that user or any groups they are members of.
- Some actions such as web authoring might require combinations of capabilities. For more information, see Permission settings for specific scenarios.

Site roles and their maximum capabilities

These tables indicate what capabilities are available for a site role. There may be other ways for a user with a site role to perform a similar action. For example, although Viewers can’t be given the **Share Customized** capability to make their custom views visible to others on the workbook, they can share custom views by copying the view URL. See General capabilities allowed with each site role for more information on what each site role can do.

Projects

Capability	Creator	Explorer (can publish)	Explorer	Viewer
View	✓	✓	✓	✓

Publish	✓	✓	✗	✗

Workbooks

Capability	Creator	Explorer (can publish)	Explorer	Viewer
View	✓	✓	✓	✓
Filter	✓	✓	✓	✓
View Comments	✓	✓	✓	✓
Add Comments	✓	✓	✓	✓
Download Image/PDF	✓	✓	✓	✓
Download Summary Data	✓	✓	✓	✓
Run Explain Data †	✓	✓	✓	✓
Share Customized	✓	✓	✓	✗
Download Full Data	✓	✓	✓	✗
Web Edit	✓	✓	✓	✗

Download Workbook/Save a Copy	✓	✓	✓	✗
Overwrite	✓	✓	✗	✗
Create/Refresh Metrics ‡	✓	✓	✗	✗
Move	✓	✓	*	✗
Delete	✓	✓	✗	✗
Set Permissions	✓	✓	✗	✗

† Explain Data can be controlled in site settings and in a workbook using the Run Explain Data capability. The availability of Explain Data in viewing mode is controlled in a workbook in the Explain Data Settings dialog box.

‡ Prior to Tableau 2021.3, the Create/Refresh Metrics capability was controlled by the Download Full Data capability.

Data Sources

Capability	Creator	Explorer (can publish)	Explorer	Viewer
View	✓	✓	✓	✓
Connect	✓	✓	✓	✓
Download Data Source	✓	✓	✓	✗

Overwrite	✓	✓	✗	✗
Create Metric Definitions	✓	✓	✗	✗
Delete	✓	✓	✗	✗
Set Permissions	✓	✓	✗	✗

Data Roles

Capability	Creator	Explorer (can publish)	Explorer	Viewer
View	✓	✓	✓	✓
Overwrite	✓	✓	✗	✗
Move	✓	✓	*	✗
Delete	✓	✓	✗	✗
Set Permissions	✓	✓	✗	✗

Flows

To run flows on a schedule, you must have a Data Management license. For information about configuring flow settings, see Create and Interact with Flows on the Web. Explorer license users can run flows on Tableau Cloud.

Capability	Creator	Explorer (can publish)	Explorer	Viewer

View	✓	✓	✓	✓
Download Flow	✓	✓	✓	✗
Web Edit	✓	✗	✗	✗
Run Flow	✓	✗	✗	✗
Overwrite	✓	✗	✗	✗
Move	✓	✓	*	✗
Delete	✓	✓	✗	✗
Set Permissions	✓	✓	✗	✗

Ask Data Lenses

Capability	Creator	Explorer (can publish)	Explorer	Viewer
View	✓	✓	✓	✓
Overwrite	✓	✓	✗	✗
Move	✓	✓	*	✗
Delete	✓	✓	✗	✗
Set Permissions	✓	✓	✗	✗

Metrics (retired 2024.2)

Tip: The information in this section is for the legacy metrics feature, which was retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. For information about permissions for Tableau Pulse metrics, see Set Up Your Site for Tableau Pulse.

Retirement of the legacy metrics feature

Tableau's legacy metrics feature was retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. In October 2023, Tableau retired the ability to embed legacy metrics in Tableau Cloud and in Tableau Server version 2023.3. With Tableau Pulse, we've developed an improved experience to track metrics and ask questions of your data. For more information, see Create Metrics with Tableau Pulse to learn about the new experience and Create and Troubleshoot Metrics (Retired) for the retired feature.

Capability	Creator	Explorer (can publish)	Explorer	Viewer
View	✓	✓	✓	✓
Overwrite	✓	✓	✗	✗
Move	✓	✓	*	✗
Delete	✓	✓	✗	✗
Set Permissions	✓	✓	✗	✗

Collections

Capability	Creator	Explorer (can publish)	Explorer	Viewer
View	✓	✓	✓	✓

Virtual Connections

Virtual connections require a Data Management license. See About Data Management for details.

Capability	Creator	Explorer (can publish)	Explorer	Viewer
View	✓	✓	✓	✓
Connect	✓	**	**	**
Overwrite	✓	✗	✗	✗
Move	✓	✓	*	✗
Delete	✓	✓	✗	✗
Set Permissions	✓	✓	✗	✗

* Although the Explorer role can be given the **Move** capability, they can’t have the **Publish** capability on a project and therefore there is no place for them to move content to. The **Move** capability should therefore be considered not possible for Explorer site roles.

** Although the Explorer (can publish) role can be given the **Connect** capability for Virtual Connections, the ability to create a new data source of any kind, including Virtual Connections, is only available for users with a Creator site role. Similarly, Explorer and Viewer role users can't access the UI to connect to new or existing data sources. The **Connect** capability should be considered not possible for any role but Creator.

Quick Start: Permissions

A permission rule is a set of capabilities that defines what access a group or user has to a piece of content, such as a workbook, project, or data source.

To efficiently manage permissions:

- Remove permissions from the **All Users** group before creating more groups
- Configure template permissions on the **Default** project before creating more projects
- Manage permissions for groups, not users
- Manage permissions for projects, not content

Create group permission rules for projects

For details on the following steps, see the main article on permissions. This Quick Start guide is an overview and doesn't capture many important details about permissions and permission management.

1. Add users to groups

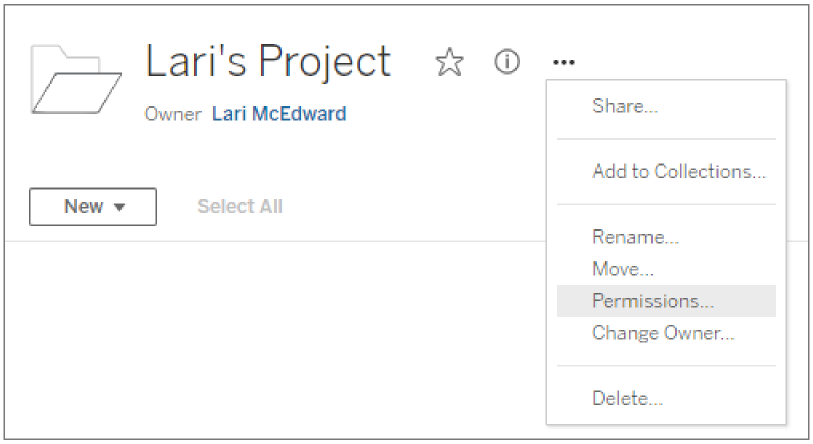
A common way to manage permissions is to use groups for users who should have the same permissions.

1. If necessary, add users to the site.
2. Within a site, select **Groups**.
3. If necessary, create a group using the **Add Group** option.
4. Click a group name to open it, then use the **Add Users** button to add existing users to the group.

2. Access project-level permissions settings

The **Explore** page displays the content on the site. Use the dropdown to display Top-Level Projects or All Projects (to see nested projects as well).

Navigate to the project you want to update, open the **Actions** (**...**) menu, then select **Permissions**.

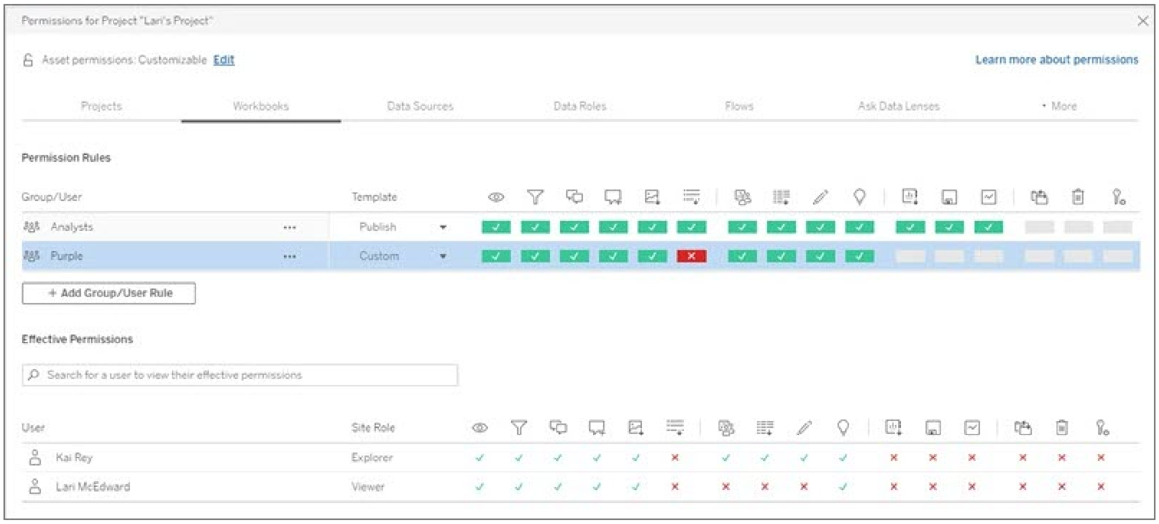

Lari's Project
Owner Lari McEdward
New
Select All
Share...
Add to Collections...
Rename...
Move...
Permissions...
Change Owner...
Delete...

3. Create a permissions rule

Select **+ Add Group/User Rule** to create a new permission rule.

The template drop-down offers a shortcut to apply an initial set of capabilities for the group.

If desired, customize the permission rule by clicking a capability to set it to **Allowed** or **Denied**, or leave it **Unspecified**.


Permissions for Project "Lari's Project"
Asset permissions: Customizable Edit
Learn more about permissions
Projects
Workbooks
Data Sources
Data Roles
Flows
Ask Data Lenses
More
+ Add Group/User Rule
Search for a user to view their effective permissions

Permission Rules

Group/User	Template																
Analysts	Publish	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Purple	Custom	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓						

Effective Permissions

User	Site Role																
Kai Rey	Explorer	✓	✓	✓	✓	✓	✗	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗
Lari McEdward	Viewer	✓	✓	✓	✓	✓	✗	✗	✗	✗	✓	✗	✗	✗	✗	✗	✗

Whether a user can set permissions is based on their site role, content ownership, and how their **Set Permissions** capability is set.

4. View a user’s effective permissions

After you save the permissions rule for the group, you can view the effective permissions for each user. Click a group name to see the group's users and their permissions. Hover over a capability box to see a tooltip with details on whether a capability is allowed or denied.

Site roles

A user’s site role determines the maximum permissions allowed for that user.

- Server and site administrators can access all site content and take actions on it.
- Owners always get full access to the content they’ve published. When the parent project permissions aren’t locked, owners can change permissions for their published content.

For more information, see Set Users’ Site Roles and Use Projects to Manage Content Access.

Permission logic

- **Denied** takes precedence over **Allowed**.
- **Unspecified** results in **Denied** if no other permissions are specified.
- Specific user permissions on content take precedence over group permissions on content. In other words, user permissions trump group permissions.

For more information, see Effective permissions.

Manage Content Ownership

When you publish a data source, workbook, or flow on Tableau Cloud or when you create a project, you become its *owner*. A content owner, a project leader with an appropriate site role, or an administrator can change ownership of a content asset. After ownership is reassigned, the original owner has no special connection to the content item, and their ability to access it is determined by their permissions on the project or that specific item.

Who can change or be given ownership, by content type

Whether you can change or be given ownership depends on your permissions and your relationship to the content asset, as described in the following table.

> **Note:** Full project leader access is available only with some site roles. For information, see Project-level administration.

Content asset type	Who can change ownership	Who can be given ownership
Top-level projects	• Server administrator[1] • Site administrator	• Server administrator • Site administrator • Creator • Explorer (can publish)
Child (nested) projects	• Server administrator • Site administrator • Project owner	Any administrator or owner, *excluding* Explorer and Viewer.
Workbooks and data sources	• Server administrator • Site administrator • Workbook or data source owner • Project leader or	• Server administrator • Site administrator • Creator • Explorer

	owner of the project that contains the item	
Metrics (The legacy Metrics feature was retired in February 2024 for Tableau Cloud and in Tableau Server version 2024.2. For more information, see Create and Troubleshoot Metrics (Retired).)	- Server administrator - Site administrator - Metric owner - Project leader or owner of the project that contains the item	Any administrator or user of the site, *excluding* Explorer and Viewer.
Flows	- Server administrator - Site administrator - Flow owner (2025.2 and later)	- Server administrator - Site administrator - Creator **Note**: In versions 2025.1 and earlier, Server and site administrators can only change the owner to themselves.
Data Roles	- Server administrator - Site administrator - Data role owner - Project leader or owner of the project that contains the item	Any administrator or user of the site, excluding Explorer and Viewer.
Collections	- Server admin-	- Server administrator

	istrator - Site administrator - Collection owner	- Site administrator - Creator - Explorer - Viewer
Virtual Connections[2]	- Server administrator - Site administrator - Virtual connection owner	- Server administrator - Site administrator - Creator

[1] The Server Administrator site role applies to Tableau Server only; not Tableau Cloud.

[2] Virtual connections require Data Management. See About Data Management for details. Note that to edit a virtual connection, you must have the database credentials.

Considerations for changing content ownership

- Before you remove a user from Tableau Cloud, make sure they do not own any content assets.
    - If the user does own content, you must first reassign ownership of those assets before you can delete the user. Otherwise, their site role is set to **Unlicensed**, but they are not deleted, and only an administrator can take certain actions on that content. Reassign ownership of workbooks or data sources with embedded credentials before you set the user's site role to Unlicensed or delete the user.
    - If you change the ownership of a workbook, data source, or flow that includes embedded credentials to connect to underlying data, the embedded credentials will be deleted, and you’ll need to reauthenticate to connect. Connections to published data sources are authenticated using the original flow owner and authorized based on their permissions. The new owner would need the necessary read/write permissions to that data source. Otherwise, the flow would fail when trying to connect to or write to the data source.
    - Ownership of input or output data sources to a flow may also need to be transferred to the new owner or their permissions to the data source may need to be updated.
    - You can update the embedded credentials by editing the connection information on Tableau Cloud. For more information, see Edit Connections on Tableau

  Cloud. For flows, you can open and edit the flow in Tableau Prep web authoring and republish the flow with the new credentials.
- You can only transfer ownership on published flows. You can’t change the ownership on flow drafts.
- If you do not lock permissions to projects, make sure users you give content ownership to know your permissions guidelines, or you account for permissions as you change ownership. In unlocked projects, by default, content owners can set permissions on their content. For more information, see Permissions.
- While it is possible to change the owner of a metric to a user with a site role of Viewer or Explorer, it is not recommended, because doing so will cause the metric refresh to be suspended. A site role of Creator or Explorer (can publish) is required to refresh, overwrite, or delete a metric.

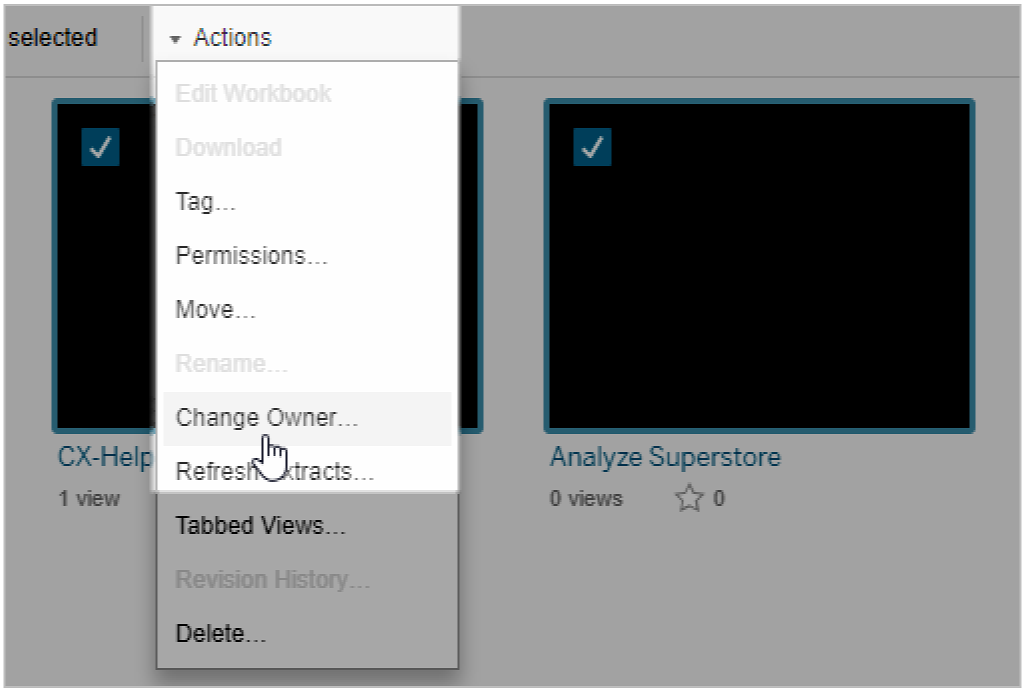
Change the owner of a content resource

1. Sign in to the Tableau Cloud web environment, and from the navigation menu, select **Explore**.
2. Navigate to the content you want to assign to someone else.
    - If you want to reassign multiple of the same type of content, for example, multiple workbooks, select the content type from the drop-down menu.
    - If you want to reassign multiple items within the same project, navigate to the project.

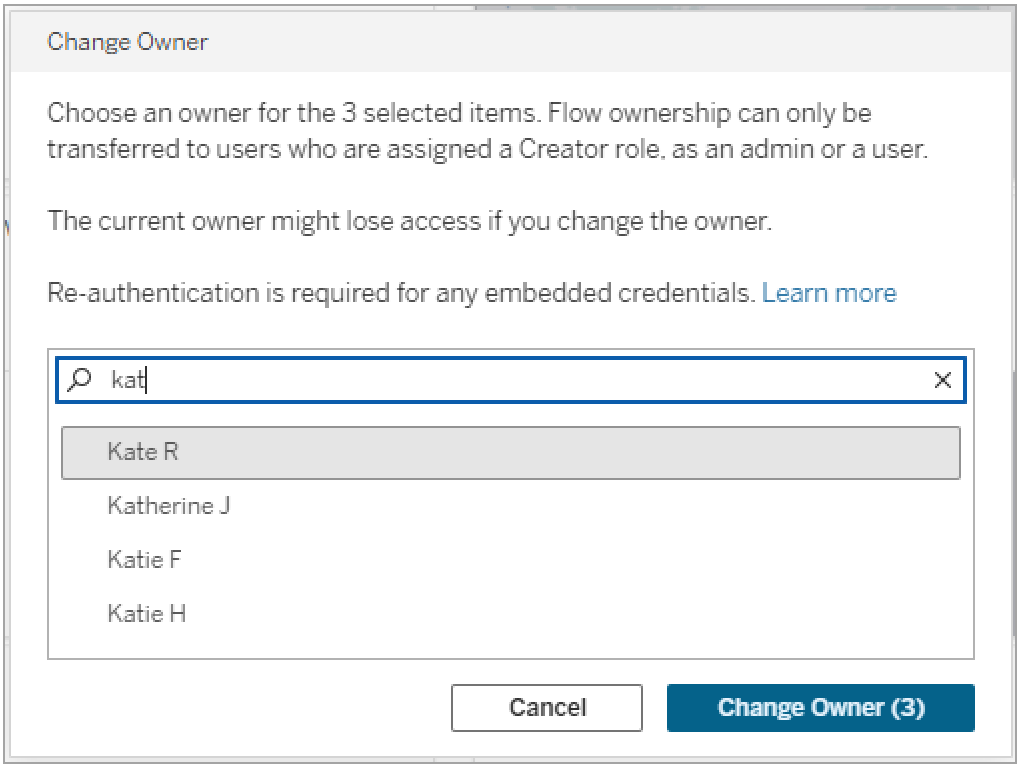
      If you’re not sure where to find a child project, display filters, and select **Show all projects**.

    - If you want to reassign multiple content items with the same owner, find the user on the **Users** page.
3. Select the items you want to reassign, and then select **Actions** > **Change Owner**.

   The other menu commands you see will depend on the content type.


selected
Actions
Edit Workbook
Download
Tag...
Permissions...
Move...
Rename...
Change Owner...
Refresh Extracts...
Tabbed Views...
Revision History...
Delete...
CX-Help
1 view
Analyze Superstore
0 views
0

4. Type the name of a user or select a user from the list.



Change Owner

Choose an owner for the 3 selected items. Flow ownership can only be transferred to users who are assigned a Creator role, as an admin or a user.

The current owner might lose access if you change the owner.

Re-authentication is required for any embedded credentials. Learn more

5. Select **Change Owner**.

Manage Permissions for External Assets

Tableau Cloud and Tableau Server provide a space for accessing and managing published content. When Tableau Cloud or Tableau Server is licensed with Data Management, you have access to Tableau Catalog. Tableau Catalog adds a complementary space and a set of features across your site to track and manage metadata and lineage of external assets used by the content published to your site.

Tableau Catalog indexes content and assets

Catalog discovers, tracks, and stores metadata from the content that you publish to Tableau Cloud or Tableau Server.

Catalog indexes metadata for the following:

- **Tableau content:** workbooks, data sources, flows, projects, metrics, virtual connections, virtual connection tables, users, and sites. (The legacy Metrics feature was retired in February 2024 for Tableau Cloud and in Tableau Server version 2024.2. For more information, see Create and Troubleshoot Metrics (Retired).)

- **External assets:** databases and tables associated with Tableau content

  Catalog classifies the metadata of any data that comes from outside the Tableau environment as external assets. The data that comes from outside the Tableau environment is stored in many different formats, such as a database server or a local .json file.

  Catalog tracks only the metadata of the external data and does not track the underlying data in any form (raw or aggregated).

Catalog metadata includes the following:

- **Lineage information** or the relationship between items. For example, the Sales table has a relationship with both the Superstore data source and the Superstore Sample workbook.
- **Schema information**. Some examples include:
  - Table names, column names, and column types. For example, Table A contains Columns A, B, and C, which are types INT, VARCHAR, and VARCHAR.
  - Database name and server location. For example, Database_1 is a SQL Server database at http://example.net.
  - Data source name, and the names and types of the fields the data source contains. For example, Superstore data source has fields AA, BB, and CC. Field CC is a calculated field that refers back to both field AA and field BB.

- **User curated, added, or managed information**. For example, item descriptions, certifications, user contacts, data quality warnings, and more.

How does Tableau Catalog work?

Tableau Catalog indexes all content published to Tableau Cloud or Tableau Server to track lineage and schema metadata. For example, the metadata comes from workbooks, packaged workbooks, data sources, and the Tableau Server or Tableau Cloud repository.

As part of the indexing process, lineage and schema metadata about external assets (databases, tables, and other objects) used by the published content are also indexed.

Note: In addition to accessing Catalog from Tableau Cloud or Tableau Server, indexed metadata can also be accessed from the Tableau Metadata API and Tableau Server REST API. For more information about the Tableau Metadata API or metadata methods in the REST API, see Tableau Metadata API and Metadata Methods in the Tableau Server REST API, respectively.

Permissions on metadata

Permissions control who is allowed to see and manage external assets and what metadata is shown through lineage.

Note: If Tableau Cloud or Tableau Server is not licensed with Data Management, then by default, only admins can see database and table metadata through the Tableau Metadata API. This default can be changed to use "derived permissions," as described below.

Access metadata

The permissions used to access metadata through Catalog (or Metadata API) work similarly to permissions for accessing content through Tableau Cloud or Tableau Server, with some additional considerations for sensitive data that can be exposed through lineage and the capabilities granted on external assets.

Permissions on Tableau content

Catalog follows the view and manage capabilities that are already in place on existing Tableau content to control the metadata that you can see and manage on Tableau content. For more general information on these capabilities, see Permissions.

Permissions on external assets using derived permissions

When Tableau Cloud or Tableau Server is licensed with Data Management, by default Catalog uses *derived permissions* to automatically grant you capabilities to external assets in the following scenarios:

For **View** capability:

- If you are the owner of a workbook, data source, or flow, you can see the database and table metadata used *directly* by that workbook, data source, or flow. See Additional notes about lineage.
- If you are a project owner or project leader, you can see all the database and table metadata used by the content published to your project.
- Embedded files use the permissions of the source content (such as the workbook, data source, or flow), rather than the derived permissions of the external asset (the database or table). For example, if you can see a workbook with an embedded file, you can see the embedded file and its metadata used by that workbook.

For both **Overwrite** and **Set Permissions** capabilities:

- If you are the owner of a flow, you can edit and manage permissions for the database and table metadata used by the flow output.

Note: In the case of flows, the capabilities mentioned above apply only after the flow has been run successfully at least once under the current owner of the flow.

Check permissions

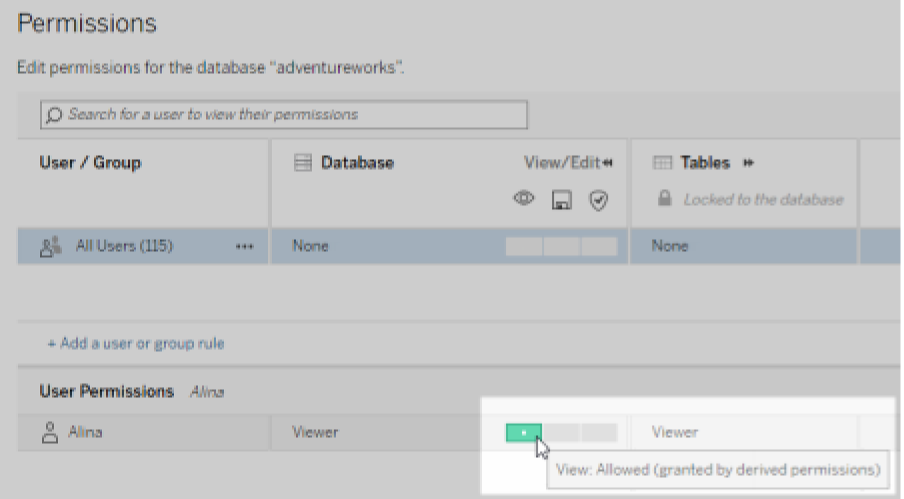
As an admin or someone who has been given the capability to set permissions for an asset, you can validate who has derived permissions by following the steps below.

1. Sign in to Tableau Cloud or Tableau Server.
2. From the left navigation pane, click **External Assets**.
3. From the drop-down menu, select **Databases and Files** or **Tables and Objects.**
   Note: Local files, like .json or .csv files are grouped as external assets under **Databases**.

4. Select the check box next to the database or table whose permissions you want to modify, and then select **Actions** > **Permissions**.

5. In the Permissions dialog box, click **+ Add Group/User Rule** and start typing to search for a group or user.

6. Validate the permissions by clicking a group name or user name in the permission rules to see the effective permissions below.


Permissions
Search for a user to view their permissions
User / Group
Database
View/Edit
Tables
Locked to the database
All Users (115)
None
None
+ Add a user or group rule
User Permissions Alina
Alina
Viewer
Viewer

Edit permissions for the database "adventureworks".

View: Allowed (granted by derived permissions)

Order of precedence for derived permissions on external assets

When derived permissions are configured for your Tableau Cloud site or Tableau Server, each user's level of access to external assets depends on the associated Tableau content and the order of precedence of rules Tableau uses for its content.

Tableau follows the rules below, continuing on to the next rule, only if the current rule evaluates to "denied." If any rule evaluates to "allowed," the capability is allowed and Tableau stops evaluating. This rules list is based on the Permissions.

For **View** capability:

1. Admin role
2. License

3. Project leader (Tableau content)
4. Project owner (Tableau content)
5. Content owner (Tableau content)
6. *Derived permissions* (applies only to external assets and the View capability)
   1. Admin role
   2. License
   3. Project leader (external assets)
   4. Project owner (external assets)
   5. Content owner (external assets)
7. Explicit permissions

For **Overwrite** and **Set Permissions** capabilities:

1. Admin role
2. License
3. Project leader (Tableau content)
4. Project owner (Tableau content)
5. Content owner (Tableau content)
6. Explicit permissions (Tableau content)
7. *Derived permissions* (applies only to external assets and the Overwrite and Set Permissions capabilities for flow outputs)
   1. Admin role
   2. License
   3. Project leader (external assets)
   4. Project owner (external assets)
   5. Content owner (external assets)

Turn off derived permissions

As an admin, you can turn off the derived permissions default setting for a site in favor of manually granting explicit permissions to databases and tables.

1. Sign in to Tableau Cloud or Tableau Server as an admin.
2. From the left navigation pane, click **Settings**.

3. On the **General** tab, under **Automatic Access to Metadata about Databases and Tables**, clear the **Automatically grant authorized users access to metadata about databases and tables** check box.

   Note: Data quality warning messages on databases and tables that are visible to users though derived permissions remain visible to those users even when the check box is not selected.

Set permissions on individual external assets

In order to grant additional users permissions to view, edit (overwrite), and manage external assets, an admin can grant those capabilities explicitly on individual databases or tables for users or groups.

Starting with Tableau Server 2022.3 and Tableau Cloud September 2022, you can organize external assets in projects. Permissions inheritance for external assets works the same way as it does for Tableau content, as described in the Permissions topic, and can simplify permissions management.

Summary of permissions capabilities

The following table shows the capabilities you can set for external assets:

Capability	Description	Template
View	See the database or table asset.	View
Overwrite	Add or edit data quality warnings and descriptions of the database or table asset. Prior to version 2020.1, the Overwrite capability was called Save.	Publish
Move	Move the database or table asset.	Administer
Set Per-	Grant or deny permissions for the database or	Administer

missions table asset.

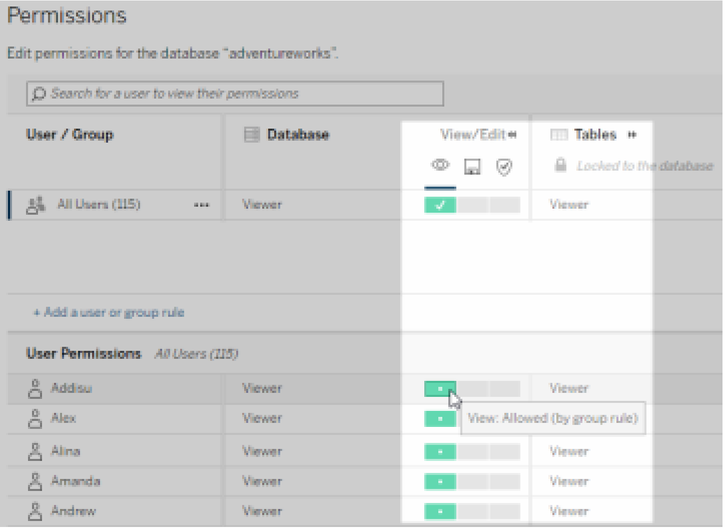
Set permissions on a database or table

To set permissions on databases or tables, use the following procedure.

1. Sign in to Tableau Cloud or Tableau Server as an admin or someone who has been granted the "Set Permissions" capability.
2. Find the database or table. You can do this through **Explore** (starting with Tableau Server 2022.3 and Tableau Cloud September 2022) if you know the current location of the database or table, or through **External Assets** to see a list of all databases, tables, and files.
    - **Explore** - From the left navigation pane, click **Explore** and locate the project the database or table is in.
    - **External Assets** - From the left navigation pane, click **External Assets**. From the drop-down menu, select **Databases and Files** or **Tables and Objects** (Note: Local files, like .json or .csv files are grouped as external assets under Databases.)
3. Select the check box next to the database or table whose permissions you want to modify, and then select **Actions** > **Permissions**.
4. In the Permissions dialog box, click **+ Add Group/User Rule** and start typing to search for a group or user.
5. Select a permission role template to apply an initial set of capability for the group or user, and then click **Save**. Available templates are: View, Publish, Administer, None, and Denied.
6. To further customize the rule, click a capability in the rule to set it to Allowed or Denied, or leave it unspecified. Click save when you are done.

7. Configure any additional rules you want for other groups or users.

8. Validate the permissions clicking a group name or user name in the permission rules to see the effective permissions below.



Permissions

Edit permissions for the database "adventureworks".

Search for a user to view their permissions
+ Add a user or group rule
Locked to the database
View: Allowed (by group rule)

User / Group	Database	View/Edit	Tables
All Users (115)	Viewer	✓	Viewer

User Permissions *All Users (115)*

User	Database	View/Edit	Tables
Addisu	Viewer	🟩	Viewer
Alex	Viewer	🟩	
Alina	Viewer	🟩	Viewer
Amanda	Viewer	🟩	Viewer
Andrew	Viewer	🟩	Viewer

External assets that are not in projects

There are some scenarios in which an external asset is not in a project:

- External assets that Catalog discovered before the **External Assets Default Project** existed (Tableau Cloud December 2022 / Server 2023.1) will not be in a project unless they've been moved into one since then.
- External assets that had their project deleted before the **External Assets Default Project** existed (Tableau Cloud December 2022 / Server 2023.1) will not be in a project unless they've been moved into one since then.
- In Tableau Server 2022.1 and earlier, external assets cannot be moved to projects at all.

If an external asset is not in a project, permissions for external assets work as they did in Tableau Server 2022.1 and Tableau Cloud June 2022 and earlier. That is, database and table permissions are controlled independently of content in projects, and table permissions can be managed through database permissions. When permissions are set at the database level in this way, those permissions can serve as a template for any newly discovered and indexed child tables of that database. Furthermore, database permissions can also be locked so that the child tables will always use the permissions set at the database level.

> Note: You cannot lock (or unlock) permissions to a database if the database is in a project.

To lock (or unlock) permissions to the database, use the following procedure:

1. Sign in to Tableau Cloud or Tableau Server as an admin or someone who has been granted the "Set Permissions" capability.
2. From the left navigation pane, click **External Assets**. By default, the External Assets page shows a list of databases and files.
3. Select the check box next to the database whose permissions you want to lock, select **Actions** > **Permissions**, and then click the Table Permissions **Edit** link .
4. In the Table Permissions in Database dialog box, select **Locked** and click **Save**.
5. To unlock permissions, click **Edit** again, and select **Customized**.

Access lineage information

Catalog (and the Metadata API) can expose relationship and dependencies metadata, also referred to as *lineage*, among the Tableau content and external assets on Tableau Cloud or Tableau Server. Lineage shows three primary things:

- How items relate to each other, either directly or indirectly
- How many of those items relate to each other
- With the appropriate permissions, shows sensitive data about items in the lineage

Sensitive lineage data

In some cases, lineage can contain sensitive data, such as data quality warning messages, content or asset names, or related items and metadata.

By default, complete lineage information displays for all users while its sensitive data is blocked from specific users who don’t have the appropriate View capabilities. The concept of blocking sensitive data is called obfuscation.

Obfuscation allows all metadata in the lineage to be visible while keeping its sensitive data blocked from specific users who don’t have the appropriate View capabilities. This default enables workflows that rely on a complete impact analysis.

If obfuscating sensitive data in the lineage is not enough for your organization, certain parts of the lineage, including its sensitive data, can be filtered.

Filtering omits certain parts of the lineage (and lineage-related areas like data details) for specific users who don't have the appropriate **View** capabilities for its sensitive data. Because filtering omits parts of lineage, it prevents workflows that rely on a complete impact analysis.

To change how sensitive data is handled, do the following:

1. Sign in to Tableau Cloud or Tableau Server as an admin.
2. From the left navigation pane, click **Settings**.
3. On the General tab, under **Sensitive Lineage Information**, select the radio button that best handles lineage information for all users on your Tableau Cloud site or Tableau Server.

Additional notes about lineage

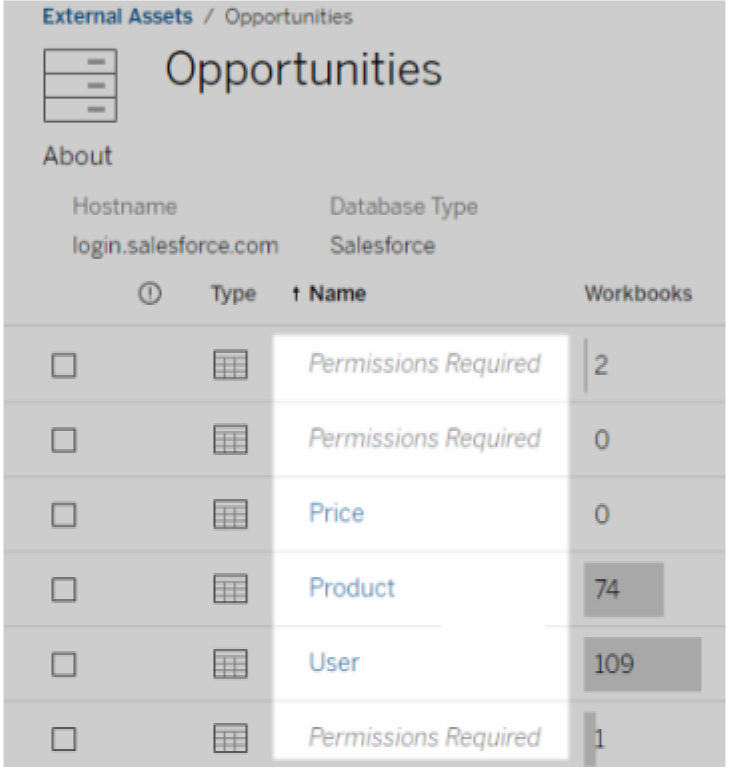
- **If you have the View capability on related assets**, you can see when and what assets and content are related to each other, and their sensitive metadata.

  For example, you can see 1) the names, data quality warnings, and total number of related upstream databases and tables and 2) the combined number of sheets (visible and hidden) in the lineage of the downstream workbook of the asset you are evaluating.

- **If you *don't* have the View capability on related assets**, you can always see when assets relate to each other.

For example, you can see 1) whether related upstream databases and tables exist in the lineage and 2) the total number of databases or total number of tables that are related to the asset you are evaluating.

However, you can't see the metadata associated with those assets when you don't have the view capability for them. When metadata is blocked because of limited permissions, or the asset is in a Personal Space, you see **Permissions Required**.



External Assets / Opportunities

Opportunities

About

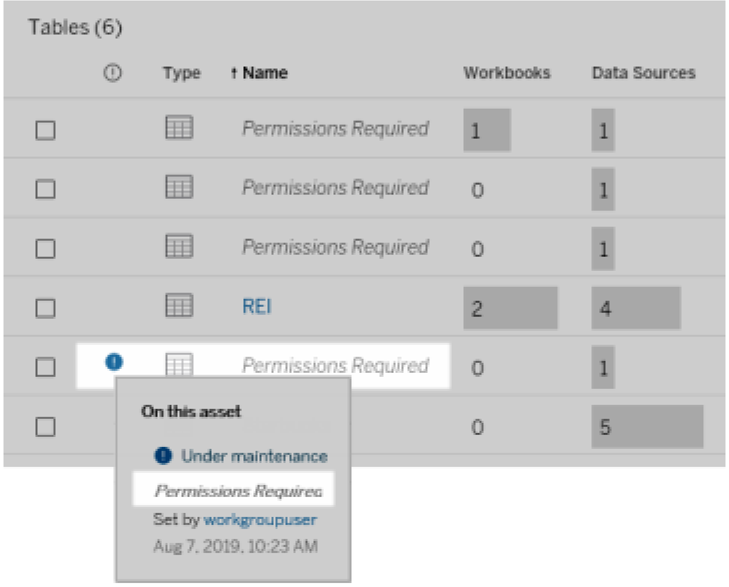
Hostname: login.salesforce.com

Database Type: Salesforce

	ⓘ	Type	↑ Name	Workbooks
☐		▦	*Permissions Required*	2
☐		▦	*Permissions Required*	0
☐		▦	Price	0
☐		▦	Product	74
☐		▦	User	109
☐		▦	*Permissions Required*	1

- **If you *don't* have the View capability on related assets**, you can always see whether the assets are certified.

  However, if you don't have View capability, you can't see sensitive information related to the certification, like the names of the related databases and tables. When metadata is blocked because of limited permissions, or the asset is in a Personal Space, you see **Permissions Required**.



Tables (6)

	ⓘ	Type	↑ Name	Workbooks	Data Sources
☐			*Permissions Required*	1	1
☐			*Permissions Required*	0	1
☐			*Permissions Required*	0	1
☐			REI	2	4
☐	●		*Permissions Required*	0	1
☐				0	5

On this asset

● Under maintenance

Permissions Required

Set by workgroupuser

Aug 7, 2019, 10:23 AM

For more information about lineage see Use Lineage for Impact Analysis.

Additional notes about tags discoverable through lineage data

In addition to Tableau content, external assets can also be tagged. Although tags are always visible, tagged items that you see through lineage data can either be obfuscated (default) or filtered as described earlier in this topic.

When tagged items are obfuscated:

- **If you have the View capability for tagged items**, you can see the tagged items and related tagged items, and all metadata.
- **If you don’t have the View capability for tagged items**:
  - You can see the type of tagged and related tagged items but you can't see sensitive metadata about the items. For example, suppose you use a tag filter to see items with the tag “Noteworthy.” Although you can see that there are database items tagged with "Noteworthy," you can’t see the names of the tagged databases.

- You can see how many related tagged items there are. For example, suppose you do a tag query on “Noteworthy.” Your query returns five tagged databases.

When tagged items are filtered, the tagged and related tagged items you see are limited to only the items that you have the View capability for.

For more information about tags, see Tagged Items in the Tableau User Help.

Potential mismatch between asset results and content results

When Catalog shows lineage information, it provides information about Tableau content and external assets. Catalog lineage always shows the true count or result of associated items. However, in other areas of the site, you might see fewer items. This could be because of your **View** capabilities. Outside of Catalog, you see only the content that your permissions allow.

For example, suppose you're looking at the Superstore data source. The lineage for the Superstore data source shows how many upstream underlying tables the data source connects to and how many downstream workbooks rely on the data source. However, because you might not have permissions to see all of those downstream workbooks, the number of related workbooks in the Catalog lineage (actual total) might be greater than the number of workbooks in the **Connected Workbooks** tab (what you have permission to see).

There might be other reasons, unrelated to permissions, why you might see a mismatch between asset counts and content counts. For more information, see Use Lineage for Impact Analysis.

Who can do this

The following information summarizes the types of users who can do the tasks described in this topic.

Tableau Cloud site or Tableau Server admin

Data Management	Capability	Requirements
Licensed	See assets and their metadata	None

Data Management	**Capability**	**Requirements**
	Edit assets and their metadata	None
	Change permission on assets and their metadata	None
	Grant users ability to see assets and their metadata	**Default:** When “derived permissions” is on, your users can see metadata on external assets for the content that they own, or for the content that is published to a project that they are a project leader or project owner of. **Ad-hoc:** You can configure explicit **View** permissions on a specified external asset.
	Grant users ability to edit assets and their metadata	You can configure explicit "write" or **Overwrite** permissions on a specified external asset (if not automatically granted because the user is a flow owner) .
	Grant users ability to change permissions on assets and their metadata	You can configure explicit "edit" or **Set Permissions** on a specified external asset (if not automatically granted because the user is a flow owner) .

Data Management	**Capability**	**Requirements**
Not licensed	See all assets and their metadata	**Applies to Metadata API only**
	Edit assets and their metadata	Requires Data Management
	Change permission on assets and their metadata	Requires Data Management
	Grant users ability to see assets and their metadata	**Applies to Metadata API only:** You can turn on derived permissions as described above. If "derived permissions" is on, your users can see metadata on external assets for the content that they own, or for the content that is published to a project that they are a project leader or project owner of.
	Grant users ability to edit assets and their metadata	Requires Data Management
	Grant users ability to change permissions on assets and their metadata	Requires Data Management

User with Creator or Explorer license

Data Management	**Capability**	**Requirements**
Licensed	See assets and their metadata	**Default:** When "derived permissions" is enabled by your Tableau Cloud site admin or Tableau Server admin, you can see metadata on external assets for the content that you own, or for the content that is published to a project that you are a project leader or project owner of. **Ad-hoc:** You can see metadata on external assets that you have been granted explicit **View** permissions to.
	Edit assets and their metadata	You can edit metadata on an external asset that you have been granted explicit "write" or **Overwrite** permissions to(if not automatically granted because the user is a flow owner).
	Change permissions on assets and their metadata	You can change permissions on an external asset that you have been granted explicit "edit" or **Set Permissions** to ((if not automatically granted

Data Management	Capability	Requirements
		because the user is a flow owner).
	Grant other users permissions to see assets and their metadata	You can change permissions on an external asset that you have been granted explicit "edit" or **Set Permissions** to ((if not automatically granted because the user is a flow owner).
Not licensed	See assets and their metadata	**Applies to Metadata API only:** If “derived permissions” is enabled by your Tableau Cloud site admin or Tableau Server admin, you can see metadata on external assets for the content that you own, or for the content that is published to a project that you area project leader or project owner of.
	Edit assets and their metadata	Requires Data Management
	Change permissions on assets and their metadata	
	Grant other users permissions to see assets and their metadata	

Recycle Bin

The Recycle Bin allows Site Administrators, Server Administrators, and authors with Explorer (can publish) or Creator licenses to restore previously deleted projects, workbooks, and data sources.

You can access the Recycle Bin from the Home page of your Tableau site. Expand the side pane, and then select **Recycle Bin**. If you don’t see Recycle Bin, the feature must be turned on by your administrator.

What content is stored in the Recycle Bin?

When the Recycle Bin is turned on, the following content types will temporarily move to the Recycle Bin after deletion:

- Workbooks (including revision history, views, embedded credentials, embedded data sources, and extracts)
- Data sources (including extracts and embedded credentials)
- Projects (including contained workbooks and data sources)

However, when you delete and restore workbooks, data sources, and projects, some elements of the original content will be lost, including:

- Custom views
- Subscriptions
- Data-driven alerts
- Permissions
- Aggregated statistics about the deleted item (view and usage counters)

- Tags
- Favorite information (if the item was favorited)

Tip: If you don’t see something that you expect to be in the Recycle Bin, verify that the correct **Content Type** is selected.

Content: Notes and best practices

- When deleted, supported content types keep their original names. The Restore action will fail if the project you restore to already has an item with the same name. To resolve this issue, restore into a different project, rename the just-restored content, and then move the content into the desired location.
- Workbooks and data sources stored in the Recycle Bin still take up space on a site. If a workbook or data source uses an extract, that extract size is still counted against the site quota.
- When deleted, supported content types do not change their owner. Users who originally owned content are still considered to be an owner.
- On restore, restored Items will take on the default permissions set for the container that you restore to. When restoring critical content, the operating user should verify that permissions are set as necessary. The Restore operation will not restore original content permissions.

Projects: Notes and best practices

Projects can contain a variety of content or nested projects. Note the following about projects when the Recycle Bin is turned on.

> **Note**: Recycle Bin respects hierarchy for nested projects on the original delete action and when restoring content. For example, you can delete an entire project branch from the root project to send the root and all nested projects to the Recycle Bin, and you can

restore an entire project branch from the Recycle Bin if you restore the root project (and all of the nested projects are still in the Recycle Bin). However, hierarchy is not respected when you delete content from the Recycle Bin. To delete all of the projects from an original project branch from the Recycle Bin, you'll need to delete each project individually.

Example project: Project A includes 2 workbooks (A and B), a data source, and a flow.

- When a project is initially deleted and sent to the Recycle Bin, all content from that project that is compatible with the Recycle Bin is stored individually. For Project A, you'll see a project, Workbook A, Workbook B, and a data source in the Recycle Bin. Other types of content, like flows, are deleted immediately and can't be recovered.
- All compatible content from a project can be restored or deleted individually. For example, you can permanently delete Workbook A from Project A, leaving only a project, Workbook B, and the data source in the Recycle Bin.
- If you restore a project, all compatible content that is still stored in the Recycle Bin at the time will also be restored. For Project A, if you've already deleted Workbook A and then restore Project A, the project will restore with only Workbook B and a data source.
- If you delete a project from the Recycle Bin, only the project is deleted. For example, if you delete Project A from the Recycle Bin, Workbook B and the data source remain in the Recycle Bin until they are individually deleted, restored, or until the storage time expires.

Example project: Project A includes Workbooks A, Workbook B, a data source, and a nested Project B that includes Workbook C.

- If a deleted project contains nested projects, any nested projects that are still stored in the Recycle Bin at the time will be restored if the top-level project is restored. For example, restoring the root Project A restores the top-level Project A, Workbook B, a data source, Project B, and Workbook C to the selected restore location

- Nested projects in the Recycle Bin can be restored independently from their top-level project. If a nested project is restored independently, and then the top-level project is later restored, the top-level project restores without any content from the nested project. For example, if you restore Project B independently and then later restore Project A, Project A will restore with the top-level project, Workbook B, and the data source. The restored Project B will no longer be nested within Project A.

Example project: Project 1 (P1) is a project branch that includes 4 nested projects (P2-P3-P4-P5).

Scenario: You initially delete P1 and send the whole branch (the root P1 and the nested P2-P3-P4-P5 to the Recycle Bin.

- From the Recycle Bin, you can delete any individual project from the original hierarchy (P1-P2-P3-P4-P5).
- Deleting nested projects from the Recycle Bin will disrupt the original project hierarchy.
  - If you delete P3, P1, P2, P4, and P5 remain in the Recycle Bin, however P4 is no longer connected to P2. The original single project branch is now divided into two branches: P1-P2 and P4-P5.
  - With P3 deleted, if you then restore P1, the Restore action will also restore P2, but will leave P4 and P5 in the Recycle Bin.
  - With P3 deleted, if you restore P4, the Restore action will also restore P5, as P4 is now considered the root for P5.vvv
  - You can restore any of the originally-nested projects individually.
- You can’t remove a whole project hierarchy from the Recycle Bin. You must delete each project individually.

Restore content from the Recycle Bin

You can restore content from the Recycle Bin to a project within the storage time frame configured by the administrator.

1. From the Home page, expand the side pane, and then select **Recycle Bin**.
2. For **Content Type**, select **Workbooks**, **Projects**, or **Data Sources**.
3. Select the **More actions** menu for the content that you want to restore, and then select **Restore**.
4. Select a project as the restore location.
5. Select **Restore**.

Delete content from the Recycle Bin

You can permanently delete content from the Recycle Bin before the end of the storage time frame configured by the administrator. This action can’t be undone.

1. From the Home page, expand the side pane, and then select **Recycle Bin**.
2. For **Content Type**, select **Workbooks**, **Projects**, or **Data Sources**.
3. Select the **More actions** menu for the content that you want to permanently delete, and then select **Delete**.
4. Select **Delete**.

Turn on the Recycle Bin

Administrators can turn on the Recycle Bin for a Tableau site in the Tableau site settings.

1. From the General tab, scroll to the Recycle Bin section.
2. Select the checkbox for **Allow Recycle Bin for this site**.

3. Select the number of days that the content is stored in the Recycle Bin. You can choose 1, 7, or 30 days.

   Important: Content is permanently deleted after the selected number of days.

4. Select **Save**.

Turn off the Recycle Bin

Warning: If an administrator turns off the Recycle Bin, any content stored in the Recycle Bin will be permanently deleted.

Administrators can turn off the Recycle Bin for a Tableau site in the Tableau site settings.

1. From the General tab, scroll to the Recycle Bin section.
2. Clear the checkbox for **Allow Recycle Bin for this site**.
3. Select **Save**.

Contact your administrator

The Recycle Bin can only be turned on and configured by a Tableau Site Administrator or Server Administrator. To see contact information for your administrator, from the Home page, select the **Show help menu** icon, and then select **Contact Tableau Administrator**.

Enable Tableau Catalog

Tableau Catalog discovers and indexes all of the content on your Tableau Cloud site or Tableau Server, including workbooks, data sources, sheets, metrics, and flows. (The legacy Metrics feature was retired in February 2024 for Tableau Cloud and in Tableau Server version 2024.2. For more information, see Create and Troubleshoot Metrics (Retired).) Indexing is used to gather information about the content, or metadata, about the schema and lineage of the content. Then from the metadata, Catalog identifies all of the databases, files, and tables used by the content on your Tableau Cloud site or Tableau Server.

Catalog is available with the Data Management license. For more information, see About Data Management.

In addition to Catalog, metadata about your content can also be accessed from both the Tableau Metadata API and the Tableau REST API using Metadata Methods.

Catalog on Tableau Cloud

Catalog is automatically enabled when Tableau Cloud is licensed with the Data Management.

After your Tableau Cloud site has been licensed with the Data Management, the content that already exists on your Tableau Cloud site is immediately indexed. The time it takes to index the content depends on the amount of content you have. After the content is initially indexed, Catalog monitors newly published content and other changes to assets and continues to index in the background.

Troubleshoot Catalog

You or your users might encounter one of the following issues when using Catalog.

Timeout limit and node limit exceeded messages

To ensure that Catalog tasks that have to return a large number of results don't take up all system resources, Catalog implements both timeout and node limits.

- **Timeout limit**

  When tasks in Catalog reach the timeout limit, you and your users see the following message:

  "*Showing partial results, Request time limit exceeded. Try again later.*" or TIME_LIMIT_EXCEEDED

- **Node limit**

When tasks in Catalog reach the node limit, you and your users see the following message:

NODE_LIMIT_EXCEEDED

Use Lineage for Impact Analysis

Knowing where your data comes from is key to trusting the data, and knowing who else uses it means you can analyze the impact of changes to data in your environment. The lineage feature in Tableau Catalog helps you do both these things.

When you have a Data Management license and Tableau Catalog enabled, you have access to lineage information for your content. For more information about Tableau Catalog, see "About Tableau Catalog" in the Tableau Server or Tableau Cloud Help.

Navigate lineage

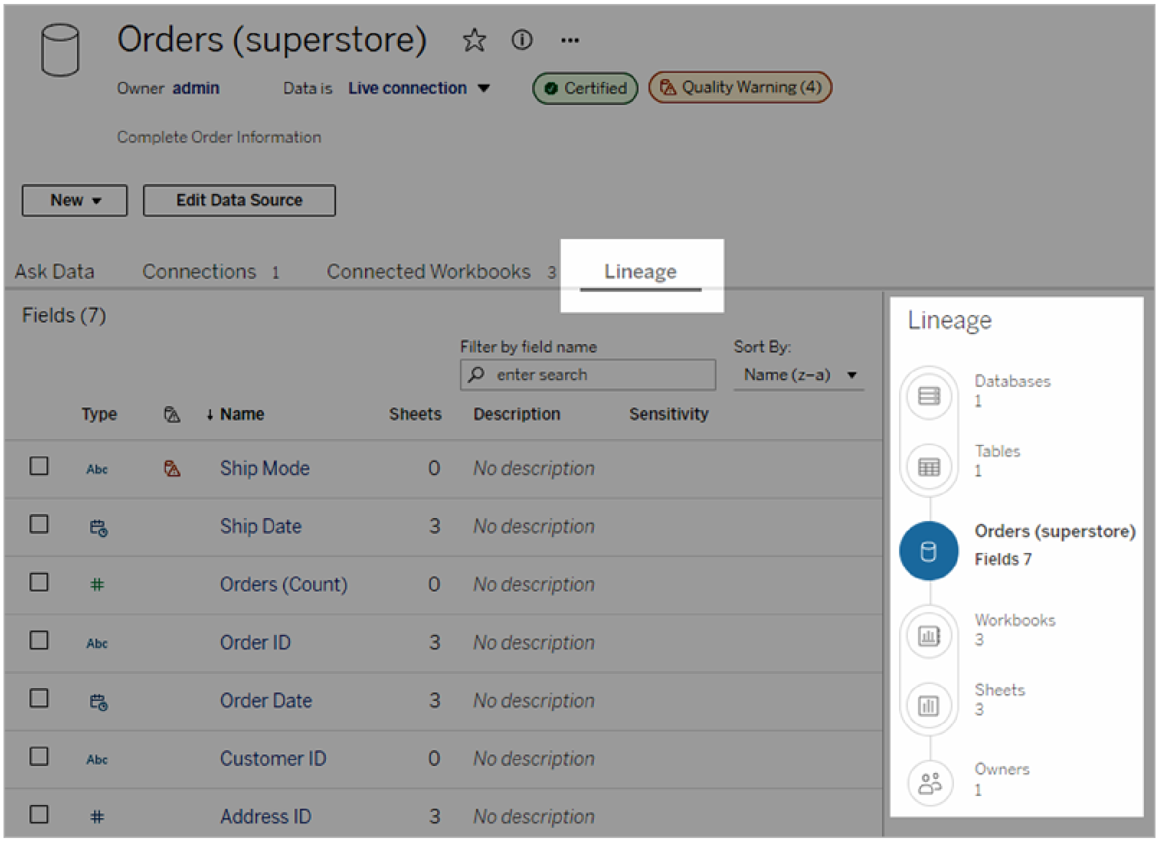
To see the lineage for an asset, first navigate to the asset's page. Your options for this step include:

- Search for the asset and select it.
- Navigate to it from **Explore**.
- If it's an external asset (such as a database or table) that's not in a project, navigate to it through **External Assets**.(This option also works for external assets that *are* in projects.)

Then select the **Lineage** tab.

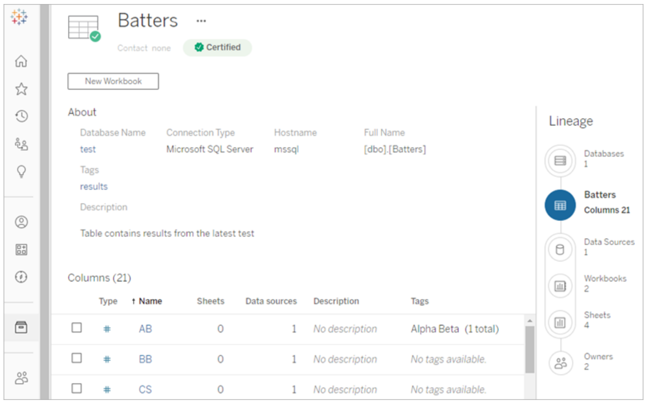
If you see a Lineage tab but don't have a license that includes Data Management, clicking on the Lineage tab displays a promotion for Data Management. The promotion can be disabled in your Account Settings.

Note: Lineage data for flows won't show if the flow includes parameter values. For more information about using parameters in flows see Create and Use Parameters in Flows in the Tableau Prep help.


Orders (superstore)
Owner admin
Data is Live connection
Certified
Quality Warning (4)
Complete Order Information
New
Edit Data Source
Ask Data
Connections 1
Connected Workbooks 3
Lineage
Fields (7)
Filter by field name
enter search
Sort By:
Name (z–a)
Lineage
Databases 1
Tables 1
Orders (superstore)
Fields 7
Workbooks 3
Sheets 3
Owners 1

	Type		↓ Name	Sheets	Description	Sensitivity
☐	Abc	⚠	Ship Mode	0	*No description*	
☐			Ship Date	3	*No description*	
☐	#		Orders (Count)	0	*No description*	
☐	Abc		Order ID	3	*No description*	
☐			Order Date	3	*No description*	
☐	Abc		Customer ID	0	*No description*	
☐	#		Address ID	3	*No description*	

Lineage shows dependencies in relationship to the lineage anchor, which is the asset selected. A lineage anchor can be a database, table, workbook, published data source, virtual connection, virtual connection table, Pulse metric definition, or flow. (In the image above, the anchor is the "Orders (superstore)"data source, and in the image below, the anchor is the "Batters" table.) All the assets below the anchor depend, either directly or indirectly, on the anchor and are called outputs or downstream assets. The assets above the anchor are the assets the anchor is either directly or indirectly dependent on and are called inputs or upstream assets.


Batters
Contact none
Certified
New Workbook
About
Lineage
Databases 1
Batters Columns 21
Data Sources 1
Workbooks 2
Sheets 4
Owners 2

Database Name	Connection Type	Hostname	Full Name
test	Microsoft SQL Server	mssql	[dbo].[Batters]

Tags
results

Description

Table contains results from the latest test

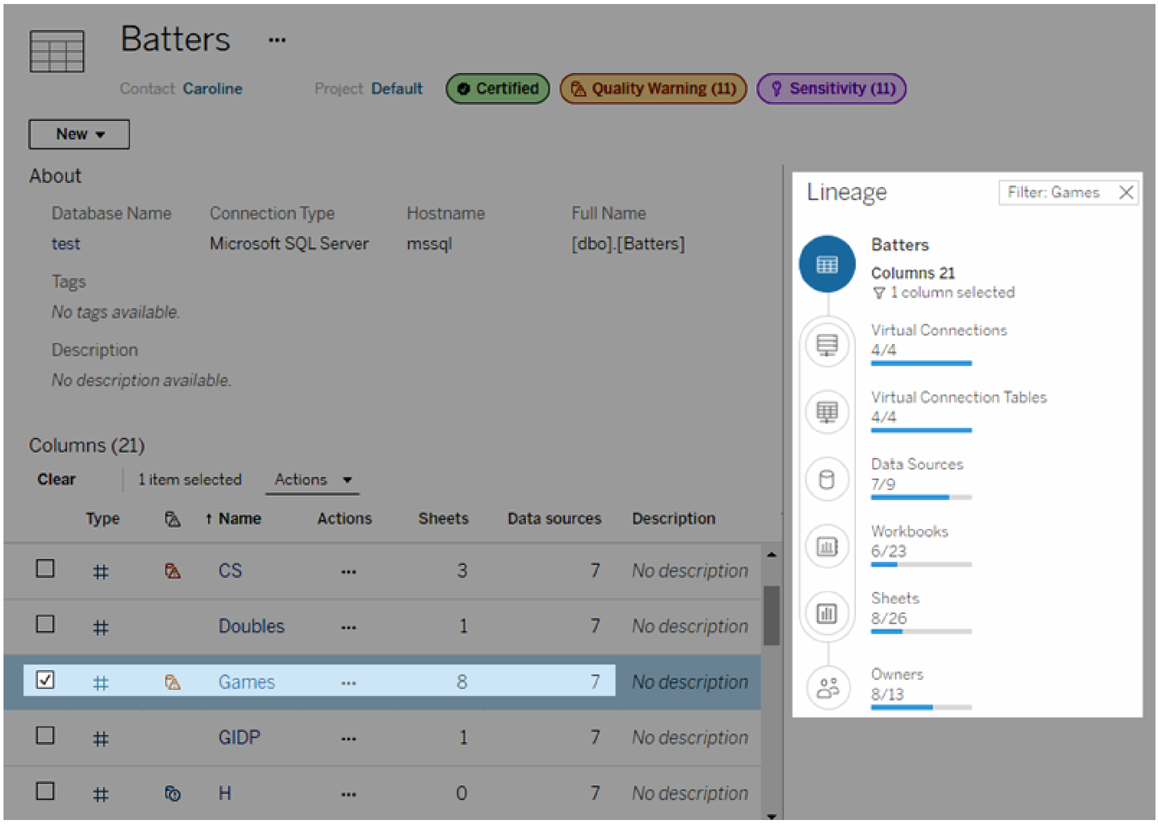
Columns (21)

	Type	↑ Name	Sheets	Data sources	Description	Tags
☐	#	AB	0	1	*No description*	Alpha Beta (1 total)
☐	#	BB	0	1	*No description*	*No tags available.*
☐	#	CS	0	1	*No description*	*No tags available.*

Starting in Tableau Cloud June 2024, Pulse metric definitions appear in lineage. (Tableau Pulse is not available on Tableau Server.)

Starting in Tableau Cloud June 2023 and Tableau Server 2023.3, lineage pages for data sources include search and filtering (in the top-right of the fields list) that allow you to quickly find fields of interest or relevance.

When you select a field in a data source or a column in a table, the lineage is filtered to show only downstream assets that depend on the field (or column) or upstream inputs to the field (or column), as in this 'Batters' table example that shows the lineage filtered for the 'Games' column:



About

Database Name	Connection Type	Hostname	Full Name
test	Microsoft SQL Server	mssql	[dbo].[Batters]

Tags
No tags available.

Description
No description available.

Columns (21)

Clear | 1 item selected | Actions

	Type		Name	Actions	Sheets	Data sources	Description
☐	#		CS	...	3	7	*No description*
☐	#		Doubles	...	1	7	*No description*
☑	#		Games	...	8	7	*No description*
☐	#		GIDP	...	1	7	*No description*
☐	#		H	...	0	7	*No description*

Batters
Columns 21
1 column selected
Virtual Connections 4/4
Virtual Connection Tables 4/4
Data Sources 7/9
Workbooks 6/23
Sheets 8/26
Owners 8/13

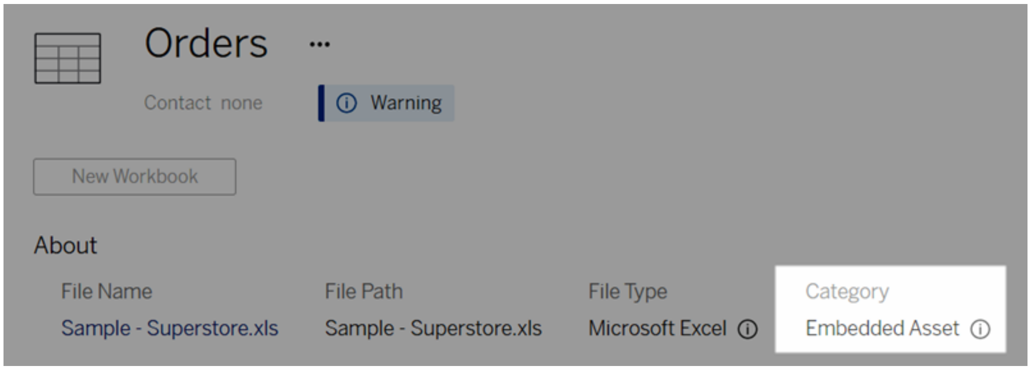
You can select an upstream or downstream asset in the Lineage pane to see its details. For example, when you select Data Sources, the list of data sources that depend on this table appear to the left of the Lineage pane.

From the Lineage pane, you can navigate to any asset related to your initial choice, in this case the table, by following the links that interest you.

Embedded asset appears in External Assets

Tableau Catalog treats an external asset as ‘embedded’ if the **Include external files** check box is selected when a data source or workbook is published. When an external asset (database, table, or file) is embedded in published Tableau content (workbooks, data sources, and flows), the external asset is used by the content, but is not shareable with other users. That embedded external asset appears in the lineage upstream from its Tableau content and is listed in External Assets.

To see if an external asset is embedded, go to the external asset's detail page and see if "Embedded Asset" is listed under **Category**.


Orders
...
Contact none
Warning
New Workbook
About
File Name
Sample - Superstore.xls
File Path
Sample - Superstore.xls
File Type
Microsoft Excel
Category
Embedded Asset

For information about embedded data, see Publishing data separately or embedded in workbooks in Tableau Desktop and Web Authoring Help.

Lineage and custom SQL connections

When you view the lineage of a connection that uses custom SQL, keep in mind the following:

- Lineage might not be complete.
- Catalog doesn't support showing column information for tables that it only knows about through custom SQL.
- Field details cards might not contain links to connected columns, or might not show any connected columns at all.
- Column details cards might not contain links to fields that use the column, or might not show any fields at all.

For more information, see Tableau Catalog support for custom SQL in the Tableau Desktop and Web Authoring Help.

Catalog doesn't support cubes

Cube data sources (also known as multidimensional or OLAP data sources) are not supported by Tableau Catalog. Tableau content (such as a data source, view, or workbook) that relies on cube data does not display any cube metadata or cube lineage in Catalog.

Mismatch between lineage count and tab count

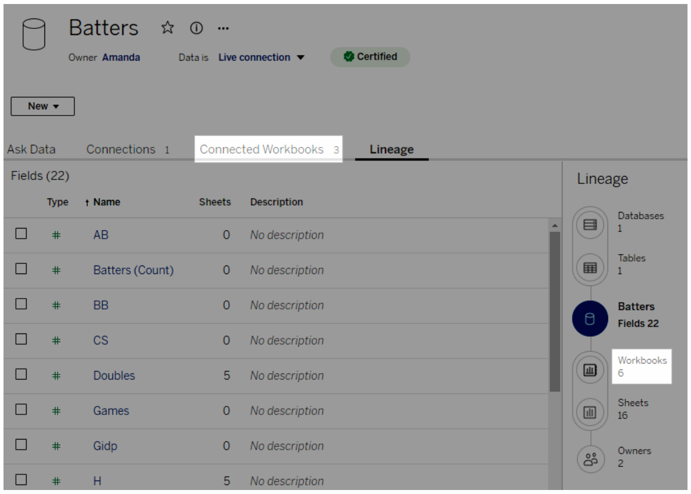
You might notice a mismatch in the count of assets between the Tableau Catalog Lineage tool and the tabs in Tableau Server or Tableau Cloud.

The count mismatch is explained by the fact that each—lineage count vs. tab count—counts assets a different way. For example, at any given point in time, Catalog can count only assets that are indexed, whereas Tableau Server or Tableau Cloud counts any assets that are published. Other reasons for count differences include whether:

- You have "View" permissions for the asset.
- An asset is hidden.
- Any fields are used in a workbook.
- An asset is directly or indirectly connected to.
- An asset is in a Personal Space.

Workbook count mismatch example

As an example, here's how the tab count vs. the lineage count is determined for workbooks.


Batters
Owner Amanda
Data is Live connection
Certified
New
Ask Data
Connections 1
Connected Workbooks 3
Lineage
Lineage
Databases 1
Tables 1
Batters Fields 22
Workbooks 6
Sheets 16
Owners 2

Fields (22)

	Type	Name	Sheets	Description
☐	#	AB	0	*No description*
☐	#	Batters (Count)	0	*No description*
☐	#	BB	0	*No description*
☐	#	CS	0	*No description*
☐	#	Doubles	5	*No description*
☐	#	Games	0	*No description*
☐	#	Gidp	0	*No description*
☐	#	H	5	*No description*

Connected Workbooks tab counts workbooks that meet both these criteria:

- Connects to the data source (whether or not any fields are actually used in the workbook).
- The user has permissions to view (whether it's a worksheet, dashboard, or story).

Tableau Catalog Lineage counts workbooks that meet all these criteria:

- Has been indexed by Tableau Catalog.
- Connects to the data source and uses at least one field in the data source.
- Contains worksheets, including dashboards or stories that contain a worksheet, that use at least one field in the data source.

When metadata is blocked because of limited permissions, or the asset is in a Personal Space, Catalog still counts the workbook. But instead of seeing some of the sensitive metadata, you see **Permissions required**. For more information, see Access lineage information.

Use email to contact owners

At the end of the lineage is Owners. The list of owners includes anyone assigned as the owner or contact for any content downstream from the lineage anchor.

You can email owners to let them know about changes to the data. (To email owners, you must have the 'Overwrite' (Save) capability on the lineage anchor content.)

1. Select **Owners** to see the list of people who are impacted by the data in this lineage.
2. Select the owners you want to send a message to.
3. Click **Send Email** to open the email message box.
4. Enter the Subject and your message in the text box, and click **Send**.

Data Labels

Data labels are metadata that you can attach to data assets. Data labels help classify data and pass information to users. For example:

- One published data source is more authoritative than other, similarly named ones. The certification data label can help you inform users which data source is recommended.
- A column in a database contains outdated information. A warning data label can help you tell workbook authors and viewers that the data isn't up to date.
- A table of employee income contains sensitive information that shouldn't be shared. A sensitivity data label can inform users that they must take care when using data from the table.

- Some published data sources can be grouped based on the department that published them. A custom label category with custom labels can identify the departments responsible for the data sources.

> Note: Data labels are a more recent and extensible way of thinking about ways to classify metadata. Certifications and data quality warnings, which were part of the Data Management license long before the term "data labels" existed, are now considered categories in the broader data label concept, along with the Sensitivity Labels released in Tableau Cloud June 2023 and Tableau Server 2023.3.

A Data Management license is required for all data label operations except for ones related to the certification of published data sources.

Assets you can label

You can add labels to the following Tableau content and external assets:

- Databases
- Tables
- Columns (except for certification) *(column labels introduced in Tableau Cloud October 2022 / Server 2022.3)*
- Data sources
- Flows
- Virtual connections
- Virtual connection tables

Label names and categories

Each label has a name and category. The names and categories built-into Tableau are:

Name	**Category**
Certified	Certification
Deprecated	Data Quality Warning

Stale data	Data Quality Warning
Under maintenance	Data Quality Warning
Warning	Data Quality Warning
Extract refresh failed	Data Quality Warning
Flow run failed	Data Quality Warning
Sensitive data[1]	Sensitivity

[1] *In Tableau Cloud March 2023 / Server 2023.1 and earlier, the Sensitive data label uses the Data Quality Warning category.*

Starting with Tableau Cloud October 2023 and Tableau Server 2023.3, using the label manager on the Data Labels page or the REST API, an administrator can customize the built-in labels or create new label names and categories. (Using the REST API, Tableau Cloud Administrators have been able to modify some built-in labels and add others in certain categories since June 2023.) For more information, see Manage Data Labels.

Label categories

A label's category affects where and how the label appears, whether it appears on downstream assets, and which parts are customizable, among other things.

Certification

In a self-service environment with multiple publishers and numerous assets, it can be difficult to find recommended content. Using certification, you can mark assets as trusted, and the assets display badges in various places across Tableau. For complete information, see Use Certification to Help Users Find Trusted Data.

Data quality warnings

Identifying problematic data is important for building trust with users. Data quality warnings allow you to mark data assets that have known issues. When you attach a data quality warning to an asset, a warning shows on it and any downstream assets that use it, making data consumers aware of problems with the source data. For example, if you mark a database table as deprecated, users viewing workbooks based on that table may see a warning.

Furthermore, data quality warnings can be set automatically when an extract refresh or flow run fails, and removed again when it succeeds. And using the Data Labels page or the REST API, administrators can create new, customized data quality warning labels, adding nuance and specificity to the warnings that users can choose from. For complete information, see Set a Data Quality Warning

Sensitivity labels

Some data needs to be handled differently. Using Sensitivity labels, you can relay data sensitivity information to consumers of that data. When you mark an asset as sensitive, users browsing Tableau Cloud see badges on it and any downstream assets that use it. For example, if you mark a table column as sensitive, a user authoring a new workbook based on that table may see a warning. Furthermore, using the **Data Labels** page or the REST API, administrators can create customized sensitivity labels, adding nuance and specificity to the range of classifications that users can choose from when using sensitivity labels.

> Note: Sensitivity labels were introduced in Tableau Cloud June 2023 and Tableau Server 2023.3. Earlier versions of Tableau Cloud and Tableau Server relay data sensitivity through the "Sensitive data" data quality warning instead of using a dedicated sensitivity category.

For complete information, see Sensitivity Labels.

Custom label categories

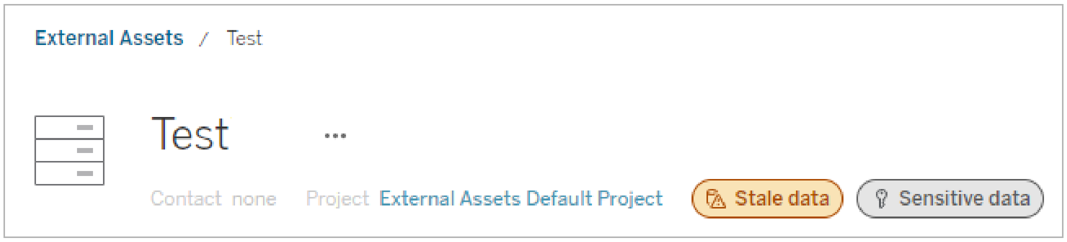
Sometimes you need to classify data in a way that isn't covered by certification, data quality warnings, or sensitivity labels. Using custom categories that administrators define, you can use labels to categorize assets in any way that your organization sees fit. For example, an administrator in your organization might create a category called "Department" with labels in it for sales, marketing, and other departments, ready to be applied to assets on your site. For complete information, see Labels with Custom Categories.

Note: The ability for administrators to create label names and categories through the label manager was released with Tableau Cloud October 2023 and Tableau Server 2023.3. Tableau Cloud administrators could use the REST API in a more limited way to create custom label names with built-in categories in June 2023.

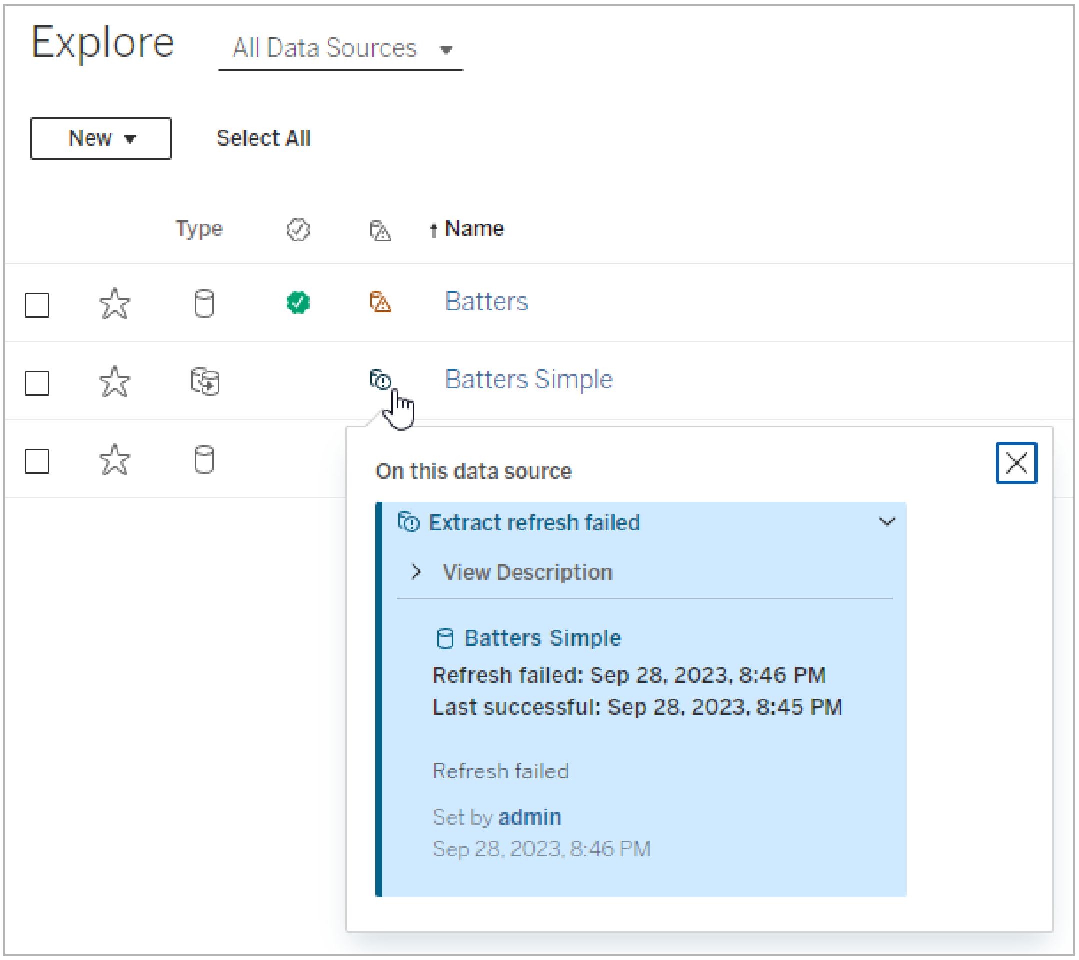
Where data labels appear

Data labels appear in various places, such as

- the tops of asset pages (workbooks, data sources, tables, and so forth)


External Assets / Test
Test
...
Contact none
Project External Assets Default Project
Stale data
Sensitive data

- lists of assets (**Explore** pages, **External Assets** page, and so forth)



Explore
All Data Sources
New
Select All
Type
Name
Batters
Batters Simple

On this data source

Extract refresh failed

View Description

Batters Simple

Refresh failed: Sep 28, 2023, 8:46 PM

Last successful: Sep 28, 2023, 8:45 PM

Refresh failed

Set by admin

Sep 28, 2023, 8:46 PM

- the Desktop **Data** pane

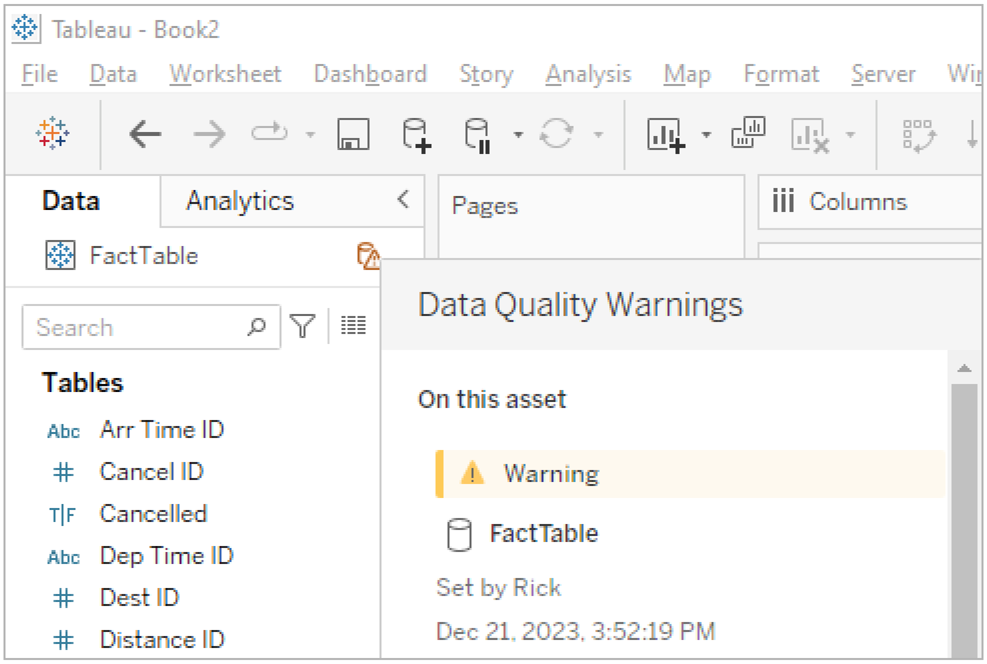


Tableau - Book2
File Data Worksheet Dashboard Story Analysis Map Format Server Wi
Data
Analytics
Pages
Columns
FactTable
Search
Tables
Arr Time ID
Cancel ID
Cancelled
Dep Time ID
Dest ID
Distance ID

Data Quality Warnings

On this asset

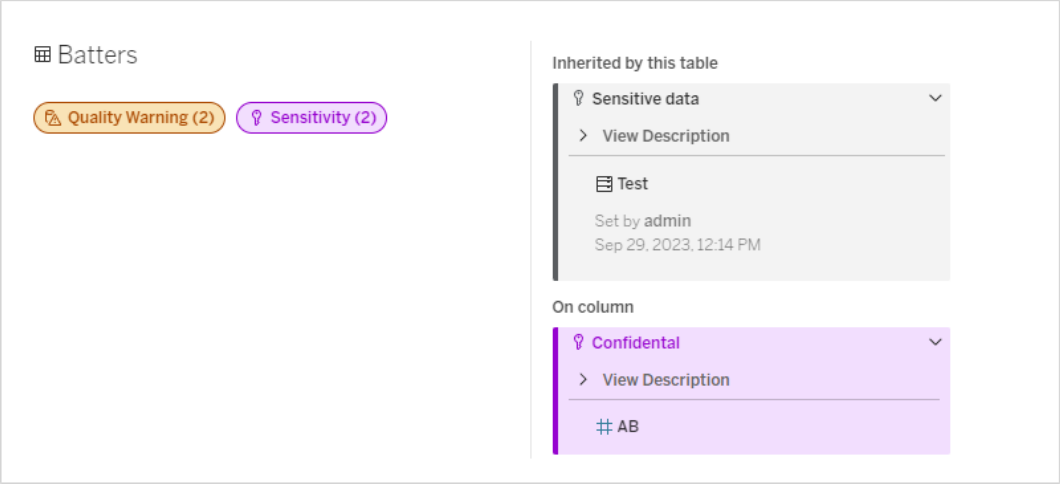
Warning

FactTable

Set by Rick

Dec 21, 2023, 3:52:19 PM

- the web authoring **Catalog Details** window


Batters
Quality Warning (2)
Sensitivity (2)

Inherited by this table

Sensitive data

View Description

Test

Set by admin
Sep 29, 2023, 12:14 PM

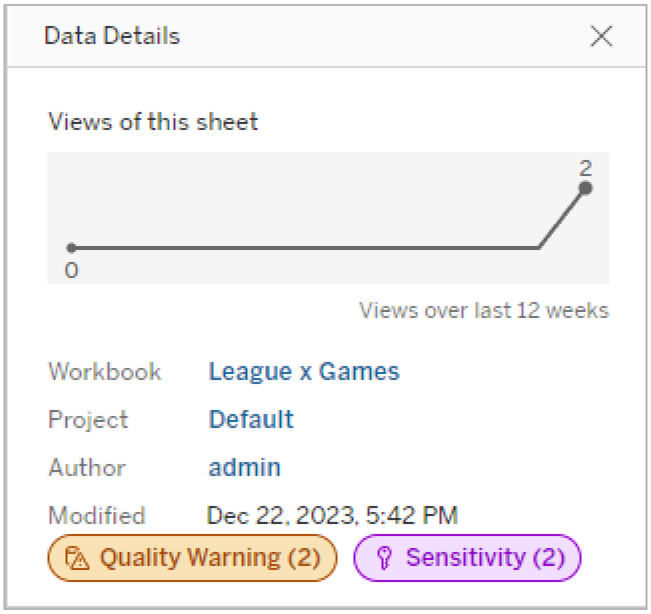
On column

Confidental

View Description

AB

- the **Data Details** pane



Data Details

Views of this sheet

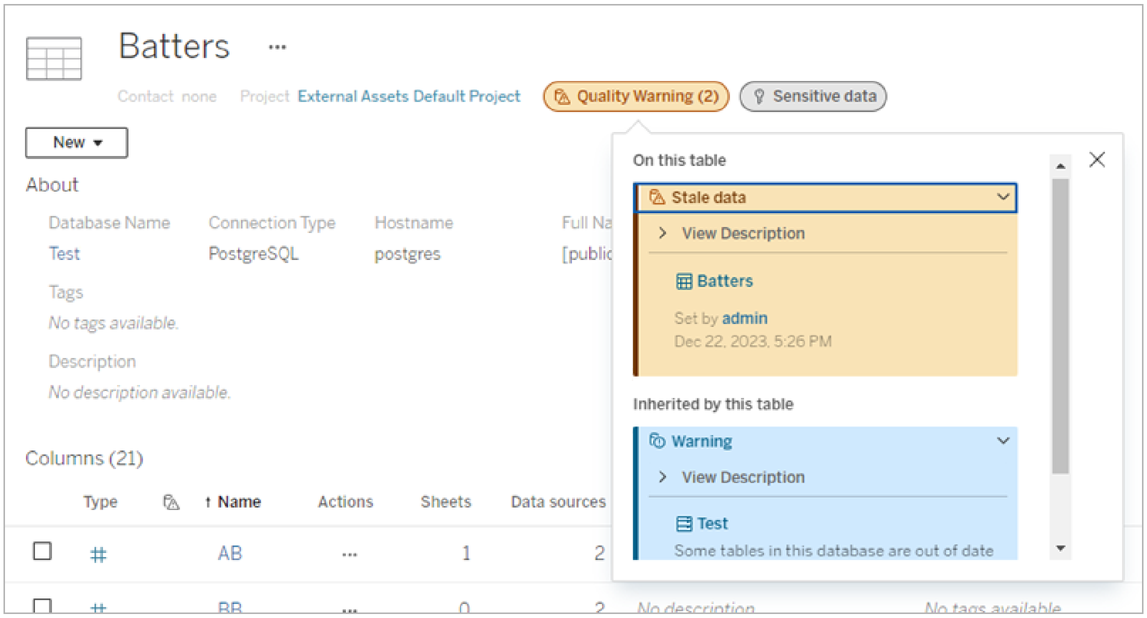
Workbook League x Games
Project Default
Author admin
Modified Dec 22, 2023, 5:42 PM

Color indicates the category and visibility level of a label:

- **Green** indicates the asset is certified
- **Blue** indicates a standard visibility quality warning
- **Yellow** indicates a high visibility quality warning
- **Gray** indicates a standard visibility sensitivity label or label with a custom category
- **Purple** indicates a high visibility sensitivity label

Select a label badge to see details for labels of that category on the asset. In the case of quality warning labels and sensitivity labels, the details will include labels inherited from upstream assets. If you're examining quality warning labels or sensitivity labels on a table, the details will include labels on downstream columns. To go to the related asset's page, select it. Certification labels and custom category labels are not inherited from upstream assets.

There's a single indicator for each label category, no matter how many labels of that category are on the asset or inherited by it. The indicator is colored for high visibility if one or more of the labels it represents are high visibility labels. For example, suppose that a table has a standard visibility quality warning on it, and the table's upstream database has a high visibility quality warning on it. You'll see a yellow **Quality Warning (2)** indicator because the indicator represents two quality warnings, one of which is high visibility.



Batters ···

Contact none Project External Assets Default Project

Quality Warning (2) Sensitive data

New ▾

About

Database Name: Test

Connection Type: PostgreSQL

Hostname: postgres

Full Na: [public

Tags: No tags available.

Description: No description available.

Columns (21)

☐	Type		↑ Name	Actions	Sheets	Data sources
☐	#		AB	···	1	2
☐	#		BB	···	0	2

On this table

Stale data

View Description

Batters

Set by admin

Dec 22, 2023, 5:26 PM

Inherited by this table

Warning

View Description

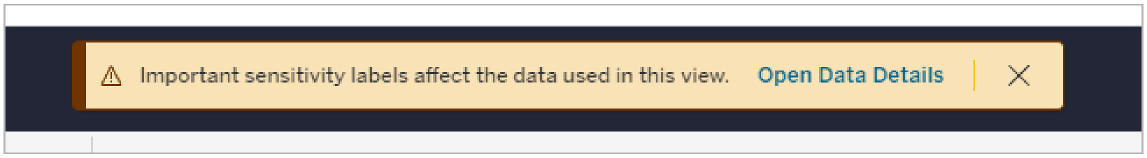
Test

Some tables in this database are out of date

No description

No tags available

High visibility quality warnings and high visibility sensitivity labels that affect views and web authoring sessions cause alerts to be shown.



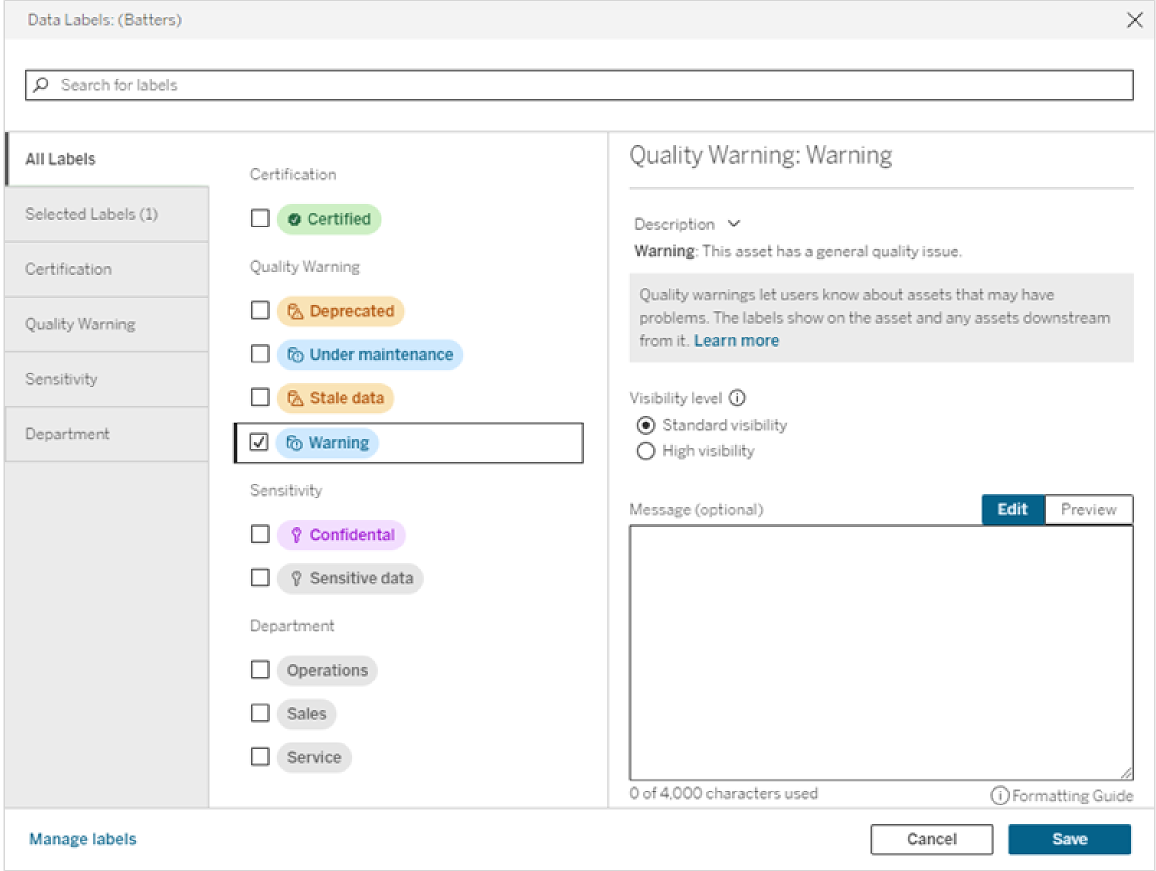
⚠ Important sensitivity labels affect the data used in this view. Open Data Details ✕

These alerts inform users that the data they're seeing needs to be treated with care. Selecting the Open Data Details link shows more information on the labels affecting the data.

The Data Labels dialog

Starting in Tableau Cloud February 2024 and Tableau Server 2024.2, you add, remove, and modify data labels on assets using the consolidated **Data Labels** dialog. (Extract refresh monitoring and flow refresh monitoring are still controlled through separate dialogs.)

To open the **Data Labels** dialog for an asset, select the actions (...) menu next to the asset, then select **Data Labels**. Choose **Certification**, **Data Quality Warning**, **Sensitivity Label**, or **All Labels** to open the **Data Labels** dialog with the appropriate tab showing.



Data Labels: (Batters)

Certification

☐ Certified

Quality Warning

☐ Deprecated

☐ Under maintenance

☐ Stale data

☑ Warning

Sensitivity

☐ Confidental

☐ Sensitive data

Department

☐ Operations

☐ Sales

☐ Service

Quality Warning: Warning

Description

Warning: This asset has a general quality issue.

Quality warnings let users know about assets that may have problems. The labels show on the asset and any assets downstream from it. Learn more

Visibility level

● Standard visibility

○ High visibility

Message (optional)

0 of 4,000 characters used

The vertical tabs on the dialog's left side correspond to data label categories, except for the **All labels** and **Selected labels** tabs at the top of the list.

- The **All labels** tab lists all the site's data labels across all categories. Each label selected for the asset is checked. This includes data labels that were selected for the asset when the dialog was opened, in addition to any labels that have been selected since then.
- The **Selected labels** tab lists all the data labels that have been selected for the asset. This includes data labels that were selected for the asset when the dialog was opened, in addition to any labels that have been selected since then.
- The other tabs correspond to data label categories. Those tabs list all data labels associated with the category. Each label selected for the asset is checked. This includes data labels that were selected for the asset when the dialog was opened, in addition to any labels that have been selected since then.

The search bar at the top of the dialog returns data labels that match the search term you provide. You can select or deselect any labels you want from the results.

To change the data labels on an asset:

1. Navigate to the label by using the search bar or vertical tabs to find the label.
2. To add a data label to the asset, check the box next to it.
3. Select a visibility level (if applicable) and a message if desired.
4. To remove a data label from an asset, clear the box next to it.
5. Add, remove, or modify more labels for the asset by repeating these steps
6. To commit your changes to the data labels on the asset and close the dialog, click **Save**. Or, if you want to abandon all your changes since the dialog opened, click **Cancel** and confirm you want to abandon the changes.

Note: Selecting the data label instead of the check box next to it will show details about the label without changing the status of the check box. This action is useful for seeing the label description or making changes to the message without changing the status of the label on the asset.

The consolidated Data Labels dialog isn't available in Tableau Server.

For detailed information on the labels in specific categories, see the appropriate topic:

- Use Certification to Help Users Find Trusted Data
- Set a Data Quality Warning
- Sensitivity Labels
- Labels with Custom Categories

Permissions required to interact with data labels on assets

Permissions required to view, add, update, and delete labels on assets are as follows:

- To view a data label, you must have **read** permissions on the associated asset.
- To add, update, or delete a data label other than a certification label, you must have **write** permission on the associated asset.
- To add, update, or delete a certification label, you must be an administrator, or else you must be a project leader or product owner for the project the asset is in.

- To add, update, or delete a certification label for an external asset *not* in a project, you must have the **change permissions** permission on the associated asset.

Comparison of data labels and tags

Tableau Cloud and Tableau Server also feature another solution for asset classification: Tags. Data labels and tags differ in significant ways:

Area	**Data Labels**	**Tags**
Structure and control	Administrators control the range of data labels	No administrative control over the range of tags users add
Permissions	Ability to add/update/remove data labels is controlled through asset permissions	Explorers and Creators can tag any assets that they can view
Appearance	Data label iconography is easily seen and color-coded by category and visibility level	Tags appear in fewer places than data labels and have no iconography
Inheritance	Some data labels (like warnings and sensitivity labels) show on downstream assets	No inheritance
Searching/Filtering	Certification and quality warnings can be used as filters in some asset lists	Search results return assets with matching tags, and tags can be used as filters in some asset lists
API accessible	Access via REST API and Metadata API is possible	Access via REST API and Metadata API is possible
License requirements	Requires a Data Management license (except for the certification of published data sources)	No licensing requirements

Use	Structured categorization focused on providing important information that can influence users' use of data	Open-ended method to categorize assets

For more information on tags, see Use Tags in the Tableau Desktop and Web Authoring Help.

Use Certification to Help Users Find Trusted Data

In a self-service environment with multiple publishers, it's common for a project on Tableau Cloud to contain a variety of content that is named similarly, or is based on the same or similar underlying data, or is published without any descriptive information about it. When this is the case, analysts might lack confidence about the data they should use.

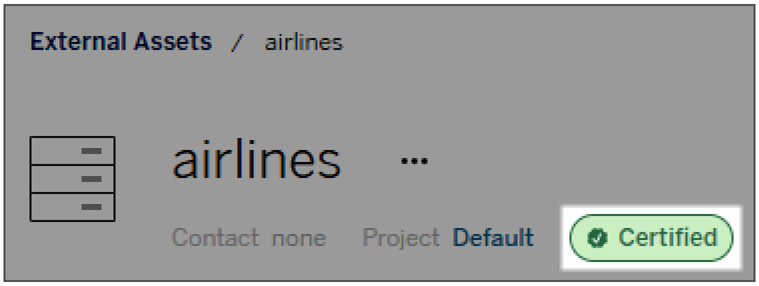
To help your users find the data that's trusted and recommended for their type of analysis, you can *certify* the data that complies with your organization's data standards.

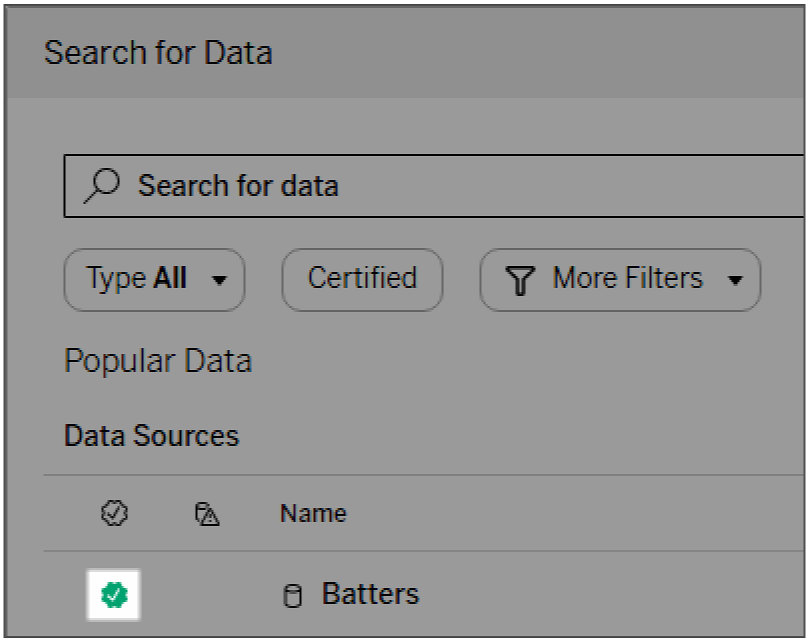
In addition to certifying published data sources, if you have a Data Management license for Tableau Server or Tableau Cloud:

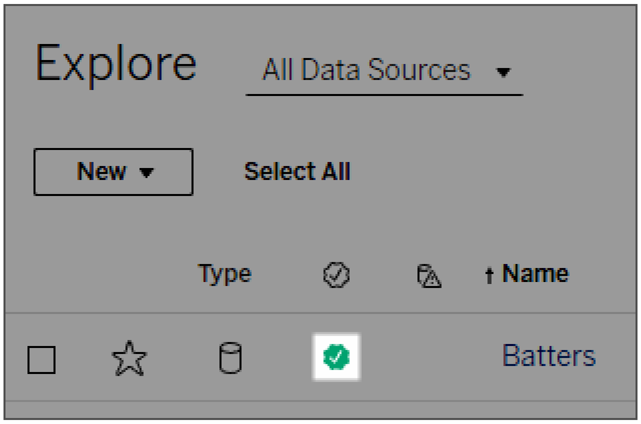
- If Tableau Catalog is enabled, you can certify databases and tables that are associated with your Tableau content. (For more information about Tableau Catalog, see "About Tableau Catalog" in the Tableau Server or Tableau Cloud Help.)
- Starting in Tableau 2022.1, you can certify virtual connections and virtual connection tables.

How certification helps users find trusted data

When you certify an asset, users see a green badge or green check mark, depending on where the asset is being viewed.

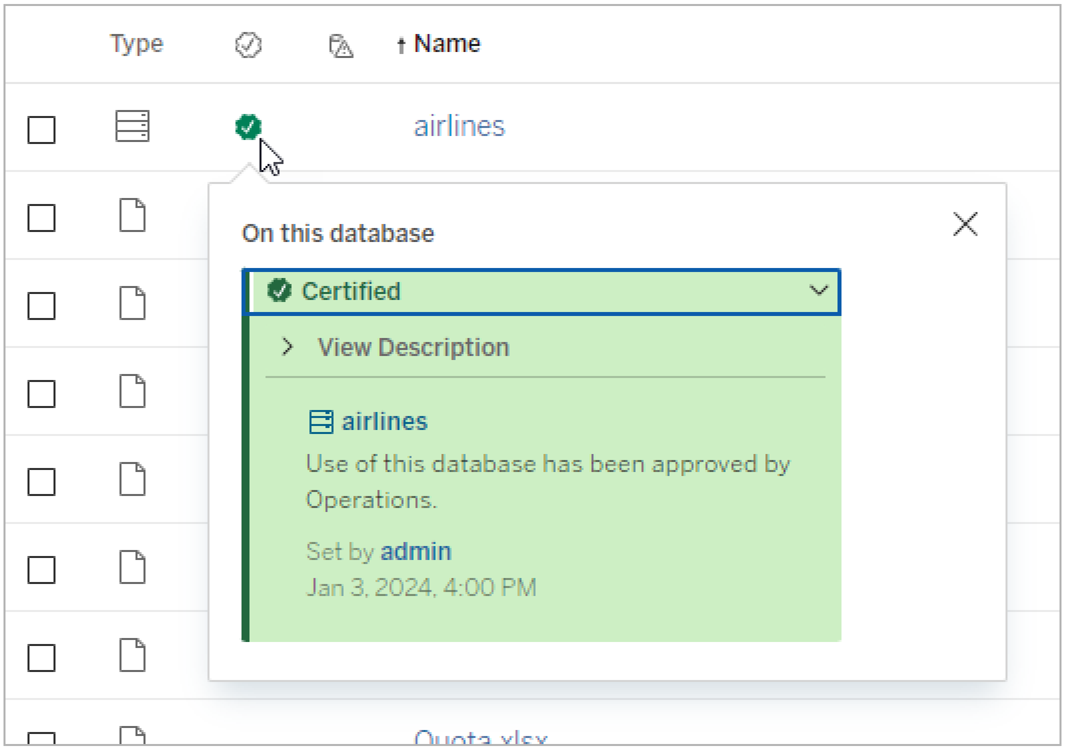

External Assets / airlines
airlines
Contact none
Project Default
Certified


Search for Data
Search for data
Type All
Certified
More Filters
Popular Data
Data Sources
Name
Batters


Explore
All Data Sources
New
Select All
Type
Name
Batters

Certified data sources rank higher in search results and are added to recommended data sources.

In addition, you can provide notes about the certification status, which appear when users click the badge, or in a tooltip when they hover over the data source icon in web authoring or Tableau Desktop. The information also shows who certified the data source.



Use of this database has been approved by Operations.

Set by admin
Jan 3, 2024, 4:00 PM

Create guidelines for selecting data to certify

As with most Tableau functionality, certification is flexible. You can define for your organization the criteria you use to determine when to certify an asset. As you do so, document and share your guidelines. The guidelines can help you, other administrators, and project leaders to be consistent with your certification choices. They can also help users understand what certification means.

Whether you use the same certification criteria across all projects, or define unique criteria for each project, the important thing is to be clear about what certification means in your environment.

Who can certify data

To certify a data source, you must

- be a Server or Site Administrator, *or*
- have a site role of **Explorer (Can Publish)** or **Creator** *and* be the project owner or have the **Project Leader** capability for the project containing the data you want to certify.

To certify virtual connections and virtual connection tables, you must have a Data Management license in your environment, and you must

- be a Server or Site Administrator, *or*
- have a site role of **Explorer (Can Publish)** or **Creator** *and* be the project owner or have the **Project Leader** capability for the project containing the data you want to certify.

To certify databases or tables, you must have Tableau Catalog enabled in your environment, and you must

- be a Server or Site Administrator, *or*
- have the **Set permissions** capability on the database to certify that database or any tables within that database.

How to certify data

The data you can certify depends on the permissions you have, and whether you have a Data Management license and Tableau Catalog enabled in your environment.

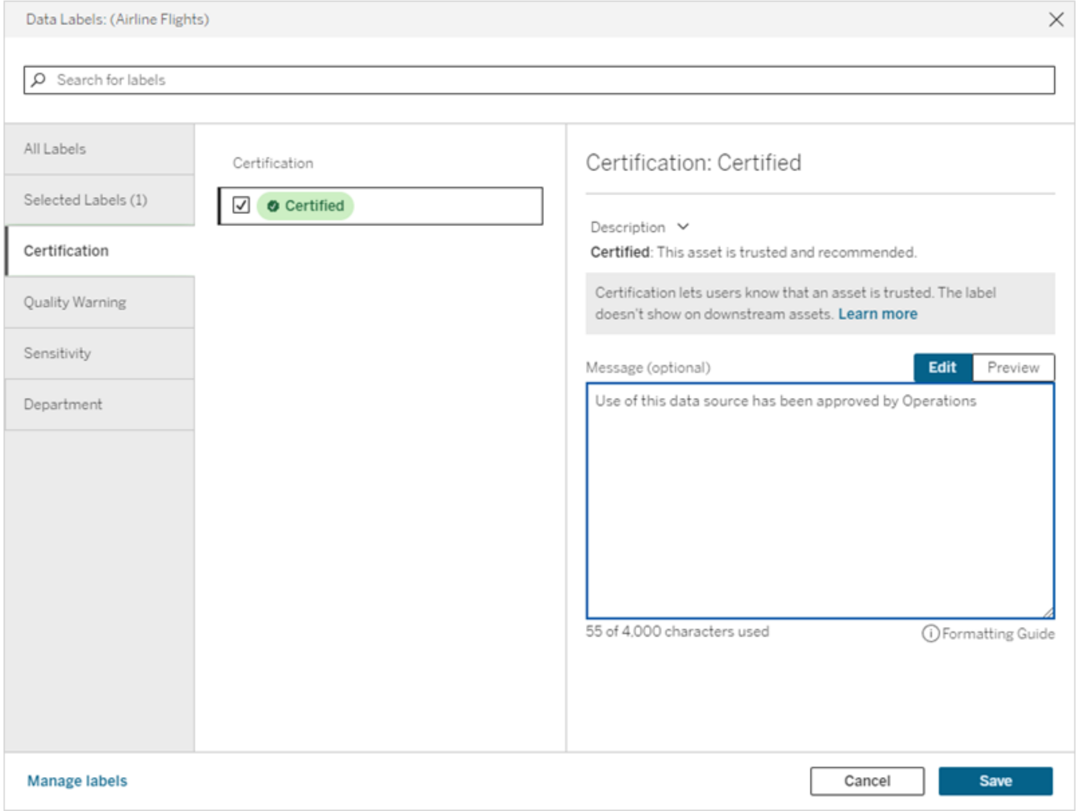
- All users with permissions can certify data sources.
- If you have a Data Management license, users with permissions can also certify virtual connections and virtual connection tables.
- If you have a Data Management license and Tableau Catalog is enabled, users with permissions can also certify databases, tables, and files.

To certify an asset:

> Note: Starting in Tableau Cloud February 2024 and Tableau Server 2024.2, you add and remove certifications using the consolidated Data Labels dialog instead of separate

dialogs for each type of label. For information on the Data Labels dialog, see The Data Labels dialog.

1. Search for or navigate to the asset. The steps to navigate depend on the type of asset you want to certify:
    - Data source or virtual connection - on the **Explore** page, select **All Data Sources** or **All Virtual Connections**.
    - Virtual connection table - on the **Explore** page, select **All Virtual Connections**, and select the virtual connection that contains the virtual connection table you want to certify. Then select the virtual connection table.
    - Database or table - on the **Explore** page, navigate to the database or table. Or on the **External Assets** page, select **Databases and Files** or **Tables and Objects**.
2. On the page, select the More actions menu (...) next to the asset name you want to certify.
3. Select **Data Labels** > **Certification** (or **Edit Certification** in Tableau Server 2023.1 and earlier)
4. Select the **Certified** checkbox. (In earlier versions of Tableau Server, use the switch.)
5. Add a message if desired. The message gives users context for the certification status, intended use for the data, or other helpful information. Information you add to the **Message** section appears in the certification badge or tooltip, mentioned earlier in How certification helps users find trusted data. You can format the text in a message with bold, underline, and italics, and include a link or an image. To see text formatting tips, click the information (i) icon above the **Save** button. (Starting in Tableau Cloud February 2024, the message is optional. Earlier versions of Tableau Cloud and Tableau Server required it.)



Data Labels: (Airline Flights)
Search for labels
All Labels
Selected Labels (1)
Certification
Quality Warning
Sensitivity
Department
Certification
☑ Certified
Certification: Certified
Description
Edit
Preview
Formatting Guide
Manage labels
Cancel
Save

Certified: This asset is trusted and recommended.

Certification lets users know that an asset is trusted. The label doesn't show on downstream assets. **Learn more**

Message (optional)

Use of this data source has been approved by Operations

55 of 4,000 characters used

6. Select **Save**.

Customize certification

Beginning with Tableau Cloud June 2023 and Tableau Server 2023.3, using the label manager on the Data Labels page or the REST API, an administrator can change the certification description that users see in the certification dialog. For more information, see Manage Data Labels.

Set a Data Quality Warning

Data quality warnings are a feature of Tableau Catalog, part of the Data Management offering for Tableau Server and Tableau Cloud. For more information about Tableau Catalog, see "About Tableau Catalog" in the Tableau Server or Tableau Cloud Help.

When Tableau Catalog is enabled in your environment, you can set data quality warnings on data assets so that users of that data are aware of issues. For example, you might want to let users know that a data source has been deprecated, or that a refresh has failed for an extract data source.

You can set data quality warnings on data sources, databases, tables, flows, virtual connections, virtual connection tables, and columns.

Data quality warnings for data sources, databases, tables, and flows were introduced in version 2019.3 for Tableau Cloud and Tableau Server. Data quality warnings for virtual connections and virtual connection tables were added in Tableau Cloud March 2022 and Tableau Server 2022.1, and for columns in Tableau Cloud October 2022 and Tableau Server 2022.3.

About data quality warnings

There are two kinds of data quality warnings: Quality warnings that you set, and quality warnings that Tableau sets when an extract refresh or flow run fails, also known as monitoring quality warnings.

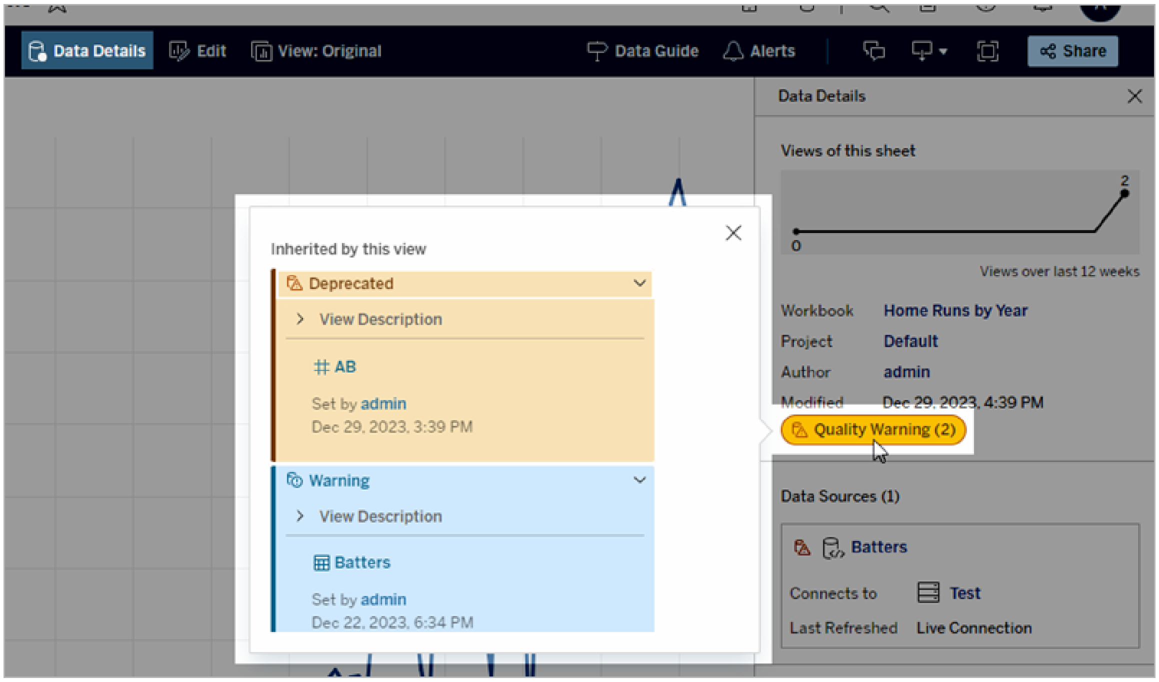
- **Quality warnings that you set**: A quality warning that you set is visible to users until you or another user removes it.
- **Monitoring quality warning**: If you enable a monitoring quality warning for an extract or flow asset, Tableau automatically adds a quality warning to the asset when an extract refresh or flow run fails. Later, if the extract refresh or flow run succeeds, Tableau automatically removes the quality warning.

Starting with Tableau Cloud October 2023 and Tableau Server 2023.3, in addition to setting monitoring warnings at the asset level, you can also turn extract refresh and flow run monitoring on or off for the entire site at once. For information about site-wide monitoring, see Site-wide monitoring for extract refresh and flow run failures.

Note: You can enable and modify both kinds of data quality warnings using the REST API. For more information, see the Label and Data Quality Warning Metadata Methods in the Tableau REST API Help.

Where data quality warnings appear

In Tableau Cloud and Tableau Server, when you set a warning on a data source, flow, database, table, column, virtual connection, or virtual connection table, the warning is visible to users of the asset and any assets downstream from it. For example, a warning set on a table is visible to users looking at a dashboard that depends on that table. The users see a warning icon on the dashboard's Data Details tab and can open the pane to see more information.



Data Details

Views of this sheet

Views over last 12 weeks

Workbook Home Runs by Year

Project Default

Author admin

Modified Dec 29, 2023, 4:39 PM

Quality Warning (2)

Data Sources (1)

Batters

Connects to Test

Last Refreshed Live Connection

Inherited by this view

Deprecated

View Description

AB

Set by admin

Dec 29, 2023, 3:39 PM

Warning

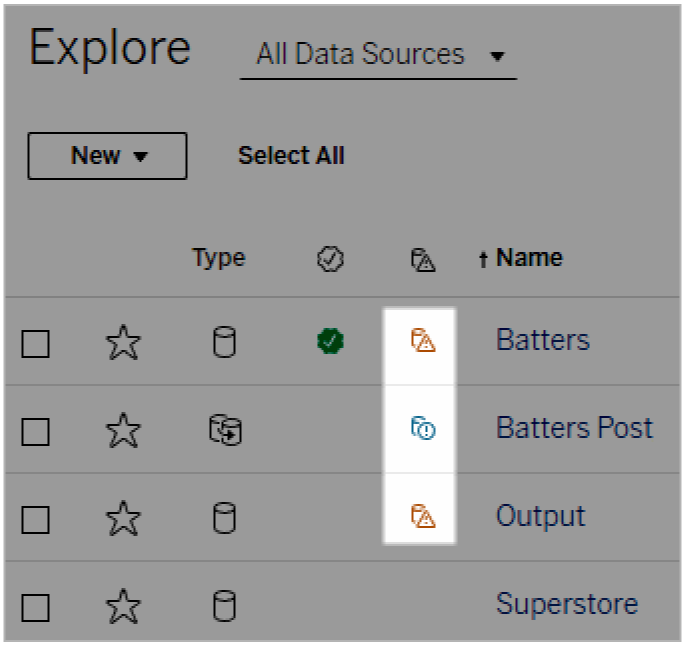
View Description

Batters

Set by admin

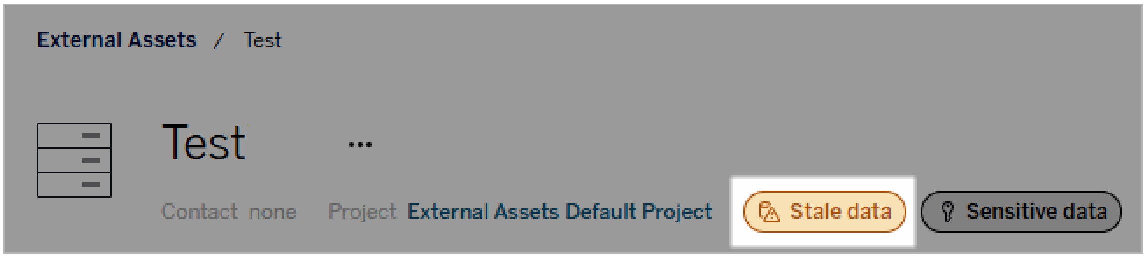
Dec 22, 2023, 6:34 PM

Data quality warnings appear when exploring some types of content in a list view:


Explore
All Data Sources
New
Select All
Type
Name
Batters
Batters Post
Output
Superstore

Note: If you see a data quality warning column, but don't have a license that includes Data Management, selecting the column header displays a promotion for Data Management. The promotion can be turned off in your Account Settings.

Data quality warnings also appear at the top of asset pages:

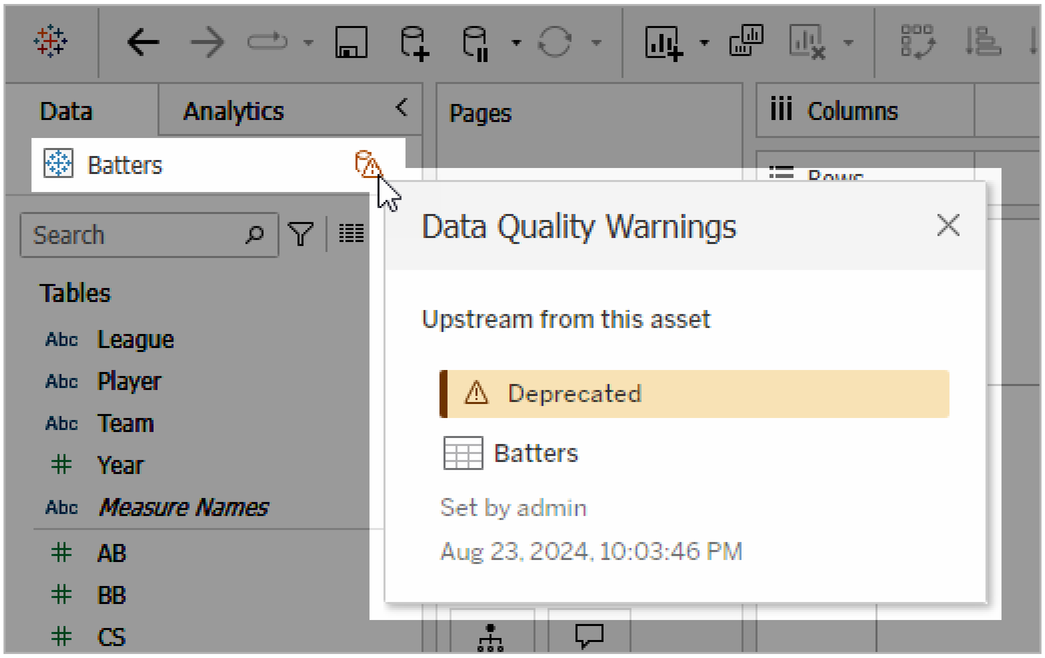

External Assets / Test
Test
...
Contact none
Project External Assets Default Project
Stale data
Sensitive data

In Tableau Desktop, users see an icon next to the data source in the **Data** pane when

- there's a warning on a data source used in the workbook, or
- there's a warning upstream from the data source used in the workbook

Note: Data quality warnings for columns and virtual connections don't appear in Tableau Desktop.

To see the details of the warning, select the warning icon.


Data
Analytics
Pages
Columns
Rows
Batters
Search
Tables
Abc League
Abc Player
Abc Team
# Year
Abc *Measure Names*
# AB
# BB
# CS

Data Quality Warnings

Upstream from this asset

⚠ Deprecated

Batters

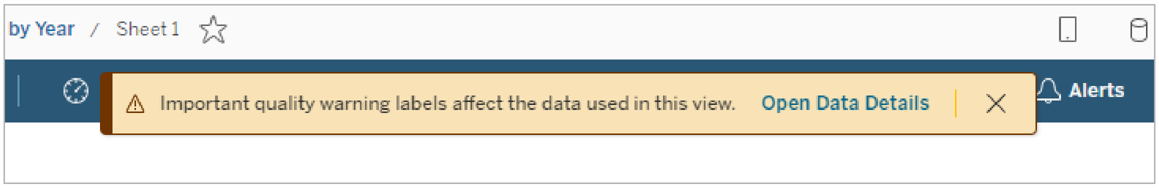
Set by admin

Aug 23, 2024, 10:03:46 PM

In Tableau Cloud web authoring, you can look at all label properties for an object in the data pane (data connection or field) by selecting **Catalog Details** on the data connection or field.

Visibility

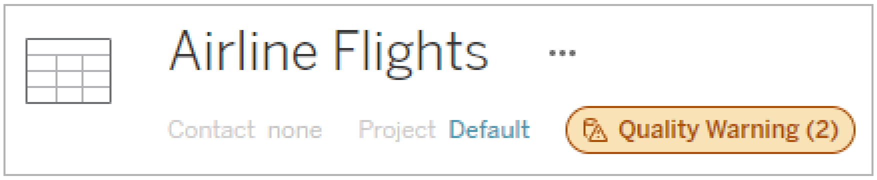
Data quality warnings can be classified as high visibility. High visibility quality warnings appear more urgent and appear in more places. For example, a high visibility warning on a data source generates a notification when anyone opens a view that depends on it.


by Year / Sheet 1
Open Data Details
Alerts

⚠ Important quality warning labels affect the data used in this view.

The icon and badge for high visibility quality warnings is yellow or orange, while standard visibility quality warnings are blue.

If more than one quality warning applies to an asset (because the asset has more than one quality warning or is inheriting upstream ones), the badge includes a number, and the color is determined by the highest visibility label. For example, if two quality warnings apply to an asset, one of which is standard visibility and one of which is high visibility, the badge is yellow or orange.



Data quality warnings in subscriptions

Administrators can turn on data quality warnings in email subscriptions. If this feature is turned on, emails the users receive include high visibility data quality warnings for that view, with links to:

- Relevant views or workbooks with their **Data Details** pane open.
- Relevant upstream assets, such as data sources, tables, or databases.

Administrators can turn on data quality warnings in email subscriptions by selecting the **High-Visibility Data Labels in View and Workbook Subscriptions** option (previously the **Data Quality Warnings in Subscriptions** option) on the Tableau Server or Tableau Cloud site settings page. For more information, see High-Visibility Data Labels in View and Workbook Subscriptions in the Site Settings Reference.

How to set a quality warning

You can set several different data quality warnings on an asset. Starting with Tableau Cloud June 2023 and Tableau Server 2023.3, an administrator can add to the list of available data quality warnings by customizing data labels.

Starting with Tableau Cloud June 2023 and Tableau Server 2023.3, "Sensitive data" is no longer a data quality warning, but is a sensitivity label instead. For more information, see Sensitivity Labels. In Tableau Server 2023.1 and earlier, "Sensitive data" remains a data quality warning.

The following data quality warnings are built in:

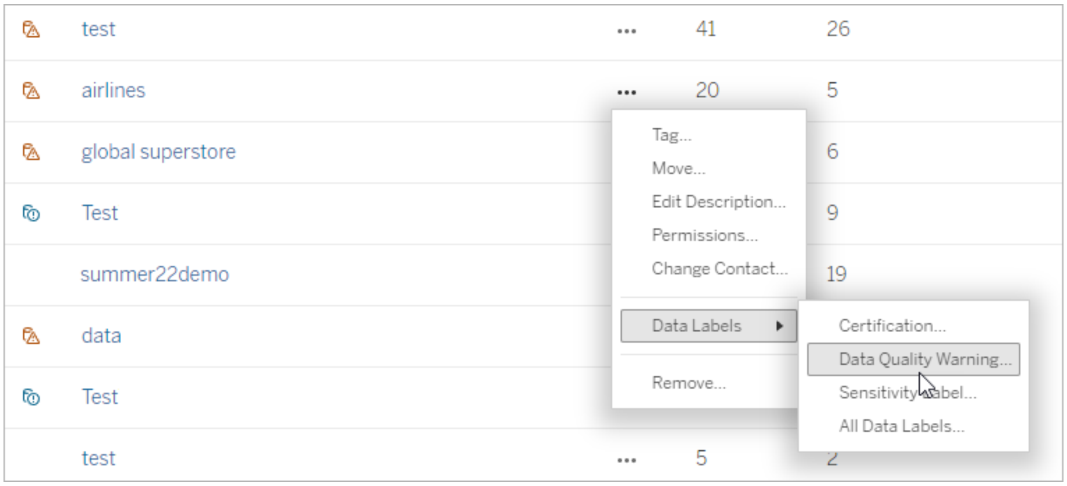
- Warning
- Deprecated
- Stale data
- Under maintenance

To attach a data quality warning to an asset:

Note: Starting with Tableau Cloud February 2024 and Tableau Server 2024.2, you add and remove quality warnings using the consolidated Data Labels dialog instead of separate dialogs for each type of label. For information on the Data Labels dialog, see The Data Labels dialog.

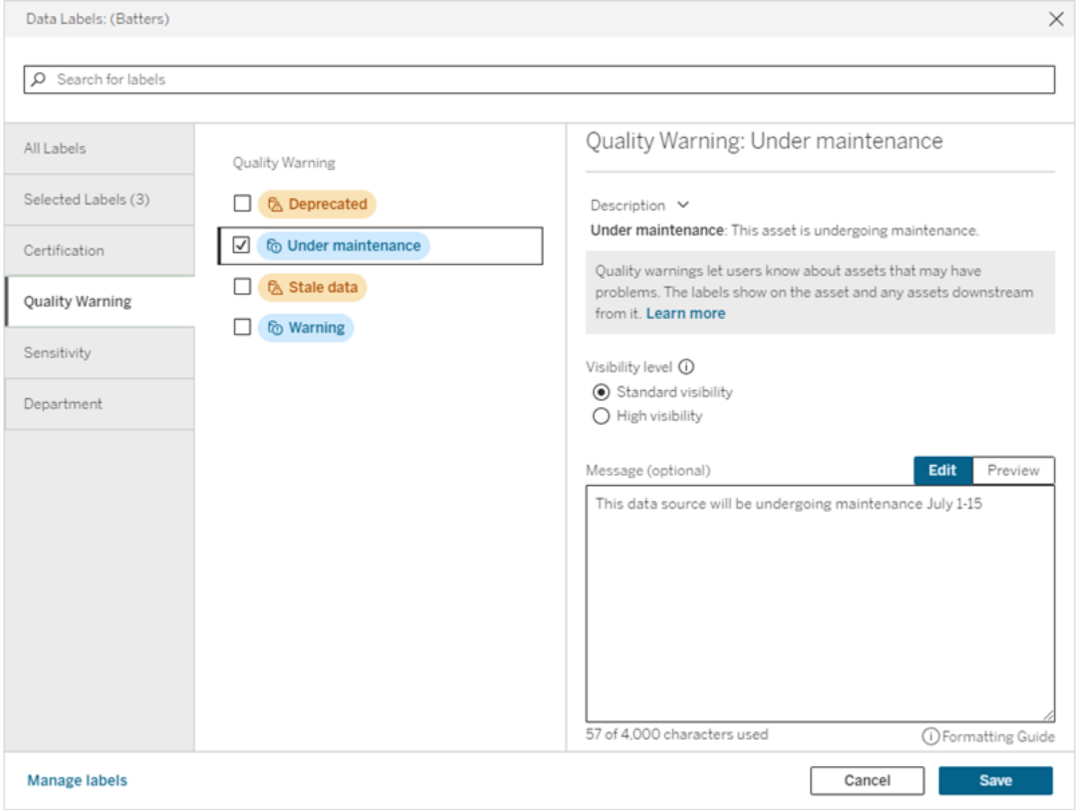
1. Search for or navigate to the asset. The steps to navigate depend on the type of asset you want to add the quality warning to:
    - Data source or virtual connection - on the **Explore** page, select **All Data Sources** or **All Virtual Connections**.
    - Virtual connection table - on the **Explore** page, select **All Virtual Connections**, and select the virtual connection that contains the virtual connection table you want to certify. Then select the virtual connection table.
    - Database or table - on the **Explore** page, navigate to the database or table. Or on the **External Assets** page, select **Databases and Files** or **Tables and Objects**.
    - Column - on the **Explore** page, navigate to the table. Or on the **External Assets** page, select **Tables and Objects** and navigate to the table. Then find the column in the list.
2. Select the actions menu (. . .) next to the asset, and then select **Data Labels** > **Data Quality Warning**. (For columns in Tableau Server 2022.3 and earlier, instead select the

column, and then click the actions dropdown and select **Quality Warning**.)


test ••• 41 26
airlines ••• 20 5
global superstore 6
Test 9
summer22demo 19
data
Test
test ••• 5 2
Tag...
Move...
Edit Description...
Permissions...
Change Contact...
Data Labels
Remove...
Certification...
Data Quality Warning...
Sensitivity Label...
All Data Labels...

3. Select the checkbox beside quality warnings you want attached to the asset. Optionally, if you know the name of a quality warning, you can search for it at the top of the dialog, and then select the checkbox beside it. (In Tableau Server 2023.3 and earlier, you can only attach one quality warning to each asset. Use the **Show warning** switch or **Enable warning** checkbox to turn on a quality warning for that asset, then select the desired warning from the dropdown list.)
4. Set the visibility level.
5. If desired, enter a message to display to users. (In Tableau Server 2023.3 and earlier, a message is required.)You can format the text in a message with bold, underline, and italics, and include a link or an image. To see text formatting tips, click the information

(i) icon above the **Save** button.



Data Labels: (Batters)
Search for labels
All Labels
Selected Labels (3)
Certification
Quality Warning
Sensitivity
Department
Quality Warning
Edit
Preview
Formatting Guide
Manage labels
Cancel
Save

☐ Deprecated
☑ Under maintenance
☐ Stale data
☐ Warning

Quality Warning: Under maintenance

Description

Under maintenance: This asset is undergoing maintenance.

Quality warnings let users know about assets that may have problems. The labels show on the asset and any assets downstream from it. Learn more

Visibility level
● Standard visibility
○ High visibility

Message (optional)

This data source will be undergoing maintenance July 1-15

57 of 4,000 characters used

6. Select **Save**.

Remove a data quality warning

When a warning no longer applies, you can remove it by navigating to the data asset with the warning.

> Note: Starting with Tableau Cloud February 2024 and Tableau Server 2024.2, you add and remove quality warnings using the consolidated Data Labels dialog instead of separate dialogs for each type of label. For information on the Data Labels dialog, see The Data Labels dialog.

1. Select the actions menu (. . .) next to the asset, and then select **Quality Warning**. (For columns in Tableau Server 2022.3 and earlier, instead select the column, and then click the actions dropdown and select **Quality Warning**.)

2. Uncheck the boxes beside quality warnings you want to remove from the asset. (In Tableau Server 2023.3 and earlier, use the **Show warning** switch or **Enable warning** checkbox to turn off a quality warning for that asset.)
3. Turn off the warning.
4. Select **Save**.

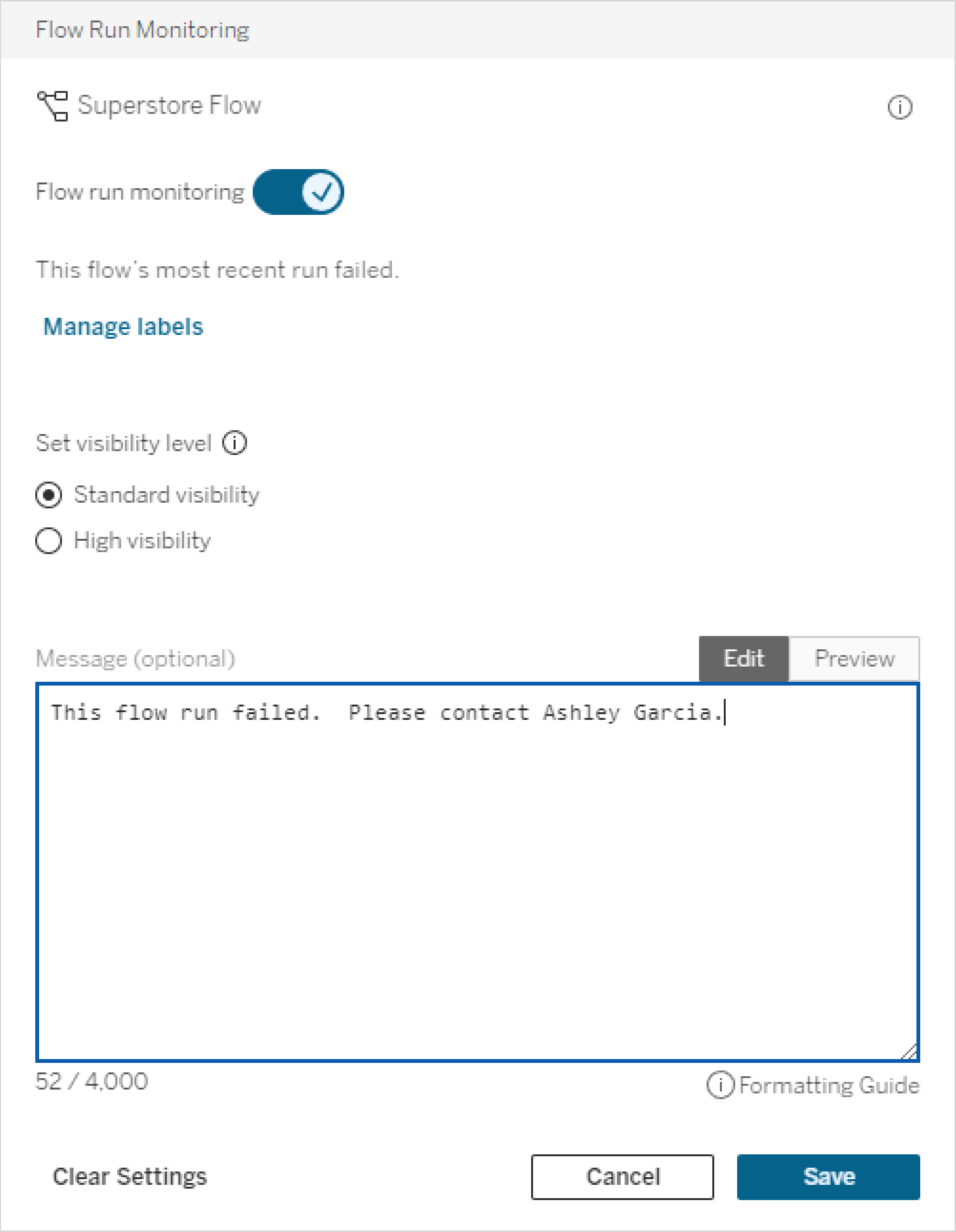
How to turn on a monitoring quality warning

You can set Tableau to monitor for two events: extract data source refresh failure and flow run failure. When the event occurs, Tableau generates a quality warning that appears in the same places that a manual quality warning appears.

You can turn on monitoring explicitly on the extract or flow, or, starting with Tableau Cloud October 2023 and Tableau Server 2023.3, you can enable site-wide monitoring for all extract refresh and flow run failures. For information on site-wide monitoring, see Site-wide monitoring for extract refresh and flow run failures.

To explicitly monitor for either an extract refresh or flow run failure:

1. Select the actions menu (. . .) next to the extract data source or flow you want to create a warning for, and then select the appropriate option:
    - In Tableau Cloud and Tableau Server 2023.3 and later:
        - **Data Labels** > **Extract Refresh Monitoring**
        - **Data labels** > **Flow Run Monitoring**
    - In Tableau Server 2023.1 and earlier:
        - **Quality Warning** > **Extract Refresh Monitoring**
        - **Quality Warning** > **Flow Run Monitoring**
2. Enable the warning.
3. Set the visibility level. (Older versions of the dialogs have a checkbox for high visibility.)
4. If desired, enter a message for users to see in the warning details if the extract refresh or flow run fails. You can format the text in a message with bold, underline, and italics, and include a link or an image. To see text formatting tips, click the information (i) icon above the **Save** button.
5. Click **Save**.


Flow Run Monitoring
Superstore Flow
Manage labels
Edit
Preview
Formatting Guide
Clear Settings
Cancel
Save

Flow run monitoring ☑

This flow's most recent run failed.

Set visibility level

● Standard visibility

○ High visibility

Message (optional)

This flow run failed. Please contact Ashley Garcia.

52 / 4,000

How to turn off a monitoring quality warning

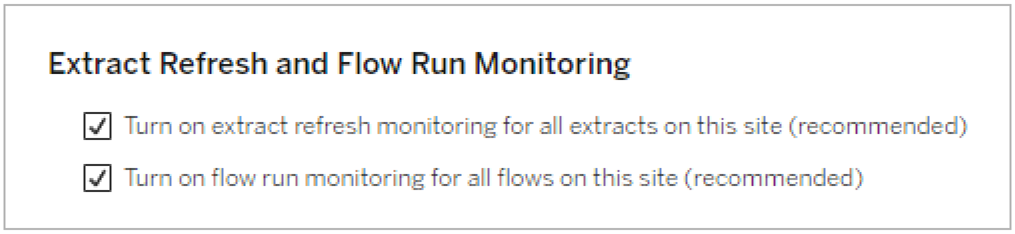
To turn off monitoring for either an extract refresh or flow run failure:

1. Select the actions menu (. . .) next to the extract data source or flow you want to create a warning for, and then select the appropriate option:

  - In Tableau Cloud and Tableau Server 2023.3 and later:
    - **Data Labels** > **Extract Refresh Monitoring**
    - **Data labels** > **Flow Run Monitoring**
  - In Tableau Server 2023.1 and earlier:
    - **Quality Warning** > **Extract Refresh Monitoring**
    - **Quality Warning** > **Flow Run Monitoring**
2. Turn off the warning.
3. Click **Save**.

Site-wide monitoring for extract refresh and flow run failures

Starting with Tableau Cloud October 2023 and Tableau Server 2023.3, an administrator can turn on site-wide monitoring to add or remove data quality warnings for extract refresh failures and flow run failures. You can control this feature through the Settings page, under the Extract Refresh and Flow Run Monitoring section:



Extract Refresh and Flow Run Monitoring

☑ Turn on extract refresh monitoring for all extracts on this site (recommended)

☑ Turn on flow run monitoring for all flows on this site (recommended)

These settings are turned on by default for all new sites. Sites that existed before the change will have the settings turned off, but an administrator can turn them on.

Note: Data quality warning notifications aren't displayed for extract refreshes that use Tableau Bridge.

Interaction of site-wide monitoring and explicit monitoring

The interaction of explicit monitoring on assets and site-wide monitoring of all assets is as follows:

- If monitoring is explicitly turned on for an asset *and* site-wide monitoring is turned on, explicit settings on the asset take precedence over the site-wide settings. Settings

include properties like visibility level and message.
- When you turn off site-wide monitoring:
    - Assets *with* monitoring explicitly turned on aren't changed.
    - Assets *without* monitoring explicitly turned on stop monitoring for extract refresh or flow run failures, and warnings that previously arose from extract refresh or flow run failures on those assets are removed.
    - Catalog ingestion performance might be temporarily reduced as Catalog re-ingests assets that may no longer have warning labels.

Site-wide monitoring was released in Tableau Cloud October 2023 and Tableau Server 2023.3. There's no interaction of explicit monitoring and site-wide monitoring in earlier versions.

Who can set quality warnings

To set a data quality warning, you must either

- be a server or site administrator, or
- have the **Overwrite** capability for the asset.

Customize data quality warnings

Starting with Tableau Cloud June 2023 and Tableau Server 2023.3, using the label manager on the Data Labels page or the REST API, an administrator can change the data quality warnings that users see in the data quality warning dialog, or create new ones. For more information, see Manage Data Labels.

Sensitivity Labels

Some data needs to be handled more carefully. To ensure trust and security, it's important that users know which data that is. Starting in Tableau Cloud June 2023 and Tableau Server 2023.3, if you have a Data Management license, Tableau offers a new category of data label: *Sensitivity labels*. Users can use sensitivity labels to indicate the level of care that should be taken when creating views or sharing information. Furthermore, sensitivity labels can co-exist on the same asset as other labels, such as certification and data quality warnings. And, using the label manager on the **Data Labels** page or the REST API, an administrator can create sensitivity labels to suit the needs of their organization.

> Note: In Tableau Cloud March 2023 and Tableau Server 2023.1 and earlier, data sensitivity was expressed using the "sensitive data" data quality warning. With the upgrade to Tableau Cloud June 2023 and Tableau Server 2023.3, "sensitive data" data quality warnings were migrated to sensitivity labels.

Sensitivity labels can be attached to the same types of assets that other data labels can.

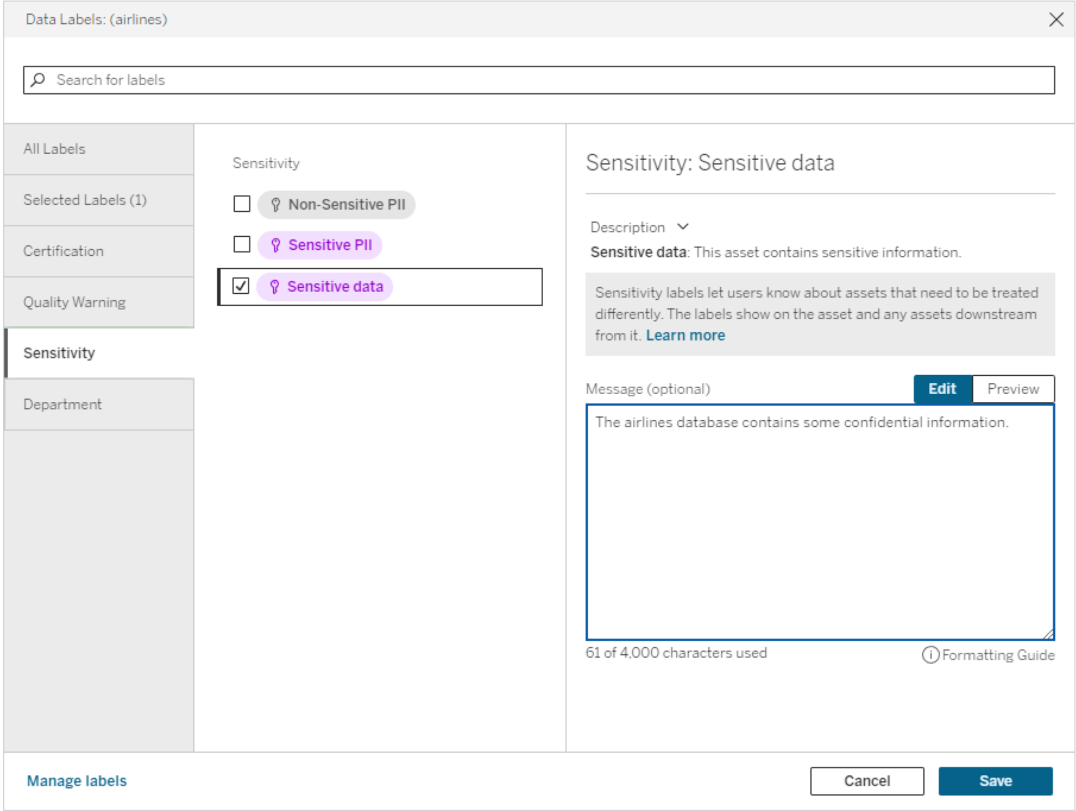
Attach a sensitivity label to an asset

To attach a sensitivity label to an asset:

> Note: Starting with Tableau Cloud February 2024 and Tableau Server 2024.2, you add and remove sensitivity labels using the consolidated Data Labels dialog instead of separate dialogs for each type of label. For information on the Data Labels dialog, see The Data Labels dialog.

1. Search for or navigate to the asset. The steps to navigate depend on the type of asset you want to add the sensitivity label to:
    - Data source or virtual connection - on the **Explore** page, select **All Data Sources** or **All Virtual Connections**.
    - Virtual connection table - on the **Explore** page, select **All Virtual Connections**, and select the virtual connection that contains the virtual connection table you want to certify. Then select the virtual connection table.
    - Database or table - on the **Explore** page, navigate to the database or table. Or on the **External Assets** page, select **Databases and Files** or **Tables and Objects**.
    - Column - on the **Explore** page, navigate to the table. Or on the **External Assets** page, select **Tables and Objects** and navigate to the table. Then find the column in the list.

2. Select the actions menu (. . .) next to the asset, and then select **Data Labels** > **Sensitivity Label**.
3. Select the checkbox beside sensitivity labels you want attached to the asset. Optionally, if you know the name of a sensitivity label, you can search for it at the top of the dialog, and then select the checkbox beside it. (In Tableau Server 2023.3 and earlier, you can only attach one sensitivity label to each asset. Use the **Show label** switch to turn on a sensitivity label for that asset, then select the desired sensitivity label from the dropdown list.)
4. If desired, enter a message to display to users. You can format the text in a message with bold, underline, and italics, and include a link or an image. To see text formatting tips, hover over the information (i) icon above the **Save** button.
5. Select **Save**.


Data Labels: (airlines)
Search for labels
All Labels
Selected Labels (1)
Certification
Quality Warning
Sensitivity
Department
Sensitivity
☐ Non-Sensitive PII
☐ Sensitive PII
☑ Sensitive data
Sensitivity: Sensitive data
Description
Message (optional)
Edit
Preview
61 of 4,000 characters used
Formatting Guide
Manage labels
Cancel
Save

Sensitive data: This asset contains sensitive information.

Sensitivity labels let users know about assets that need to be treated differently. The labels show on the asset and any assets downstream from it. Learn more

The airlines database contains some confidential information.

Remove a sensitivity label from an asset

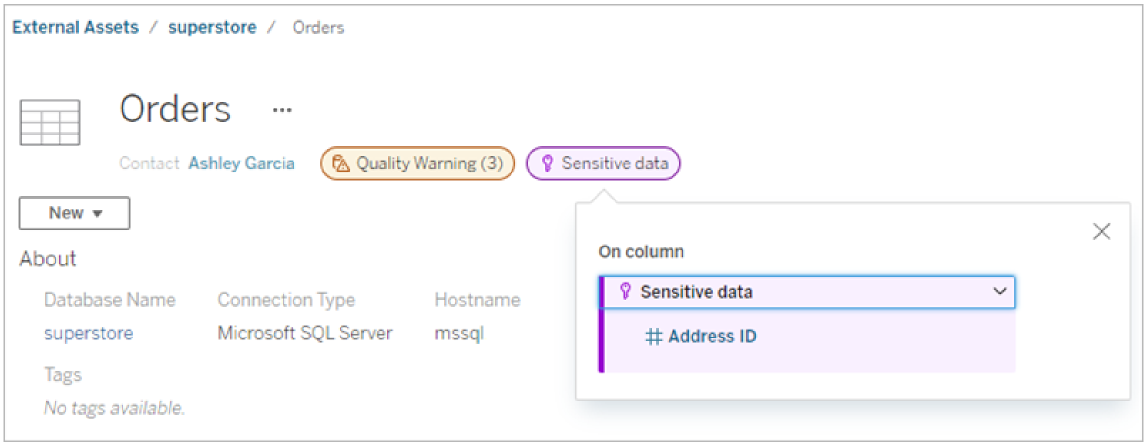
To remove a sensitivity label from an asset:

Note: Starting with Tableau Cloud February 2024 and Tableau Server 2024.2, you add and remove sensitivity labels using the consolidated Data Labels dialog instead of separate dialogs for each type of label. For information on the Data Labels dialog, see The Data Labels dialog

1. Select the actions menu (. . .) next to the asset, and then select **Data Labels** > **Sensitivity Label**.
2. Uncheck the boxes beside sensitivity labels you want to remove from the asset. (In Tableau Server 2023.3 and earlier, turn off the label with the **Show label** switch.)
3. Select **Save**.

Where sensitivity labels appear

Sensitivity labels appear on assets when navigating Tableau Cloud. Like data quality warnings, sensitivity labels appear downstream from the assets on which they're attached. For example, a sensitivity label on a column appears in the columns row of the table page, again at the top of the table page, and on the database page.


External Assets / superstore / Orders
Orders
Quality Warning (3)
Sensitive data
New
About
Tags
On column
Sensitive data
Address ID

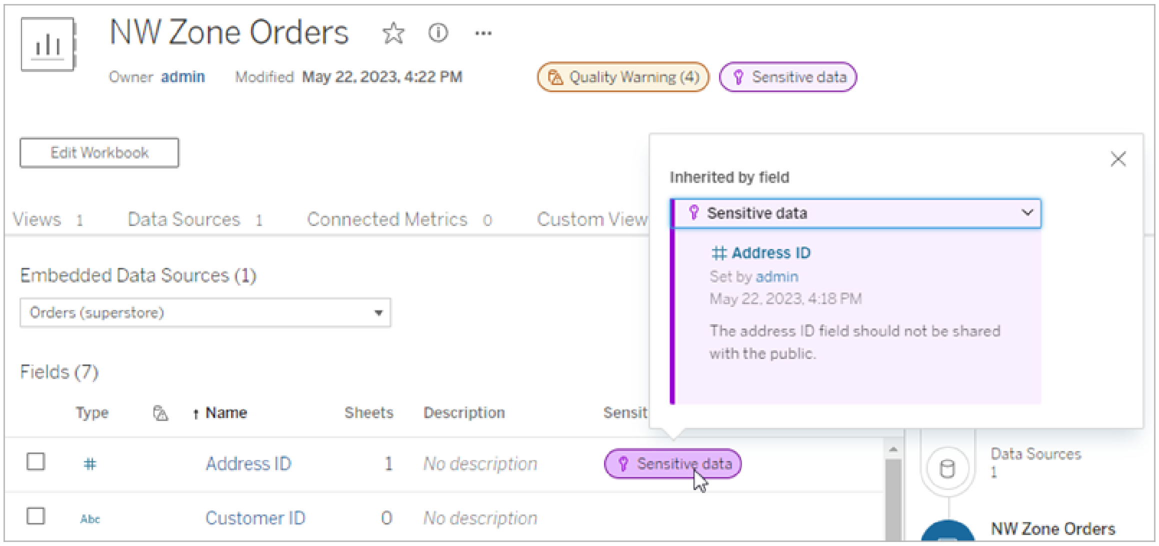
Contact Ashley Garcia

Database Name superstore

Connection Type Microsoft SQL Server

Hostname mssql

No tags available.


NW Zone Orders
Owner admin
Modified May 22, 2023, 4:22 PM
Quality Warning (4)
Sensitive data
Edit Workbook
Views 1
Data Sources 1
Connected Metrics 0
Custom View
Embedded Data Sources (1)
Orders (superstore)
Fields (7)
Type
Name
Sheets
Description
Sensit
Address ID
1
No description
Sensitive data
Customer ID
0
No description
Inherited by field
Sensitive data
Address ID
Set by admin
May 22, 2023, 4:18 PM
Data Sources
1
NW Zone Orders

The address ID field should not be shared with the public.

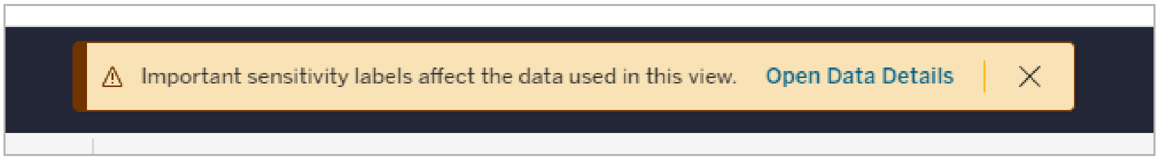
In web authoring, users see an icon next to the data source in the **Data** pane when

- there's a sensitivity label on a data source used in the workbook, or
- there's a warning upstream from the data source used in the workbook

To see the details, hover over the icon with the cursor. Or, in Tableau Cloud web authoring, you can select a data source or a column and then select **Catalog Details** to see all its labels.

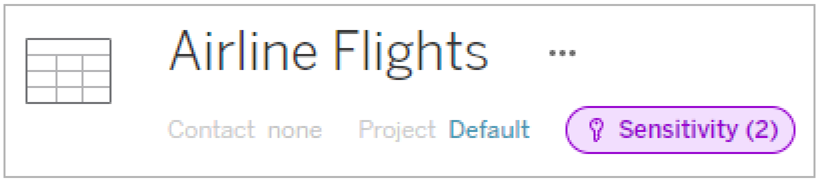
Visibility

High visibility sensitivity labels appear more urgent and appear in more places. For example, a high visibility sensitivity label on a table generates a notification when anyone authors a view or opens a published view that depends on it.


Important sensitivity labels affect the data used in this view.
Open Data Details

The icon and badge for high visibility sensitivity labels is purple, while standard visibility ones are gray. By default, the built-in sensitivity label called "Sensitive data" is high visibility.

If more than one sensitivity label applies to an asset (because the asset has more than one sensitivity label or is inheriting upstream ones), the badge includes a number, and the color is determined by the highest visibility label. For example, if two sensitivity labels apply to an asset, one of which is standard visibility and one of which is high visibility, the badge is purple.



Sensitivity labels in email subscriptions

Administrators can turn on sensitivity labels in email subscriptions so that when users subscribe to a view, the email they get includes high visibility sensitivity labels associated with that view. Emails with high visibility sensitivity labels contain:

- Links to relevant views or workbooks with their **Data Details** pane open.
- Links to relevant upstream assets, such as data sources, tables, or databases.

Administrators can turn on sensitivity labels in email subscriptions by selecting the **High-Visibility Data Labels in View and Workbook Subscriptions** option (previously the **Data Quality Warnings in Subscriptions** option) on the Tableau Server or Tableau Cloud site settings page. For more information, see High-Visibility Data Labels in View and Workbook Subscriptions in the Site Settings Reference.

Who can set sensitivity labels

To set a sensitivity label, you must either

- be a server or site administrator, or
- have the **Overwrite** capability for the asset.

Customize sensitivity labels

There's only one built-in sensitivity label: *Sensitive data*. Starting with Tableau Cloud June 2023 and Tableau Server 2023, using the labels manager on the **Data Labels** page or the REST API, an administrator can create sensitivity labels or change the name and description of an existing ones. Typical additions (name and description) might be:

- **Public**: Available to the public to view.
- **Internal**: Restricted to company employees and contractors. This data must not be shared publicly, but it can be shared with customers, partners, and others under a non-disclosure agreement (NDA).
- **Confidential**: Available to an approved group of employees and contractors. This data isn’t restricted by law, regulation, or a company master service agreement (MSA). It can be shared with customers, partners, and others under an NDA.
- **Restricted**: Available only to an approved group of employees and contractors. This data is likely restricted by law, regulation, an NDA, or a company MSA.
- **MissionCritical**: Available only to a small group of approved employees and contractors. Third parties who are given access could be subject to heightened contractual requirements. This data is almost always restricted by law, regulation, an NDA, or a company MSA.

For more information, see Manage Data Labels.

Labels with Custom Categories

Tableau offers several data labels – certification, quality warnings, and sensitivity labels – that cover a wide variety of ways to classify data. Still, there may be times that users need other labels and categories that match other use cases. Starting in Tableau Cloud October 2023 and Tableau Server 2023.3, users can classify assets using labels with custom categories that an administrator has defined. For example, an administrator could create a category called "Department" with labels for the sales, service, and operations departments ready to be applied to assets.

Labels with custom categories require a Data Management license with Tableau Catalog enabled, and can be attached to the same kinds of assets that other data labels can. However, labels with custom categories don't show on downstream assets the way that data quality warnings and sensitivity labels do.

Note: If you're an administrator who wants to create custom categories and labels, see Manage Data Labels.

Attach labels with custom categories to an asset

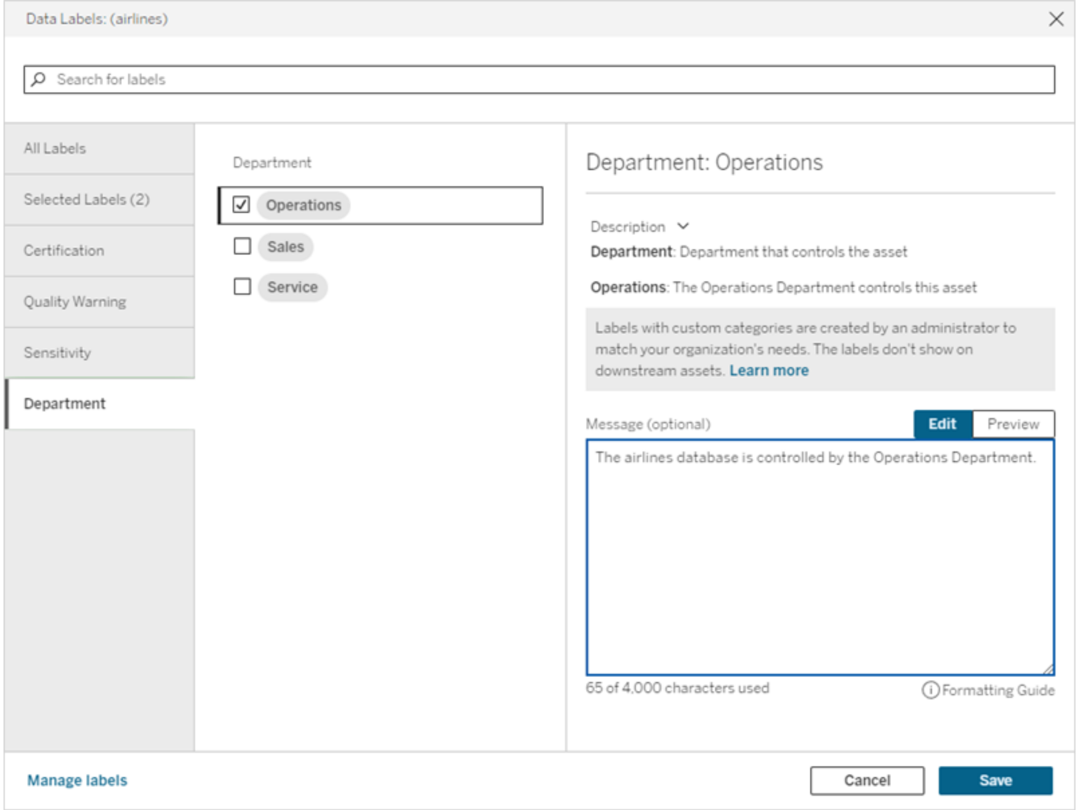
Note: Starting in Tableau Cloud February 2024 and Tableau Server 2024.2, you add and remove labels with custom categories using the consolidated Data Labels dialog instead of separate dialogs for each type of label. For information on the Data Labels dialog, see The Data Labels dialog.

To attach a label with a custom category to an asset:

In Tableau Cloud and Tableau Server 2024.2 and later

1. Search for or navigate to the asset. The steps to navigate depend on the type of asset you want to add the label to:
   - Data source or virtual connection - on the **Explore** page, select **All Data Sources** or **All Virtual Connections**.
   - Virtual connection table - on the **Explore** page, select **All Virtual Connections**, and select the virtual connection that contains the virtual connection table you want to certify. Then select the virtual connection table.
   - Database or table - on the **Explore** page, navigate to the database or table. Or on the **External Assets** page, select **Databases and Files** or **Tables and Objects**.
   - Column - on the **Explore** page, navigate to the table. Or on the **External Assets** page, select **Tables and Objects** and navigate to the table. Then find the column in the list.
2. Select the actions menu (...) next to the asset, and then select **Data Labels** > **All Data Labels**.
3. Select the vertical tab on the left side of the dialog that corresponds to the custom label category. Optionally, if you know the name of a label, you can search for it at the top of the dialog.
4. Select the checkbox beside labels you want attached to the asset.
5. If desired, enter a message to display to users. You can format the text in a message with bold, underline, and italics, and include a link or an image. To see text formatting tips, hover over the information (i) icon above the **Save** button.
6. Repeat steps 3 through 5 for each label you want to add.

7. Select **Save**.


Data Labels: (airlines)
Search for labels
All Labels
Selected Labels (2)
Certification
Quality Warning
Sensitivity
Department
Department
Sales
Service
Description
Edit
Preview
Formatting Guide
Manage labels
Cancel
Save

☑ Operations

☐ Sales

☐ Service

Department: Operations

Department: Department that controls the asset

Operations: The Operations Department controls this asset

Labels with custom categories are created by an administrator to match your organization's needs. The labels don't show on downstream assets. **Learn more**

Message (optional)

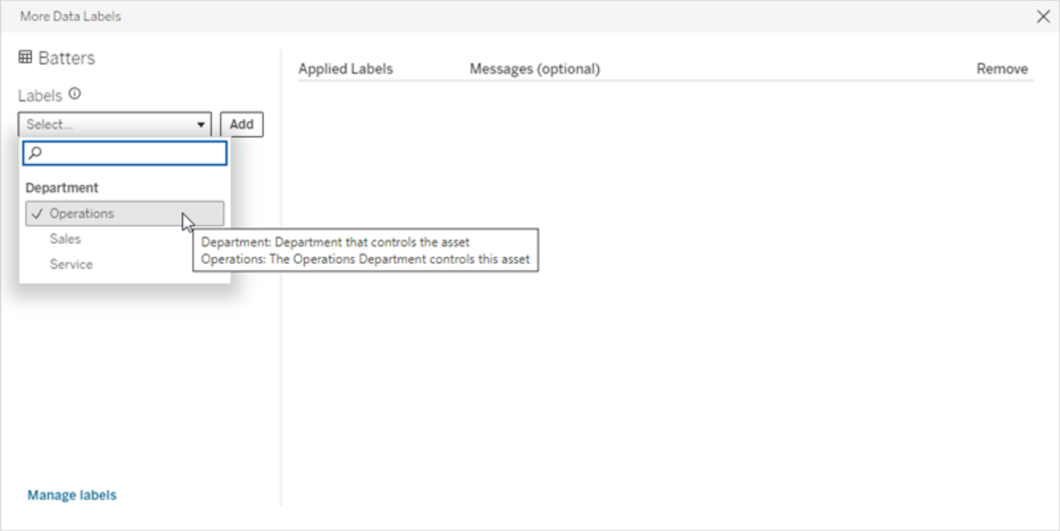
The airlines database is controlled by the Operations Department.

65 of 4,000 characters used

In Tableau Server 2023.3

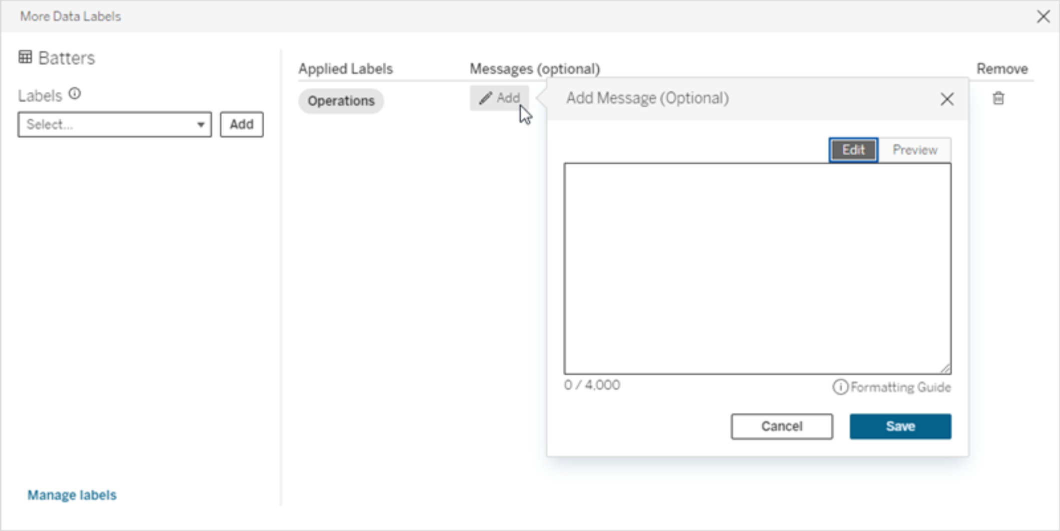
1. Select the actions menu (...) next to the asset, and then select **Data Labels** > **More Data Labels**.

2. Select the **Labels** dropdown. The label names are arranged by label category, and you can scroll through them.


More Data Labels
Batters
Labels
Select...
Add
Department
✓ Operations
Sales
Service
Manage labels
Applied Labels
Messages (optional)
Remove

Department: Department that controls the asset
Operations: The Operations Department controls this asset

3. Select the label to attach, then select **Add** next to the **Labels** dropdown. The label appears in the **Applied Labels** list on the right side of the dialog.
4. To add an optional label message on this specific asset, select the pencil in the **Messages (Optional)** column, then select **Save**.


More Data Labels
Batters
Labels
Select...
Add
Manage labels
Applied Labels
Messages (optional)
Remove
Operations
Add
Add Message (Optional)
Edit
Preview
0 / 4,000
Formatting Guide
Cancel
Save

5. Repeat steps 2 through 5 for each label you want to add.
6. When you're finished adding labels, close the dialog. (Select the X in the dialog box's upper right corner or select something outside of the dialog box to close it.)

Remove labels with custom categories from an asset

> Note: Starting in Tableau Cloud February 2024 and Tableau Server 2024.2, you add and remove labels with custom categories using the consolidated Data Labels dialog instead of separate dialogs for each type of label. For information on the Data Labels dialog, see The Data Labels dialog.

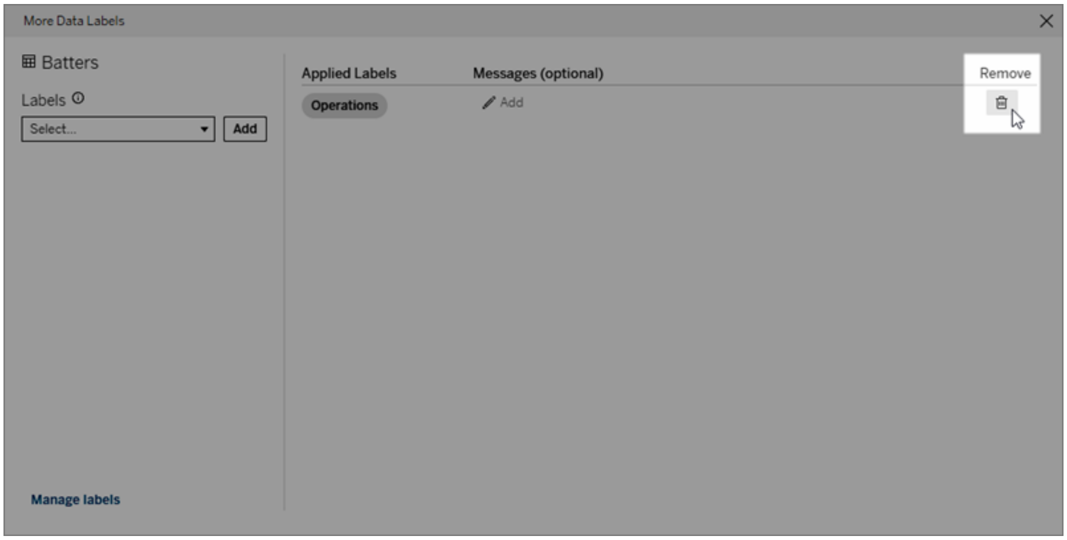
To remove a label with a custom category from an asset:

In Tableau Cloud and Tableau Server 2024.2 and later.

1. Search for or navigate to the asset. The steps to navigate depend on the type of asset you want to add the label to:
    - Data source or virtual connection - on the **Explore** page, select **All Data Sources** or **All Virtual Connections**.
    - Virtual connection table - on the **Explore** page, select **All Virtual Connections**, and select the virtual connection that contains the virtual connection table you want to certify. Then select the virtual connection table.
    - Database or table - on the **Explore** page, navigate to the database or table. Or on the **External Assets** page, select **Databases and Files** or **Tables and Objects**.
    - Column - on the **Explore** page, navigate to the table. Or on the **External Assets** page, select **Tables and Objects** and navigate to the table. Then find the column in the list.
2. Select the actions menu (...) next to the asset, and then select **Data Labels** > **All Data Labels**.
3. Select the vertical tab on the left side of the dialog that corresponds to the custom label category. Optionally, use the **Selected Labels** vertical tab to see all the labels attached to the asset. Or, if you know the name of a label, you can search for it at the top of the dialog.
4. Deselect the checkbox beside labels you want removed from the asset.
5. Repeat steps 3 and 4 for each label you want to remove.
6. Select **Save**.

In Tableau Server 2023.3

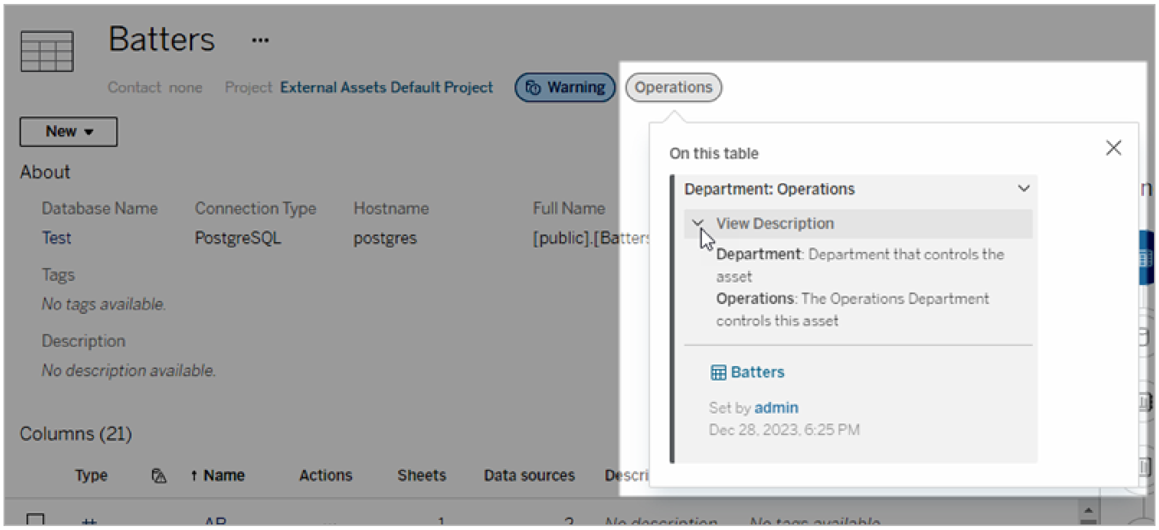
1. Select the actions menu (...) next to the asset, and then select **Data Labels** > **More Data Labels**.
2. In the **Applied Labels** section of the dialog, select the trash icon in the row for the label to remove.


More Data Labels
Batters
Labels
Select...
Add
Applied Labels
Messages (optional)
Remove
Operations
Add
Manage labels

3. Repeat step 2 for each label you want to remove.
4. When you're finished removing labels, close the dialog. (Select the X in the dialog box's upper right corner or select something outside of the dialog box to close it.)

Where labels with custom categories appear

Custom labels appear on assets when navigating Tableau Cloud and Tableau Server.



Contact none Project External Assets Default Project

Database Name: Test

Connection Type: PostgreSQL

Hostname: postgres

Full Name: [public].[Batters

Tags: *No tags available.*

Description: *No description available.*

On this table

Department: Operations

View Description

Department: Department that controls the asset

Operations: The Operations Department controls this asset

Batters

Set by admin

Dec 28, 2023, 6:25 PM

In web authoring, you can select a data source or a column and then select **Catalog Details** to see all its labels.

Unlike quality warnings and sensitivity labels, labels with custom categories don't appear downstream from assets they're attached to. For example, suppose your organization has a custom label category named "Department" to which a custom label named "Sales" belongs. If you attach the "Sales" label to a table called "Orders", the label only appears on the "Orders" table and not on workbooks downstream from it.

Who can add custom category labels

To add a label with a custom category to an asset (or to remove one from an asset), you must either

- be a server or site administrator, or
- have the Overwrite capability for the asset.

Customize a label with a custom category

For information on how administrators can create or edit custom categories and labels that appear in the **More Data Labels** dialog, see Manage Data Labels.

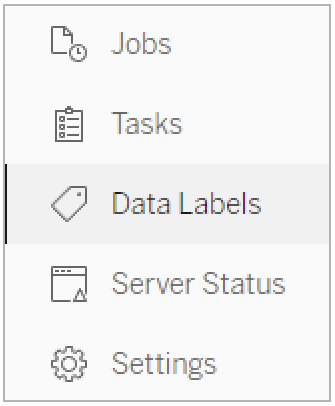
Manage Data Labels

Starting in Tableau Cloud October 2023 and Tableau Server 2023.3, if you have a Data Management license and are an administrator, you can use the label manager to create or edit label names and label categories. These customizations affect the way that labels appear throughout Tableau when users interact with labels.

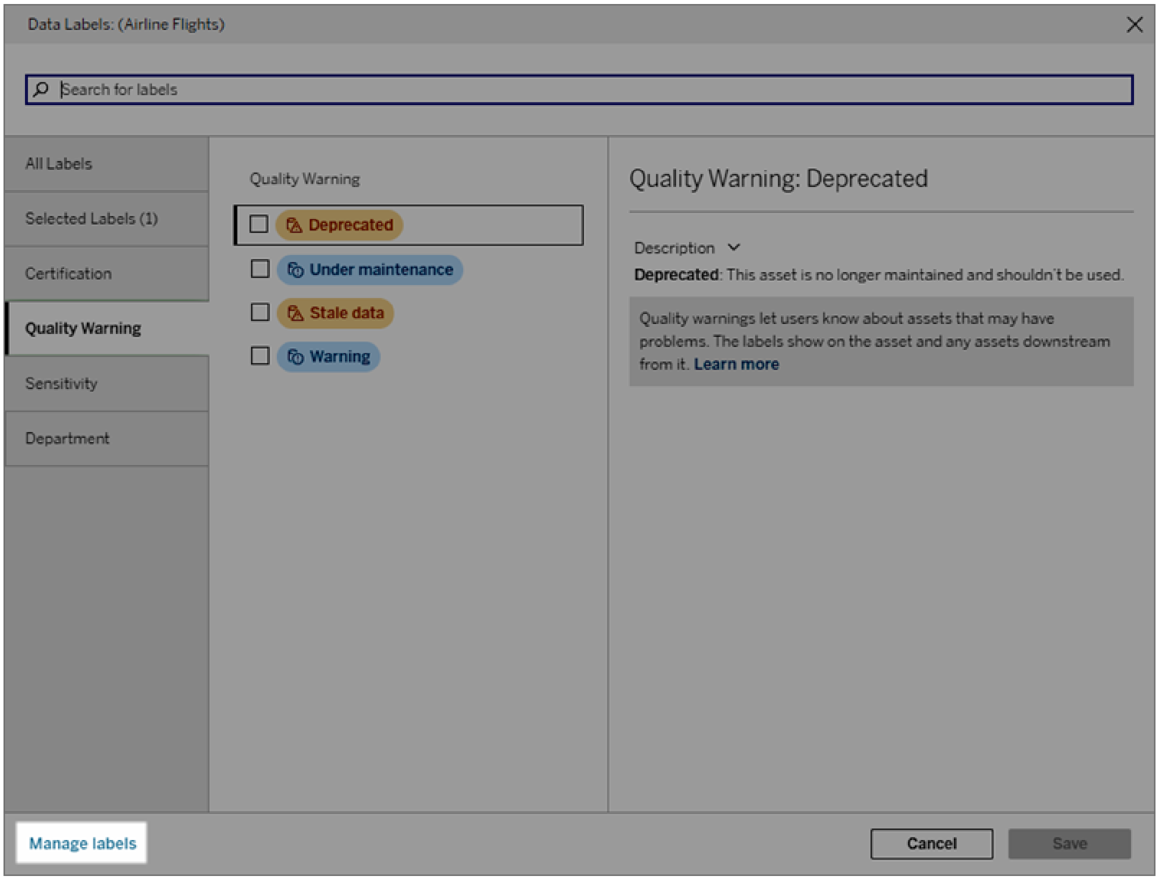
> Note: You can also use the REST API's labelValues methods and labelCategories methods to create and edit labels and label categories. (Tableau Cloud administrators have been able to create and modify label names and descriptions using the labelValues methods since Tableau Cloud June 2023.) For more information, see the Metadata Methods in the REST API Reference.

Label Manager

To use the label manager, log in as an administrator and select **Data Labels** from the left navigation pane.



Alternatively, if you're logged in as an administrator and you open the **Data Labels** dialog to label an asset, a **Manage labels** link shows in the lower-left corner. The **Manage labels** link leads to the **Data Labels** page. (In Tableau Server 2023.3 and earlier, the **Manage labels** link shows in the label selection dropdowns of the individual certification, data quality warning, sensitivity label, and custom label dialogs instead.)



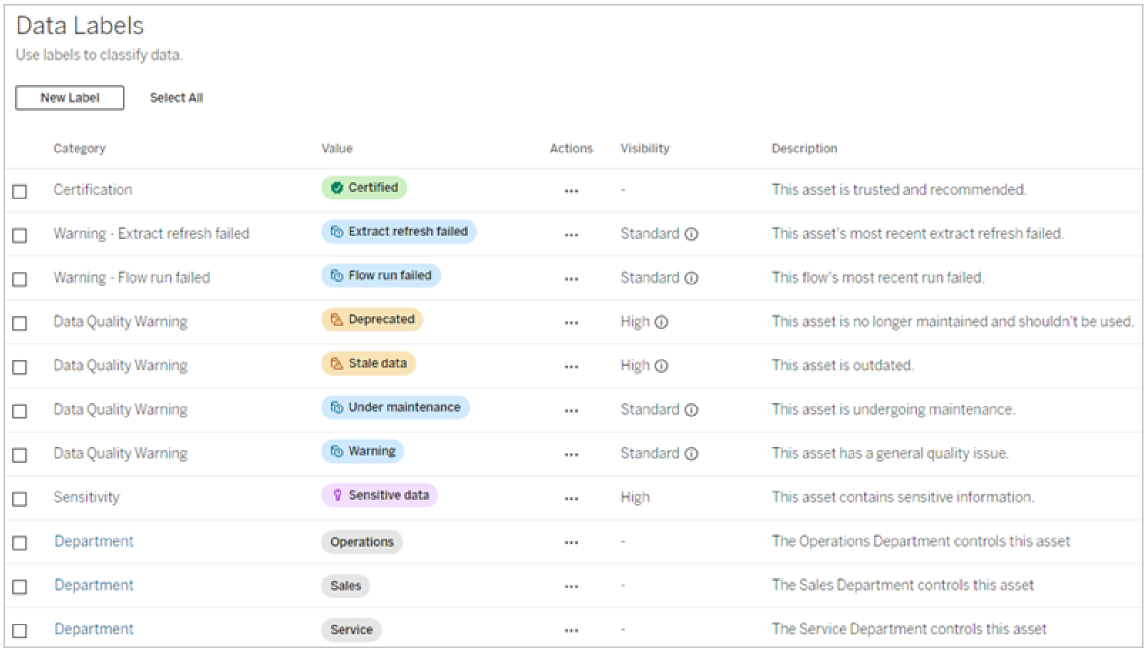
Data Labels: (Airline Flights)
Search for labels
All Labels
Selected Labels (1)
Certification
Quality Warning
Sensitivity
Department
Quality Warning
☐ Deprecated
☐ Under maintenance
☐ Stale data
☐ Warning
Quality Warning: Deprecated
Description

Deprecated: This asset is no longer maintained and shouldn't be used.

Quality warnings let users know about assets that may have problems. The labels show on the asset and any assets downstream from it. **Learn more**

Manage labels
Cancel
Save

The label manager page shows a row for each label, sorted by label category. Each row includes the label category, name (here known as the value), an **Actions** menu (...) to perform actions on that label, visibility, and description.



Data Labels

Use labels to classify data.

	Category	Value	Actions	Visibility	Description
☐	Certification	Certified	•••	-	This asset is trusted and recommended.
☐	Warning - Extract refresh failed	Extract refresh failed	•••	Standard ⓘ	This asset's most recent extract refresh failed.
☐	Warning - Flow run failed	Flow run failed	•••	Standard ⓘ	This flow's most recent run failed.
☐	Data Quality Warning	Deprecated	•••	High ⓘ	This asset is no longer maintained and shouldn't be used.
☐	Data Quality Warning	Stale data	•••	High ⓘ	This asset is outdated.
☐	Data Quality Warning	Under maintenance	•••	Standard ⓘ	This asset is undergoing maintenance.
☐	Data Quality Warning	Warning	•••	Standard ⓘ	This asset has a general quality issue.
☐	Sensitivity	Sensitive data	•••	High	This asset contains sensitive information.
☐	Department	Operations	•••	-	The Operations Department controls this asset
☐	Department	Sales	•••	-	The Sales Department controls this asset
☐	Department	Service	•••	-	The Service Department controls this asset

Use the label manager to:

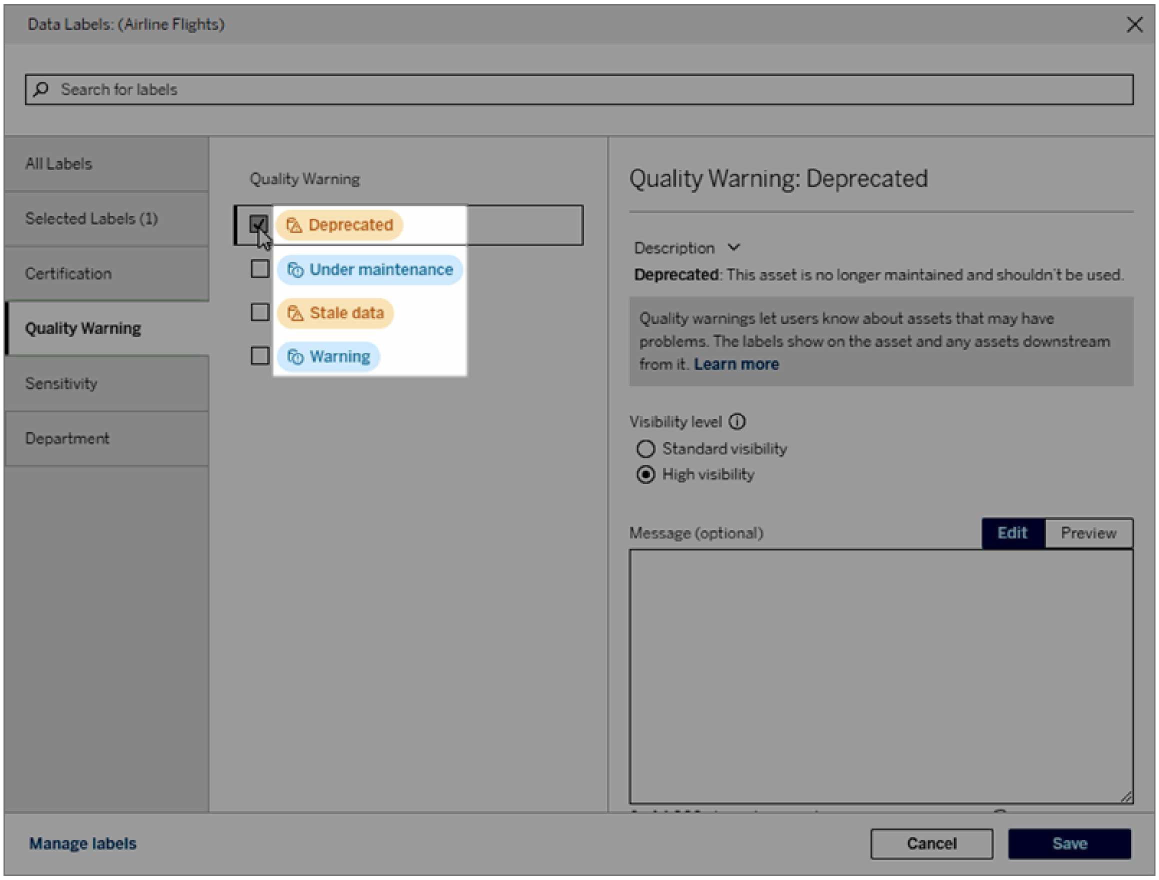
- **Edit built-in labels**
  - Example: You change the name of the built-in "Under maintenance" quality warning to "Maintenance mode".
  - Example: You change the visibility of extract refresh monitoring labels from standard visibility to high visibility so that they show in views.
- **Create new labels for the existing, built-in categories**
  - Example: You add a new sensitivity label called "Confidential".
- **Revert a built-in label to its default name, description, and visibility**
  - Example: You previously changed the "Stale data" quality warning name to "Outdated", and you want to revert it to its default name.
- **Create custom categories**
  - Example: You create a new label category called "Department" with the intention of adding labels for different business units.
- **Create new labels in custom categories**
  - Example: You create new "Sales", "Service", and "Operations" labels for your newly created "Department" category.

Properties of Data Labels

A label has a name, a category, and a description. Labels with a Quality Warning or Sensitivity category also have a visibility level.

Name

The label name is the common name for the label as it appears in various places. For example, here the label name "Deprecated" is selected in the **Quality Warning** tab of the **Data Labels** dialog.



Data Labels: (Airline Flights)

Quality Warning: Deprecated

Description

Deprecated: This asset is no longer maintained and shouldn't be used.

Quality warnings let users know about assets that may have problems. The labels show on the asset and any assets downstream from it. **Learn more**

Visibility level

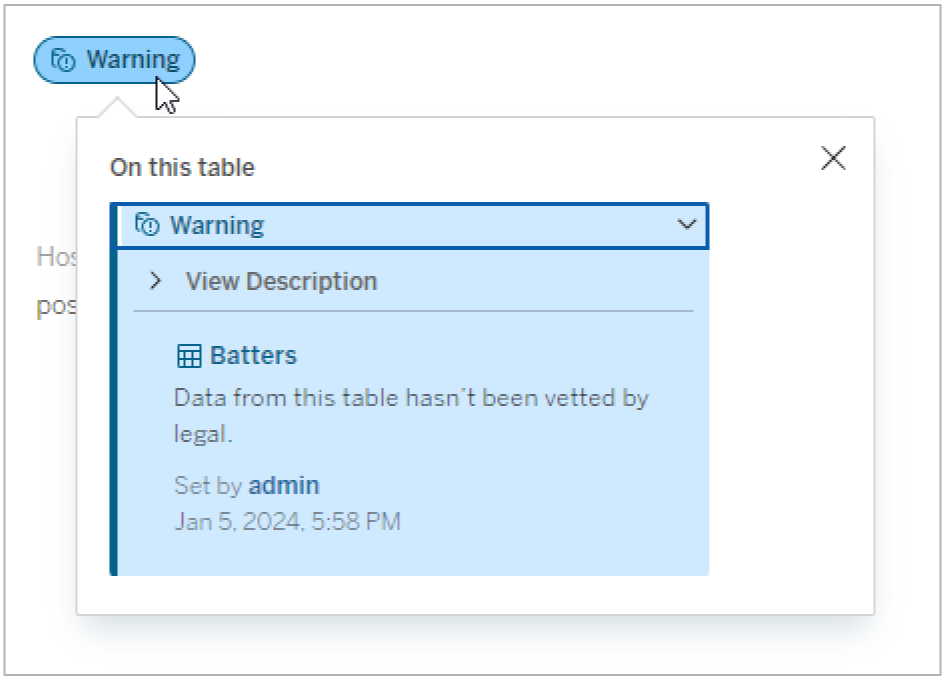
○ Standard visibility

● High visibility

Message (optional)

Search for labels
All Labels
Selected Labels (1)
Certification
Quality Warning
Sensitivity
Department
Quality Warning
☑ Deprecated
☐ Under maintenance
☐ Stale data
☐ Warning
Edit
Preview
Manage labels
Cancel
Save

Here the label name "Warning" shows at the top of the "Batters" table page, and again in the label details.



Data from this table hasn't been vetted by legal.

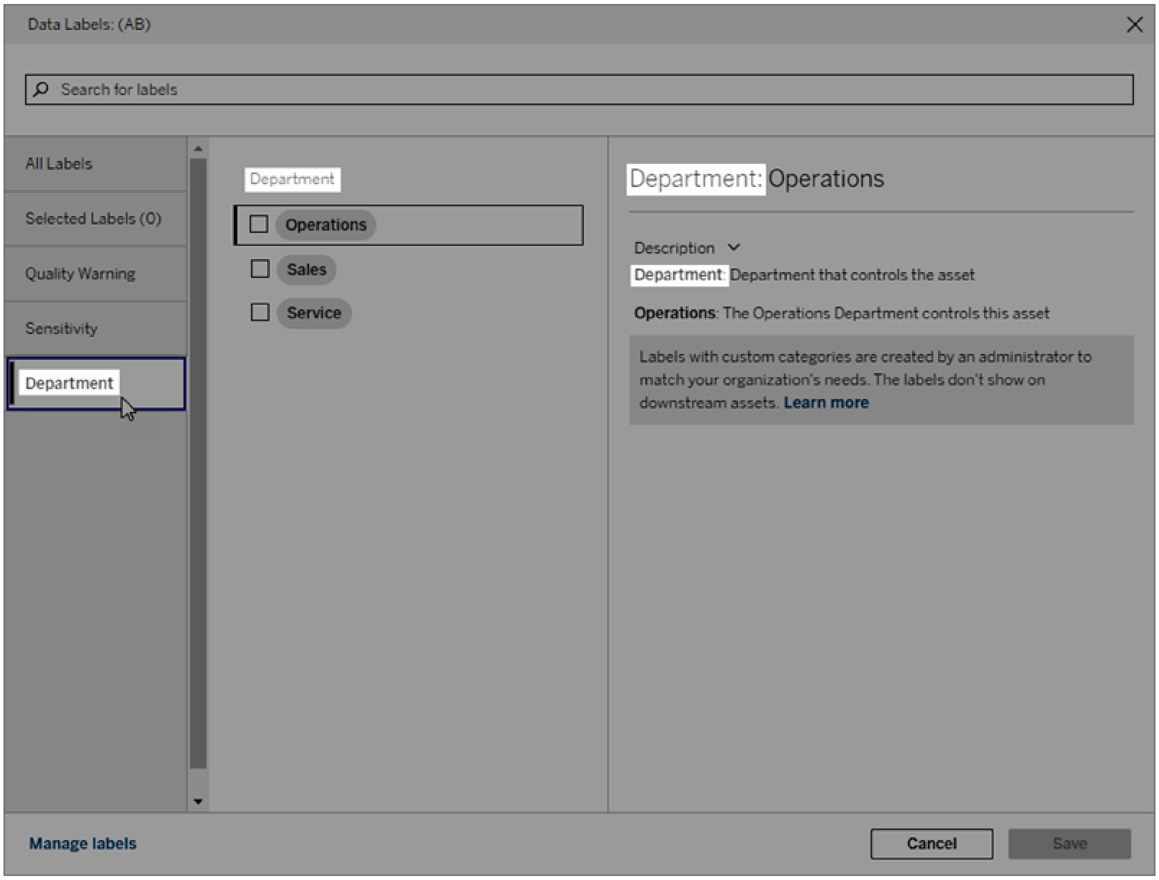
Set by admin
Jan 5, 2024, 5:58 PM

Category

The label category affects where and how the label appears, whether it appears on assets that are downstream from the one it's attached to, and which parts are customizable, among other things. For example, quality warnings and sensitivity labels appear on downstream assets, but other labels with other categories don't. Another example: You can change the description of a certification label, but not the name.

The built-in categories are **certification**, **quality warning**, and **sensitivity**.

For custom categories, users see the category name in the vertical category tabs of the **Data Labels** dialog, among other places. For example, here the category name "Department" appears in the vertical category tabs, the top of the label name list, and other places.


Data Labels: (AB)
Search for labels
All Labels
Selected Labels (0)
Quality Warning
Sensitivity
Department
Department
☐ Operations
☐ Sales
☐ Service
Department: Operations
Description
Manage labels
Cancel
Save

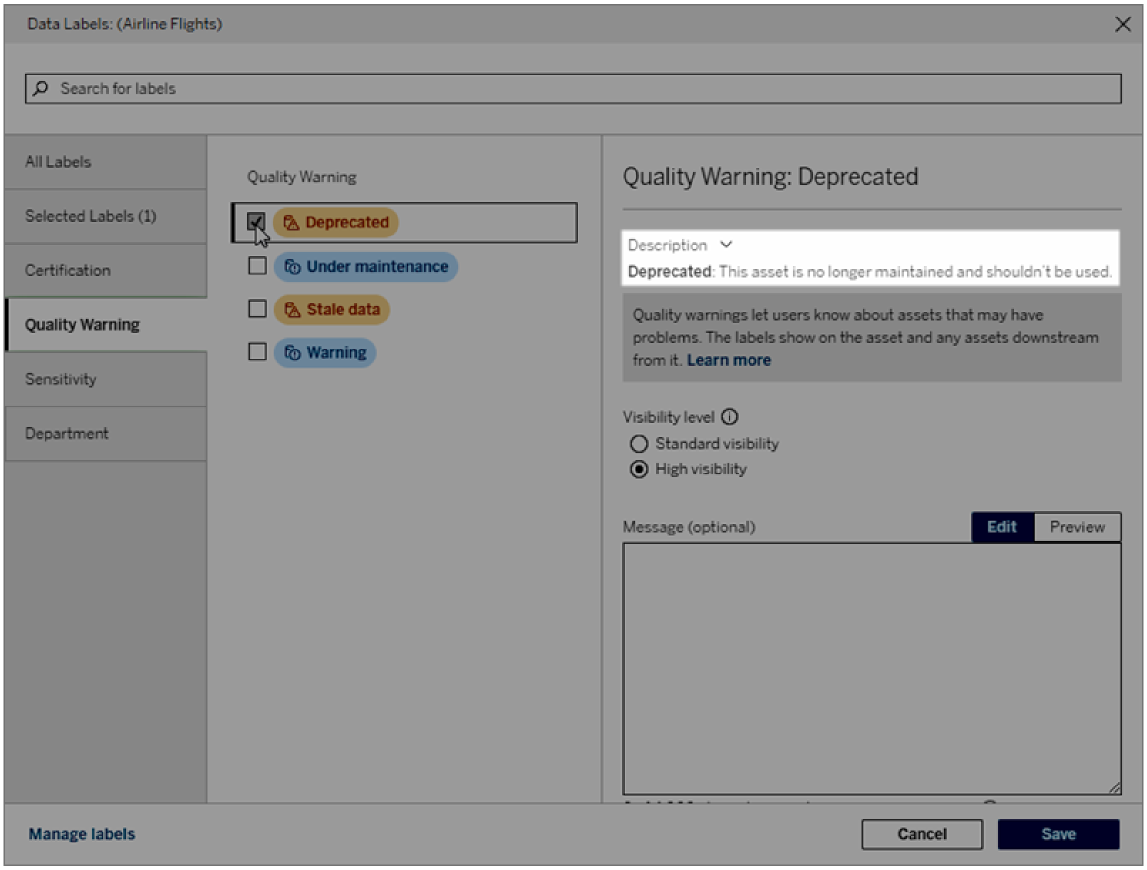
Department: Department that controls the asset

Operations: The Operations Department controls this asset

Labels with custom categories are created by an administrator to match your organization's needs. The labels don't show on downstream assets. **Learn more**

Description

The label description appears in various places, including in the **Data Labels** dialog, and helps the user understand what the label is used for. For example, the label description for this quality warning says "This asset is no longer maintained and shouldn't be used."


Data Labels: (Airline Flights)
Search for labels
All Labels
Selected Labels (1)
Certification
Quality Warning
Sensitivity
Department
Quality Warning
Manage labels
Cancel
Save

☑ Deprecated
☐ Under maintenance
☐ Stale data
☐ Warning

Quality Warning: Deprecated

Description

Deprecated: This asset is no longer maintained and shouldn't be used.

Quality warnings let users know about assets that may have problems. The labels show on the asset and any assets downstream from it. **Learn more**

Visibility level

○ Standard visibility
● High visibility

Message (optional) Edit Preview

Visibility

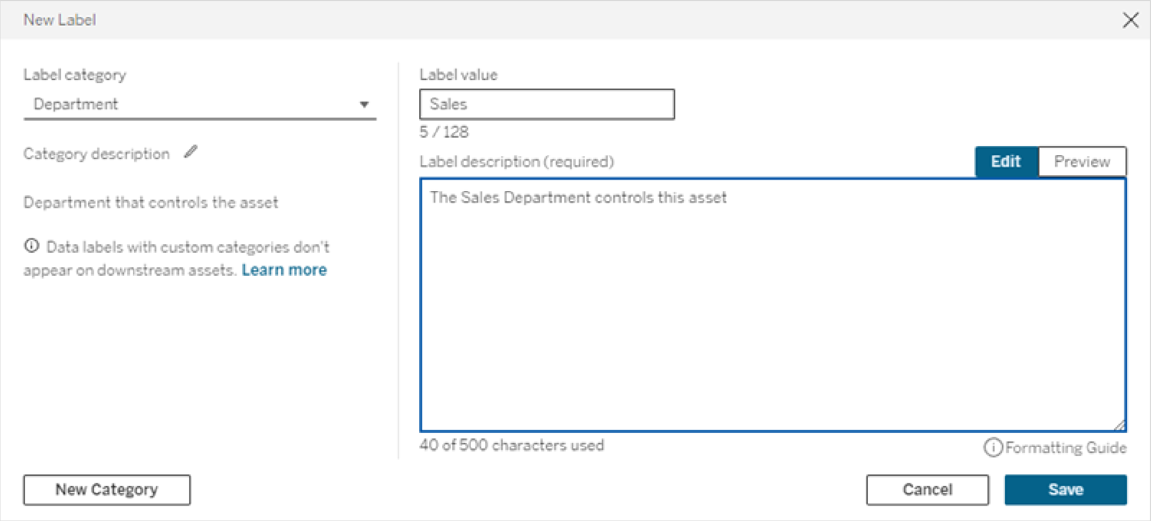
The visibility of a label determines its appearance. High-visibility labels appear in more places and may appear more urgent to the user. You can only set the visibility level on Quality Warning or Sensitivity labels. Furthermore, if a label has a category of Quality Warning, users with permissions can override the default visibility on each asset that they attach a Quality Warning label to. For more information, see the Set a Data Quality Warning and Sensitivity Labels topics.

Create a data label

To create a label:

1. From the **Data Labels** page, select **New Label**.
2. Select a category from the **Label** category dropdown.
3. Enter the label name in the **Label value** field.

4. Enter the label description in the **Label description** field. You can format the text with bold, underline, and italics, and include a link or an image. To see text formatting tips, hover over the information (i) icon above the **Save** button.
5. If the label has a category of Quality Warning or Sensitivity, set the visibility level. For more information, see Visibility.
6. Select **Save**.



Label category: Department

Category description

Department that controls the asset

ⓘ Data labels with custom categories don't appear on downstream assets. Learn more

Label value: Sales

5 / 128

Label description (required): The Sales Department controls this asset

40 of 500 characters used

Limitations for creating labels

- You can't create a label in the certification category. The certification category allows only the single, built-in label.
- You can't create new monitoring warnings. However, the extract refresh failure warning and flow run failure warning can be edited in limited ways, as described in the "Edit a label" section.
- The maximum length for a label name is 128 characters in Tableau Cloud and Tableau Server 2024.2 and later. The maximum length for a label name is 24 characters in Tableau Server 2023.3 and earlier.
- The maximum length for a label description is 500 characters.

Edit a data label

To edit an existing label:

1. From the **Data Labels** page, select the **Actions** (...) menu in the label's row. Or select the row using its checkbox on the left and click the **Actions** dropdown at the top of the

label list.
2. Select **Edit**.
3. (Optional) Change the label name using the **Label value** field.
4. (Optional) Change the label description using the **Label description** field.
5. (Optional) If the label has a category of Quality Warning or Sensitivity, set the visibility level. For more information, see Visibility.
6. Select **Save**.

Limitations for editing labels

- You can't change the category on an existing label.
- The maximum length for a label name is 128 characters in Tableau Cloud and Tableau Server 2024.2 and later. The maximum length for a label name is 24 characters in Tableau Server 2023.3 and earlier.
- The maximum length for a label description is 500 characters.

The different label categories allow different degrees of label editing. The following table lists the editable properties of labels with the given categories:

Label category	Can edit label category	Can edit label names	Can edit label descriptions	Can edit label visibility
Certification	No	No	Yes	N/A
Quality Warning	No	Yes[1]	Yes	Yes[2]
Sensitivity	No	Yes	Yes	Yes
Custom	No	Yes	Yes	N/A

[1] *You can't edit the label name (label value) of the extract refresh or flow run monitoring warnings.*

[2] *The visibility level you set for quality warnings is the default visibility. Users with permission can override the default visibility when they attach a quality warning to an asset. For more information, see Visibility.*

Delete a data label

To delete an existing label:

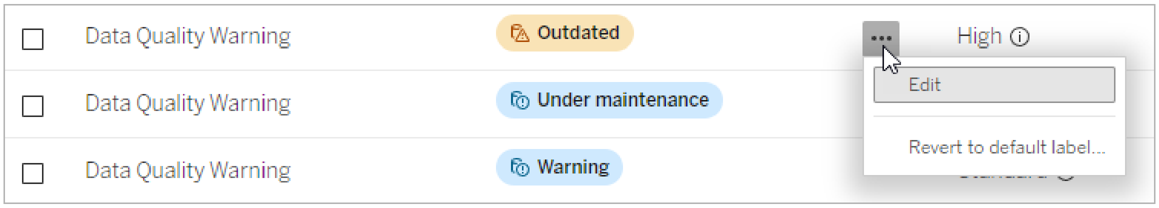
1. From the **Data Labels** page, select the **Actions** (...) menu in the label's row. Or select the row using its checkbox on the left and click the **Actions** dropdown at the top of the label list.
2. Select **Delete**.

Limitations for deleting labels

- You can't delete a built-in label. Built-in labels are the default labels in Tableau Cloud.

Revert a built-in data label to its defaults

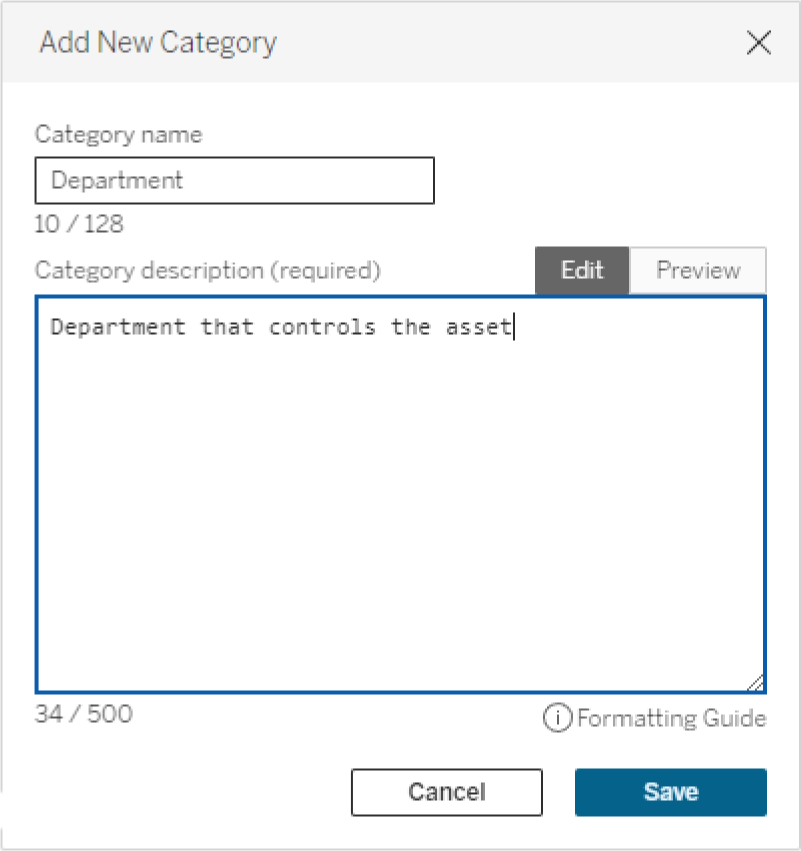
If an administrator previously edited a built-in label, the **Actions** menu for that label contains **Revert to default label**. Reverting a label to its defaults returns the label's name (value), description, and visibility to its built-in defaults.


☐ Data Quality Warning
Outdated
High ⓘ
Edit
☐ Data Quality Warning
Under maintenance
Revert to default label...
☐ Data Quality Warning
Warning

Create a data label category

To create a label category:

1. From the **Data Labels** page, select **New Label**.
2. In the **New Label** dialog, select **New Category**.
3. Enter the category name in the **Category name** field.
4. Enter the category description in the **Category description** field. You can format the text with bold, underline, and italics, and include a link or an image. To see text formatting tips, hover over the information (i) icon above the **Save** button.
5. Select **Save**.


Add New Category
Category name
Department
10 / 128
Category description (required)
Edit
Preview
Department that controls the asset
34 / 500
Formatting Guide
Cancel
Save

Limitations for creating label categories

- The maximum length for a category name is 128 characters in Tableau Cloud and Tableau Server 2024.2 and later. The maximum length for a category name is 24 characters in Tableau Server 2023.3 and earlier.
- The maximum length for a category description is 500 characters.

Edit a data label category

To edit a label category:

1. From the **Data Labels** page, select the label category, then select the pencil icon. Or from the **New Label** or **Edit Label** dialogs, select the category in the **Label category** dropdown and then select the pencil icon next to **Category description**.
2. (Optional) Change the category name using the **Category name** field.
3. (Optional) Change the category description using the **Category description** field.
4. Select **Save**.

Limitations for editing label categories

- You can't edit a built-in category.
- The maximum length for a category name is 128 characters in Tableau Cloud and Tableau Server 2024.2 and later. The maximum length for a category name is 24 characters in Tableau Server 2023.3 and earlier.
- The maximum length for a category description is 500 characters.

Delete a data label category

Currently, there isn't a method to delete a label category through the regular Tableau Cloud interface. To delete a category using the REST API, see the Delete Label Category method in the REST API Reference.

Scenarios for customization

Scenario: Customize a built-in data label

Suppose you decide that the data quality warning called "Warning" could be more specific. As an administrator, you change the label name from the default ("Warning") to something you think is more useful to your organization: "Not approved". The label name "Not approved" now appears in label dialogs when users are selecting labels.

Alternatively, you could change the label description so that the user learns more about the warning in the label dialog. For example: "This asset doesn't meet quality standards required by the marketing department."

Scenario: Create a custom data label

Suppose you want users to have more granular control over classifying the sensitivity of assets. You create two sensitivity labels with the names "Public" and "PII". The custom label names "Public" and "PII" now appear in the label dialog dropdowns and descriptions, alongside the built-in sensitivity label.

Scenario: Create a new data label category and associated data labels

Suppose you need a way to identify the business units that are responsible for assets. You create a label category called "Department". Then you create three labels – "Sales", "Service", and "Operations" – with "Department" as their category. The category "Department" and the three associated labels now appear in the **More Data Labels** dialog for users to attach to assets.

Manage Dashboard and Viz Extensions in Tableau Cloud

Dashboard extensions are web applications that run in custom dashboard zones and can interact with the rest of the dashboard using the Tableau Extensions API. Dashboard extensions give users the ability to interact with data from other applications directly in Tableau. Like dashboard extensions, viz extensions are web applications that use the Tableau Extensions API and allow developers to create new viz types. Tableau users can access viz extensions through the worksheet Marks card.

Note: You must be a site administrator to add dashboard and viz extensions to the safe list and to control the type of data the extensions can access. The site administrator can also configure whether users on the site see prompts when they add or view extensions. For information about extension security and recommended deployment options, see Extension Security - Best Practices for Deployment.

For information about using dashboard extensions in Tableau, see Use Dashboard Extensions.

For information about using viz extensions, see Add Viz Extensions to Your Worksheet.

Looking for Tableau Server? See Manage Dashboard Extensions in Tableau Server.

Before you run extensions on Tableau Cloud

Tableau supports two ways of hosting extensions:

- Network-enabled extensions, which are hosted on web servers located inside or outside of your local network. Network-enabled extensions have full access to the web.
- Sandboxed extensions, which run in a protected environment without access to any other resource or service on the web.

Note: Beginning in March 2021.1 Tableau supports integration with Einstein Discovery through the Einstein Discovery Dashboard extension. This is a special extension that has access to data in Salesforce.com and is allowed by default. It is not considered a Network-enabled extension or a Sandboxed extension. For more information on Einstein Discovery integration, see Configure Einstein Discovery Integration.

Sandboxed extensions are hosted by Tableau and employ W3C standards, such as Content Security Policy (CSP), to ensure the extension can’t make network calls outside of the hosting Tableau Server. A Sandboxed extension can query data in the dashboard, but it can’t send that data anywhere outside of the sandbox. Sandboxed Extensions are supported in Tableau 2019.4 and later. By default, Sandboxed extensions are allowed to run if extensions are enabled for the site.

Network-enabled extensions are web applications and could be running on any computer set up as a web server. This includes local computers, computers in your domain, and third-party web sites. Because Network-enabled extensions could be hosted on third-party sites and could have access to the data in the workbook, you want to only allow the extensions you trust. See Test Network-enabled extensions for security.

For security, you can use the settings for extensions on Tableau Cloud to control and limit the extensions that are allowed to run.

- By default, Sandboxed extensions are allowed to run if extensions are enabled for the site.

- By default, no Network-enabled extensions are allowed unless they've been explicitly added to the safe list.

- By default, only extensions that use the HTTPS protocol are allowed, which guarantees an encrypted channel for sending and receiving data (the only exception is for `http://localhost`).
- If the Network-enabled extension requires full data (access to the underlying data) the extension can't run on Tableau Cloud unless you explicitly add the extension to the safe list and grant the extension access to full data.

Control extensions and access to data

Site administrators can control whether to enable extensions for the site and whether to allow Sandboxed extensions on the site. The default site settings allow Sandboxed extensions to run on the site, provided the extension is not specifically blocked on the server. The default site settings allow Network-enabled extensions to run that appear on the safe list for the site. Individual Sandboxed extensions can also be added to the safe list, if Sandboxed extensions are not allowed by default.

1. To change these settings for the site, go to **Settings > Extensions**.
2. Under Dashboard and Viz Extensions, configure these options:
   - **Let users run extensions on this site**
   - **Let Sandboxed extensions run unless they are specifically blocked by a server administrator**

Site administrators can add or remove Network-enabled and Sandboxed extensions from the safe list for a site. When you add an extension to the safe list, you can control whether to allow the extension to have access to full data. See Add extensions to the safe list and configure user prompts.

Identifying the URL of an extension

As a web application, an extension is associated with a URL. You can use this URL to test and verify the extension. You also use the URL to add the extension to the safe list to allow full data access, or to the block list to prohibit any access.

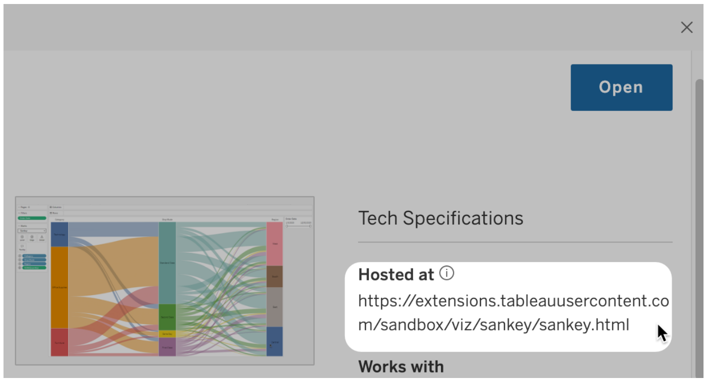
From the manifest file

If you have the extension manifest file (`.trex`), an XML file that defines properties for the extension, you can find the URL from the `<source-location>` element.

```
<source-location>
    <url>https://www.example.com/myExtension.html</url>
</source-location>
```

From Tableau Exchange

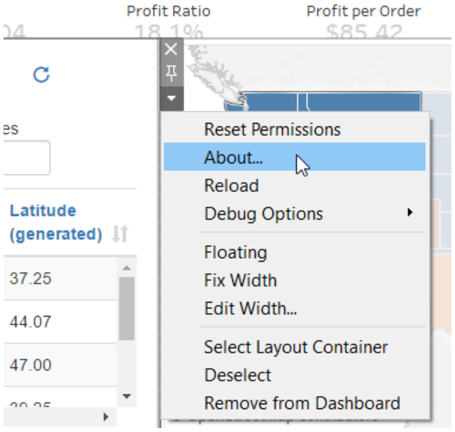
If you added or downloaded an extension from the Tableau Exchange, you can find the URL for the extension on the Exchange. Open the tile for the extension, under Tech Specifications, look for the URL under the heading, **Hosted at**.



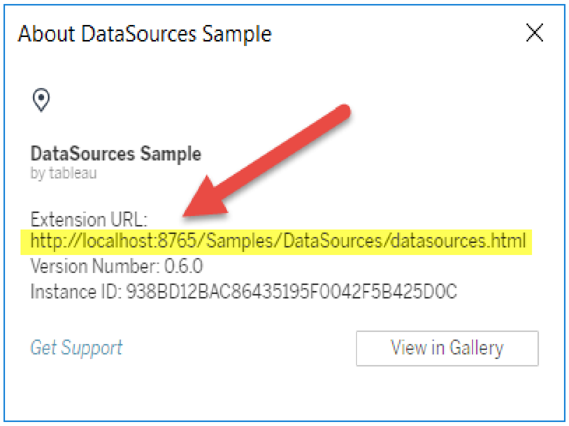
https://extensions.tableauusercontent.com/sandbox/viz/sankey/sankey.html

Identifying a dashboard extension using the About dialog box

If you have added the extension to the dashboard, you can find the URL from the extension properties. From the **More Options** menu, click **About**.


Profit Ratio
Profit per Order
Latitude (generated)
37.25
44.07
47.00
Reset Permissions
About...
Reload
Debug Options
Floating
Fix Width
Edit Width...
Select Layout Container
Deselect
Remove from Dashboard

The About dialog box lists the name of the extension, the author, the web site of the author, and the URL of the extension.


About DataSources Sample

DataSources Sample
by tableau

Extension URL:
http://localhost:8765/Samples/DataSources/datasources.html
Version Number: 0.6.0
Instance ID: 938BD12BAC86435195F0042F5B425D0C

Get Support
View in Gallery

Add extensions to the safe list and configure user prompts

To ensure that users can use Network-enabled extensions that are trusted, you can add them to the safe list for the site. You can also add Sandboxed extensions to the safe list, if Sandboxed extensions aren't enabled by default on the site.

On the safe list, you can control whether to grant the extension full data access. By default, when you add an extension to the safe list, the extension only has access to the summary (or aggregated) data. You can also control whether users see a prompt asking them to allow the extension access to data. You might want to add an extension to the safe list (for example, a

Sandboxed extension) so that you can configure whether users see the prompts. When you hide the prompt from users, the extension can run immediately.

1. Go to **Settings > Extensions**.
2. Under **Enable Specific Extensions**, add the URL of the extension. See Identifying the URL of an extension.

   Tip: You can use a period and asterisk (`.*`) as a wildcard in the URL to allow all extensions in a certain domain or location. For example, to allow all extensions in the domain under example.com that use port 8080, you would add the URL: `https://example.com:8080/.*`. For more information, see Using regular expressions in the safe list URL.
3. Choose to **Allow** or **Deny** the extension **Full Data Access**.

   Full data access is access to the underlying data in the view, not just the summary or aggregated data. Full data access also includes information about the data sources, such as the names of the connection, fields, and tables. Usually, if you are adding an extension you want to use to the safe list, you also want to allow the extension to have access to full data, if the extension requires it. Before adding extensions to the safe list, be sure to Test Network-enabled extensions for security.
4. Choose to **Show** or **Hide** the **User Prompts**.

   Users see the prompts by default when they are adding a dashboard extension to a dashboard, or a viz extension to a worksheet, or when they are interacting with a view that has an extension. The prompt tells users details about the extension and whether the extension has access to full data. The prompt gives users the ability to allow or deny the extension from running. You can hide this prompt from users, allowing the extension to run immediately.

Using regular expressions in the safe list URL

In general, when you add an extension to the safe list, you should use the specific URL of the extension. However, there are times when you might want to allow multiple extensions that are hosted from the same domain and location. In this case it is convenient to use a wildcard in the URL. The extension settings support the use of regular expressions.

Regular expression	Description
`.`	A period (.) is a wildcard you can use to match any character. If you need to specify a period (.) in the URL instead of a wildcard, you can escape the character with a backslash (`\.`).
`*`	An asterisk (*) is a quantifier that specifies one or more instances of the previous character.

Use care if you use wildcards so that you don't make the safe list too permissive, and inadvertently allow access to extensions that should not have access.

The following table shows some examples of using regular expressions in the URL. Note that these examples do not show the protocol and the full URL of the extension. Only extensions that use the HTTPS protocol are allowed (with the exception of http://localhost).

To specify...	Example	Specifies
Range of domains	.*\.example.com	All subdomains under example.com.
All ports	example.com:.*	Extensions are allowed access from all ports on example.com.
All extensions under domain, port, and path	example.com:8080/xyz/.*	All extensions under the domain example.com that use port 8080 and are located in zyz, are allowed access.
All ports for a range of domains	.*\.example.com:.*	Allows access to extensions on all ports on all subdomains under example.com.

All extensions under a domain and path that match the pattern	example.com/t.c/.*	Allows access to extensions running on example.com under folders that match the pattern t.c. For example, tic, tac, toc.

Test Network-enabled extensions for security

Dashboard and viz extensions are web applications that interact with data in Tableau using the Extensions API. Network-enabled extensions could be hosted on web servers inside or outside of your domain, and can make network calls and have access to resources on the Internet. Because of the potential vulnerabilities, such as cross-site scripting, you should test and vet Network-enabled extensions before they are used in Tableau Desktop, and before you allow the extensions on Tableau Cloud.

Examine the source files

Dashboard and viz extensions are web applications and include various HTML, CSS, and JavaScript files, and an XML manifest file (*.trex) that defines the properties in the extension. In many cases, the code for a extension is publicly available on GitHub and can be examined there or downloaded. In the manifest file (`*.trex`), you can find the source location, or URL indicated where the extension is hosted, the name of the author, and the web site of the author or company to contact for support. The `<source-location>` element specifies in the URL, the `<author>` element, specifies the name of the organization and the web site to contact for support (`website="SUPPORT_URL"`). The web site is the **Get Support** link user see in the **About** dialog box for the extension.

Many extensions reference external JavaScript libraries, such as the jQuery library or API libraries for third parties. Validate that the URL for external libraries points to a trusted location for the library. For example, if the connector references the jQuery library, make sure that the library is on a site that is considered standard and safe.

All extensions are required to use the HTTPS protocol (`https://`) for hosting their extensions. You should examine the source files for the extension to ensure that any reference to external libraries is also using HTTPS or is hosted on the same web site as the extension. The one exception to the requirement of HTTPS is if the extension is hosted on the same computer as Tableau (`http://localhost`).

To the extent possible, make sure you understand what the code is doing. In particular, try to understand how the code is constructing requests to external sites, and what information is being sent in the request. In particular, check if any user-supplied data is validated to prevent cross-site scripting.

Understand data access

The Tableau Extensions API provides methods that can access the names of the active tables and fields in the data source, the summary descriptions of the data source connections, and the underlying data in a worksheet. If an extension uses any of these methods in a view, the extension developer must declare that the extension requires full data permission in the manifest file (`.trex`). The declaration looks like the following.

```
<permissions>
   <permission>full data</permission>
</permissions>
```

Tableau uses this declaration to provide a prompt to users at run time that gives them the option of allowing this access. If the extension uses any one of these methods, without declaring full-data permission in the manifest file, the extension loads but the method calls fail.

For information about how an extension accesses data from the dashboard, and the JavaScript methods used, see Accessing Underlying Data in the Tableau Extensions API. To get a better understanding about what the extension can find out about the data, you can use the DataSources sample dashboard extension (available from the Tableau Extensions API GitHub repository) to see what data is exposed when the `getDataSourcesAsync()` method is called.

Test the extension in an isolated environment

If possible, test the extension in an environment that is isolated from your production environment and from user computers. For example, add a dashboard or viz extension to a safe list on a test computer or virtual machine that's running a version of Tableau Cloud that is not used for production.

Monitor traffic created by the dashboard extension

When you test a Network-enabled extension, use a tool like Fiddler, Charles HTTP proxy, or Wireshark to examine the requests and responses that the extension makes. Make sure that you understand what content the extension is requesting. Examine the traffic to be sure that the extension is not reading data or code that is not directly related to the purpose of the extension.

Configure Connections with Analytics Extensions

Analytics extensions allow you to extend Tableau dynamic calculations in a workbook with languages like R and Python, with Einstein Discovery, and with other tools and platforms. These settings endpoints enable you to configure analytics extensions on your site in Tableau Cloud. For more information, see Analytics Extensions API.

For more information about user scenarios and configuring analytics connections in Tableau Desktop or for web authoring, see Pass Expressions with Analytics Extensions, in the *Tableau Desktop and Web Authoring Help*.

Note: Beginning in June 2021, you can create multiple analytics extensions connections for a site, including multiple connection for the same type of extension (you are presently limited to a single Einstein Discovery analytics extension for each site). For details, see Tableau Cloud Release Notes.

This topic describes how to configure sites on Tableau Cloud with analytics extensions.

Security requirements and configuration

For increased security, Tableau Cloud requires an encrypted channel and authenticated access to the external services used for analytics extensions.

Certificate

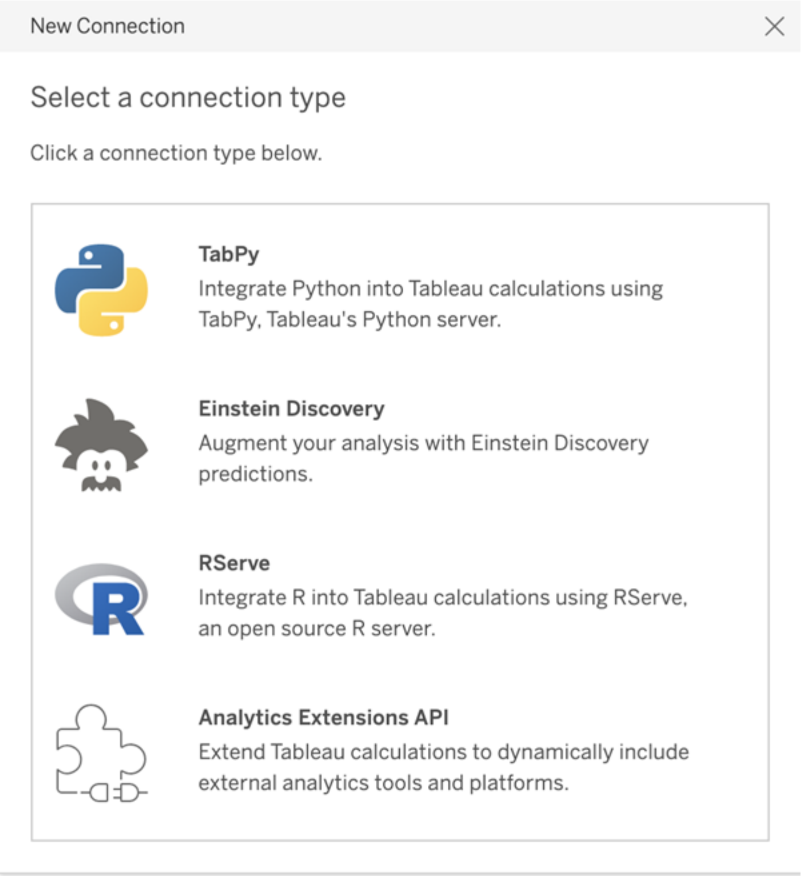
The server running the external service for analytics extensions must be configured with a valid TLS/SSL certificate from a trusted 3rd party certificate authority (CA). Tableau Cloud will not establish a connection with external servers that are configured with a self-signed certificate, a certificate from a private PKI, or a certificate that is not trusted by an established 3rd party CA.

Safelist firewall configuration

Many organizations deploy a firewall that requires safelist exceptions for known hosts outside the network. In this scenario, you will need to specify two Tableau Cloud IP addresses as exceptions. The Tableau Cloud IP addresses used for connections to analytics extensions servers are `44.224.205.196` and `44.230.200.109`.

Configure analytics extensions settings

1. Sign in to Tableau Cloud as a site administrator.
2. Click **Settings**.
3. On the Settings page, click the **Extensions** tab and then scroll to **Analytics Extensions**.
4. Select **Enable analytics extensions for site**.
5. Click **Create new connection**.
6. In the **New Connection** dialog, click the connection type you want to add, then enter the configuration settings for your analytics service:



New Connection

Select a connection type

Click a connection type below.

TabPy
Integrate Python into Tableau calculations using TabPy, Tableau's Python server.

Einstein Discovery
Augment your analysis with Einstein Discovery predictions.

RServe
Integrate R into Tableau calculations using RServe, an open source R server.

Analytics Extensions API
Extend Tableau calculations to dynamically include external analytics tools and platforms.

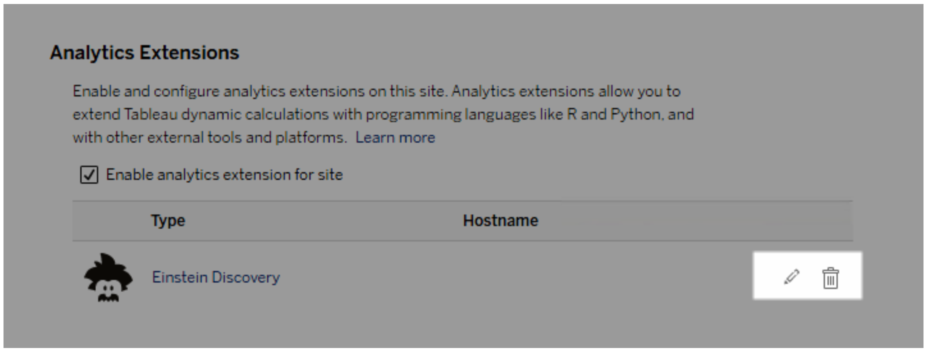
1. The options you need to configure depend on the connection type you choose:
   - For an Einstein Discovery connection, click **Enable**.
   - For TabPy, RServer, and Analytics Extensions API connections, enter the following information:
     - **Connection Name**: Specify the server type you are connecting to. RSERVE supports connections to R using the RServe package. TABPY supports connections to Python using TabPy, or to other analytics extensions.
     - **Require SSL**: Select this option to encrypt the connection to the analytics service. If you specify a `HTTPS` URL in the **Hostname** field, then you must select this option.
     - **Hostname**: Specify the computer name or URL where the analytics service is running. This field is case sensitive.
     - **Port**: Specify the port for the service.

    - **Sign in with a username and password**: Select this option to specify user name and password that is used to authenticate to the analytics service.

7. Click **Save**.

Edit or delete an analytics extension connection

To edit or delete a configuration, navigate to **Analytics Extensions** on the **Extensions** tab of your site.



Analytics Extensions

Enable and configure analytics extensions on this site. Analytics extensions allow you to extend Tableau dynamic calculations with programming languages like R and Python, and with other external tools and platforms. Learn more

☑ Enable analytics extension for site

Type	Hostname
Einstein Discovery	

Click the **Edit** or **Delete** icon and follow the prompts to change the configuration.

Script errors

Tableau cannot verify that workbooks that use an analytics extension will render properly on Tableau Cloud. There might be scenarios where a required statistical library is available on a user’s computer but not on the analytics extension instance that Tableau Cloud is using.

A warning will be displayed when you publish a workbook if it contains views that use an analytics extension.

> This worksheet contains external service scripts, which cannot be viewed on the target platform until the administrator configures an external service connection.

Table Extensions

Table Extensions allow you to create new data tables with an analytics extensions script. You can write a custom TabPy or Rserve script and optionally add one or more input tables. Table extensions are supported by Tableau Cloud, Tableau Server, and Tableau Desktop. This document focuses on Tableau Server.

> **Note:** The data refreshes every time you open up a workbook or refresh a data source.

Benefits

Table Extensions have the following benefits for both new and experienced users.

- Faster data processing
- Low code editor
- Integrates with Ask Data and Explain Data
- Integrates with TabPy and Rserve
- Results can be used to construct dashboards or visualizations.

Prerequisites

Before you can use table extensions, you must complete the following list.

- Configure an analytics extension
    - For steps to configure analytics extension connections, see Configure Connections with Analytics Extensions..
- Publish your workbook.

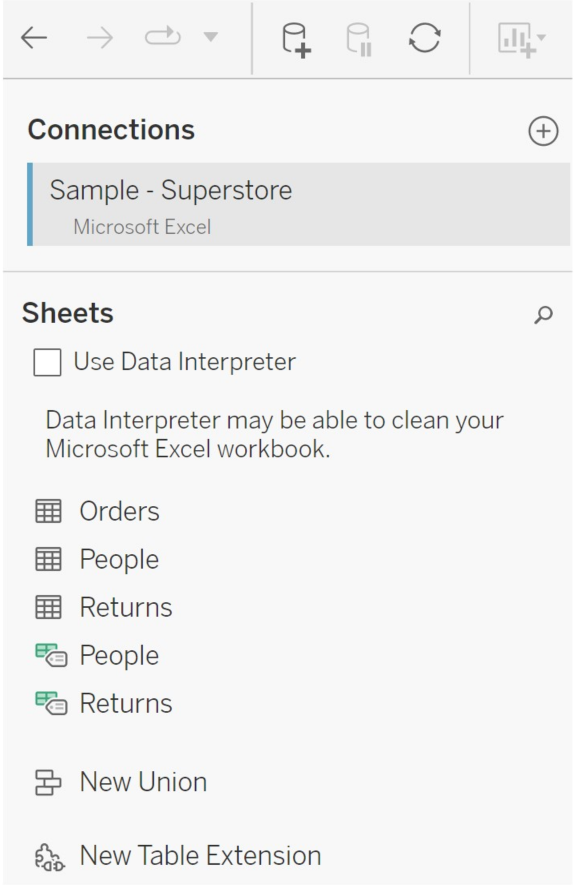
Create a Table Extension

To create a new table extension, complete the steps below.

1. Open a published workbook.

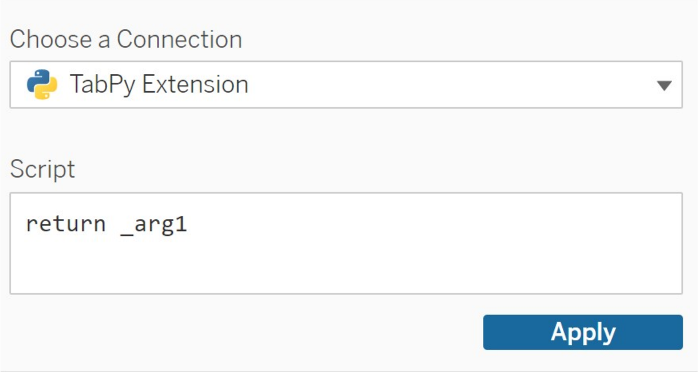
> **Note:** The workbook must be published before you can add a table extension.

2. Under **Sheets**, choose **New Table Extension**.


Connections
Sample - Superstore
Microsoft Excel
Sheets
☐ Use Data Interpreter
Data Interpreter may be able to clean your Microsoft Excel workbook.
Orders
People
Returns
People
Returns
New Union
New Table Extension

3. (Optional) Drag sheets into the table extension pane.

4. Under **Choose a Connection**, select an analytics extension.



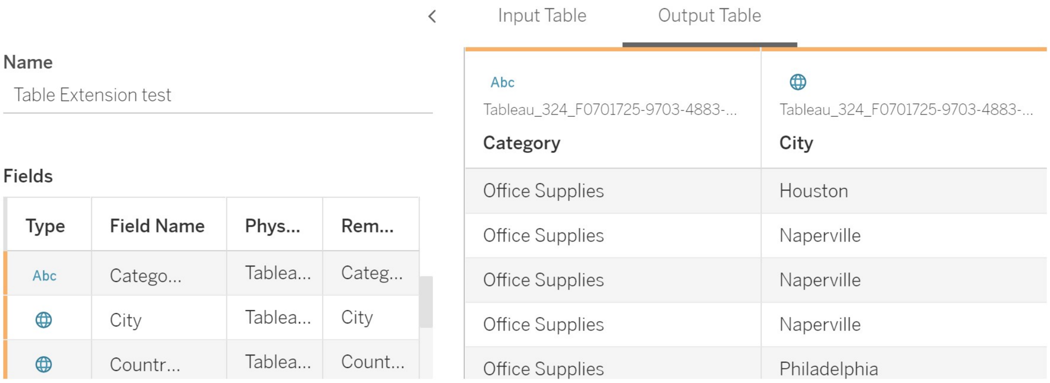
Choose a Connection

TabPy Extension

Script

```
return _arg1
```

5. In **Script**, enter your script.
6. Select **Apply**.
7. Choose **Update Now** and the results will appear in the **Output Table** tab.



Name

Table Extension test

Fields

Type	Field Name	Phys...	Rem...
Abc	Catego...	Tablea...	Categ...
🌐	City	Tablea...	City
🌐	Countr...	Tablea...	Count...

Abc Tableau_324_F0701725-9703-4883-... Category	🌐 Tableau_324_F0701725-9703-4883-... City
Office Supplies	Houston
Office Supplies	Naperville
Office Supplies	Naperville
Office Supplies	Naperville
Office Supplies	Philadelphia

8. In the **Name** field, enter a unique name for your new table extension.
9. Go to the sheet tab and publish the workbook to save it.

> **Note:** If you edit the input table you have to press **Apply** again before you can see or use the updated output table data.

Troubleshooting tip: If your table extension is hitting an error, try using the circular **Refresh Data Source** button, located next to the **Save** button.

Table Extensions vs Analytics Extensions

Tableau has a few different features with "extension" in the name. While some of these products aren't related, table extensions and analytics extensions are. The table extensions feature relies on a connection with a analytics extensions to work. Let's break down each feature.

Table Extensions

The table extensions feature lets you create workbook calculations that send data and a processing script to your analytics extension. The returned results are displayed as a table on the Data Source tab and as measures and dimensions in the workbook.

Analytics Extensions

The analytics extensions feature allows you to extend Tableau dynamic calculations with programming languages like Python, external tools, and external platforms. After you create a connection to an analytics extension, you can communicate with your external server through calculated fields. For more information, see Configure Connections with Analytics Extensions.

Configure Einstein Discovery Integration

Beginning March, 2021, Tableau Cloud supports integration with Einstein Discovery, making Einstein Discovery predictions available to authors and viewers of dashboards. Starting in version 2021.2.0, Einstein Discovery predictions is also now available when authoring flows on the web.

Einstein Discovery in Tableau is powered by salesforce.com. Consult your agreement with salesforce.com for applicable terms.

For details on how to use Einstein Discovery predictions in Tableau, including licensing and permission requirements, see Integrate Einstein Discovery Predictions in Tableau in the

Tableau Desktop and Web Authoring Help. For information about adding predictions in flows, see Add Einstein Discovery Predictions to your flow.

Einstein Discovery dashboard extension

The Einstein Discovery dashboard extension allow workbook authors to surface real-time predictions in Tableau. The dashboard extension delivers predictions interactively, on-demand, using source data in a Tableau workbook and an Einstein Discovery-powered model deployed in Salesforce.

By default Tableau Cloud site configuration allows saved OAuth access tokens, so the only step necessary is to configure Cross-Origin Resource Sharing (CORS) in the Salesforce org that hosts Einstein Discovery. This requires permissions in the Salesforce org. For details on necessary licenses and permissions, see Requirements for access - Einstein Discovery. For details on configuring CORS in Salesforce, see Configure CORS in Salesforce.com for Einstein Discover Integration in Tableau Cloud.

Einstein Discovery analytics extension

The Einstein Discovery analytics extension gives your users the ability to embed predictions directly in Tableau calculated fields. A table calc script requests predictions from a model deployed in Salesforce by passing its associated prediction ID and input data that the model requires. Use Model Manager in Salesforce to auto-generate a Tableau table calculation script, and then paste that script into a calculated field for use in a Tableau workbook.

By default Tableau Cloud site configuration allows saved OAuth access tokens, so the only step necessary is to configure Cross-Origin Resource Sharing (CORS) in the Salesforce org that hosts Einstein Discovery. This requires administrator permissions in the Salesforce org. For details, see Configure CORS in Salesforce.com for Einstein Discover Integration in Tableau Cloud.

Einstein Discovery Tableau Prep extension

Supported in Tableau Server and Tableau Cloud starting in version 2021.2.0

The Einstein Discovery Tableau Prep extension enables users to embed Einstein predictions directly in their flows when authoring flows on the web.

By default, Tableau Cloud site configuration allows saved OAuth access tokens, so the only step necessary is to enable Tableau Prep Extensions for the server. This requires administrator permissions in the Salesforce org. For details, see Enable Tableau Prep Extensions.

Configure CORS in Salesforce.com for Einstein Discover Integration in Tableau Cloud

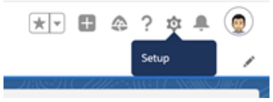
In version 2021.1.0 the ability to integrate Einstein Discovery predictions into Tableau Dashboards was added. You can do this using the Einstein Discovery dashboard extension. A prerequisite for this is configuring Cross-Origin Resource Sharing (CORS) in the Salesforce org that hosts Tableau CRM and includes the model and predictions that are going to be used.

This procedure explains how an administrator in a Salesforce.com organization would do this configuration. You can find more information about CORS in the Salesforce documentation, Configure Salesforce CORS Allowlist.

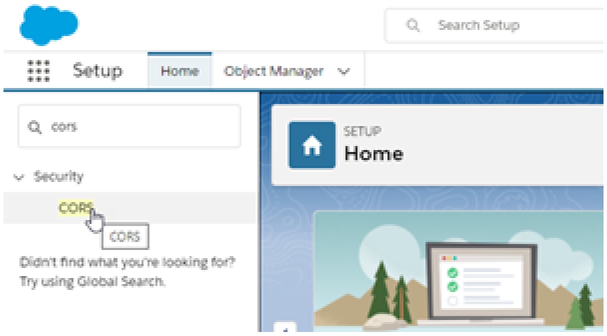
Configure CORS for Einstein Discovery.

Note: This procedure documents the process in Salesforce Lightning. If you are using the traditional interface, the navigation may be different but the configuration is the same.

1. Sign in to your Salesforce.com developer account, click your user name in the upper-right, and then select **Setup**.

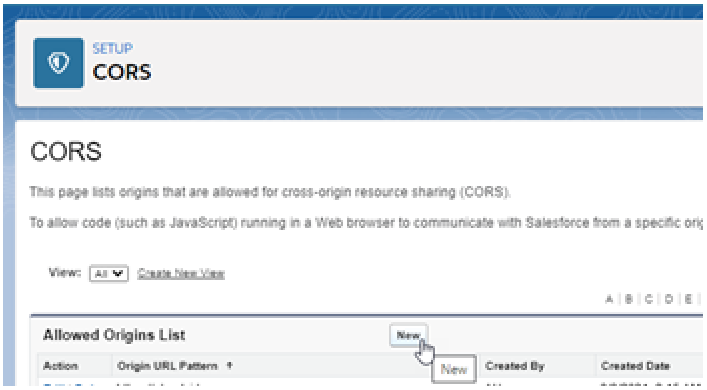


2. In the left navigation column, search for "cors" and select **CORS** .


Search Setup
Setup
Home
Object Manager
cors
Security
CORS
CORS
SETUP
Home

Didn't find what you're looking for?
Try using Global Search.

3. In **CORS**, in the **Allowed Origins List** section, click **New**.


SETUP
CORS
View: All
Create New View
A | B | C | D | E |
New
New
Action
Origin URL Pattern
Created By
Created Date

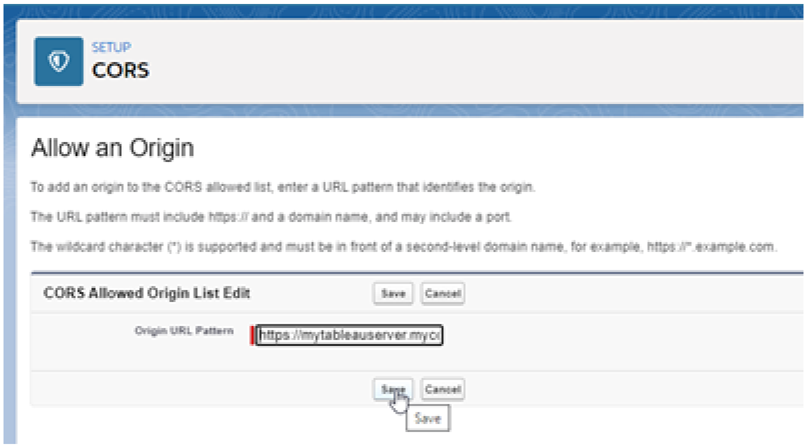
CORS

This page lists origins that are allowed for cross-origin resource sharing (CORS).

To allow code (such as JavaScript) running in a Web browser to communicate with Salesforce from a specific orig

Allowed Origins List

4. In **CORS Allowed Origin List Edit**, enter the URL of Tableau Cloud, beginning with "https://".


SETUP
CORS
Save
Cancel
Save
Cancel
Save

Allow an Origin

To add an origin to the CORS allowed list, enter a URL pattern that identifies the origin.

The URL pattern must include https:// and a domain name, and may include a port.

The wildcard character (*) is supported and must be in front of a second-level domain name, for example, https://*.example.com.

CORS Allowed Origin List Edit

Origin URL Pattern: https://mytableauserver.myc

For more information about the URL pattern, see the Salesforce developer documentation: https://developer.salesforce.com/docs/atlas.en-us.chatterapi.meta/chatterapi/extend_code_cors.htm

5. Click **Save**.

Integrate Tableau with a Slack Workspace

Beginning with version 2021.3, Tableau Server and Tableau Cloud support integration with the Tableau App for Slack, so your team can collaborate-share Tableau snapshots, search for Tableau content, and receive notifications about Tableau data–right where they're working in a Slack workspace.

The Tableau App for Slack lets you connect your Tableau site with a Slack workspace. After it's enabled, Tableau users can:

- See notifications in Slack when teammates share content with them, when they're mentioned in a comment, or when data meets a specified threshold in a data-driven alert. If a site administrator in Tableau Cloud or a server administrator in Tableau Server enables notifications on a site, users can control which notifications they receive in Slack by configuring their Account Settings.
- See a preview of a viz when a Tableau URL is pasted into Slack, allowing users to share data-related content with context directly in Slack.
- Search for Tableau views or workbooks in Slack DMs and channels.
- Access Recents and Favorites from the Tableau App for Slack.

For more information, see Receive Notifications, Search, and Share Using the Tableau App for Slack.

Note: Some notifications preferences might not be available if the features are turned off for your site. For example, if the User Visibility setting is set to Limited, notifications are turned off. For more information, see Site Settings Reference and Manage Site User Visibility.

To integrate Slack with your Tableau site, there are a few necessary configuration steps, including some in your Tableau site, and some in the Slack workspace you want to connect. This overview outlines these steps for both Tableau site administrators on Tableau Cloud or a Tableau Server Administrator on Tableau Server, and Slack workspace administrators.

Requirements

Enabling Tableau in Slack requires both a Slack workspace administrator and either a Tableau site administrator in Tableau Cloud, or a Tableau server administrator in Tableau Server.

Connect a Tableau Cloud site to a Slack workspace

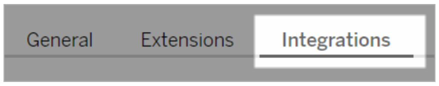
Tableau Cloud site administrators can connect one or more Tableau Cloud sites to a single Slack workspace. However, you can’t connect a Tableau site to more than one Slack workspace. Connecting consists of these tasks:

- **Tableau site administrator**: Request permission to the Slack workspace through Tableau's site settings.
- **Slack workspace administrator**: Add the Tableau App for Slack to a Slack workspace by approving a request from the Tableau administrator for permission to access the Slack workspace.
- **Tableau site administrator**: Connect your Tableau site to Slack.

Step 1: Request permission to the Slack workspace

Tableau site administrator

1. Sign in to the site you’d like to connect to Slack. On the **Settings** page of your site, select the **Integrations** tab.



2. Under **Slack Connectivity**, select **Connect to Slack**.
   Follow the prompt to sign in to your Slack workspace.
3. Request to install the Tableau App for Slack. This request goes to the Slack workspace administrator. You can add a message to the workspace administrator, if needed.

4. Select **Submit**.

   The Slack administrator receives a notification for the request. For more information about this process, see An Admin's Guide to Slack Management in Slack's documentation.

   Slackbot (Slack’s notifications center) will notify you when your request is approved.

Step 2: Add the Tableau App for Slack to the Slack workspace

Slack workspace administrator

Approve the request from the Tableau site administrator in **Manage Apps** to add the Tableau App for Slack to the Slack workspace.

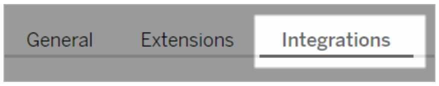
For more information, see An Admin's Guide to Slack Management in Slack's documentation.

Step 3: Connect your Tableau site to Slack

Tableau site administrator

After the Slack workspace administrator approves the Tableau application, a Tableau administrator can finalize the app's connection to a Tableau site.

1. From the **Settings** page of your site, select the **Integrations** tab.



2. Under **Slack Connectivity**, select **Connect to Slack**.
3. Follow the prompt to sign in to your Slack workspace.
4. Select **Allow** to give your Tableau site access to the Slack workspace.

The Tableau site and Slack workspace are now connected.

Disconnect a Tableau site from Slack

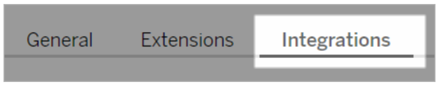
As a site admin, you can disconnect a Tableau site from a Slack workspace by selecting **Disconnect from Slack** in the **Integrations** tab of site settings. Users continue to receive notifications for some time. The OAuth client information you added in Step 2 is retained and can be used to connect to a new workspace, if needed.

As a Slack user, you can disconnect from Slack by selecting **Disconnect from Tableau** from the **Home** tab in the Tableau App for Slack.

Update your Tableau App for Slack

When a new version of the Tableau App for Slack is available, Tableau recommends updating the application to maintain app performance and use new features.

To update the Tableau App for Slack:

1. From the **Settings** page of your site, select the **Integrations** tab.


2. Under **Slack Connectivity**, select **Connect to Slack**.
3. Select **Update**.

> **Note:** App updates applied by any Tableau admin affect all Tableau sites connected to the same workspace.

Troubleshoot the Tableau App for Slack

It’s a best practice to Manage app approvals for your Slack workspace. However, if your Slack workspace allows users who aren’t admins to remove apps, it’s possible that a user can remove the Tableau App for Slack for the site. In this scenario, other users will see the Tableau App for Slack, but its features won’t work as expected. To resolve this issue, have your Slack admin uninstall and reinstall the Tableau App for Slack. Then, have your admin follow the steps to connect Slack with your Tableau site.

If the preview of your Tableau link isn't unfurling in Slack, confirm that the **files:read** token allows **Bots** in the Tableau app for Slack Permissions Scopes.

Receive Notifications, Search, and Share Using the Tableau App for Slack

The Tableau App for Slack lets you work and collaborate right where you work in Slack. In Tableau 2023.1 or later, you can search for views and workbooks, and easily access your favorite and recently viewed Tableau content from the Tableau App for Slack. With the Tableau App for Slack, you can also see snapshots of visualizations, with links back to your Tableau site for further exploration. Some features (such as sharing and searching Tableau content from Slack) aren't yet available in Tableau Server. Currently, Tableau Server users can receive notifications.

In Tableau 2021.3 and later, you can get Tableau notifications in Slack for data-driven alerts, sharing activity, and comment mentions. If the notification contains a view or workbook you have access to, the notification will also contain a visual snapshot.

Administrators can connect their Tableau site to a Slack workspace to enable the Tableau App for Slack for their entire organization. For more information, see "Integrate Tableau with a Slack Workspace" in the Tableau Cloud or Tableau Server help.

After your Tableau admin connects your Tableau site to a Slack workspace:

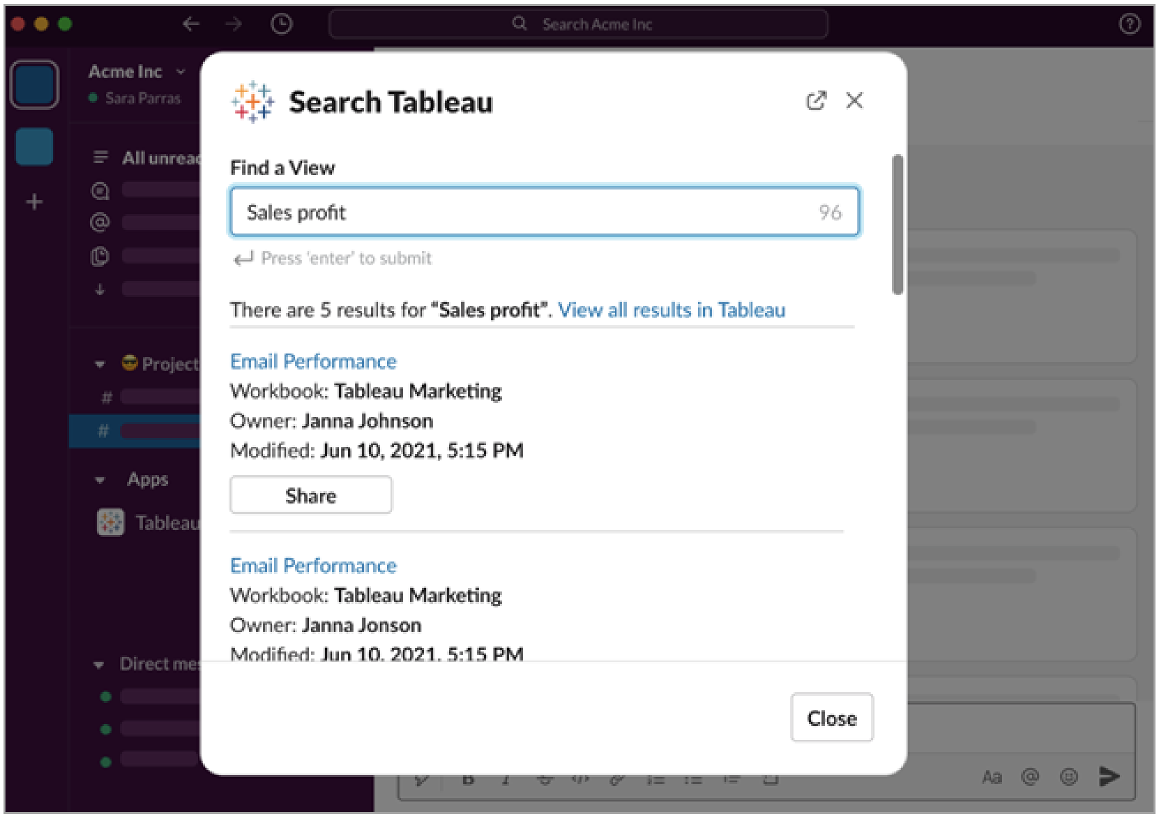
1. Add the Tableau App for Slack.
2. Select **Connect to Tableau**.
3. Log in to your Tableau site.
4. Authorize the app by choosing **Allow**.

Note: For information about privacy, see the Privacy Policy.

Search, share, and access recents and favorites from Slack

From the Tableau App for Slack **Home** tab, you can search for views and workbooks on your Tableau Cloudsite.

After you’ve found the Tableau content you’re looking for, select the name of the Tableau content to open it directly in Tableau or select Share to send the content to an individual or Slack channel. You can also write a custom message to provide context about the Tableau content you’re sharing.



Search Tableau

Find a View

Sales profit 96

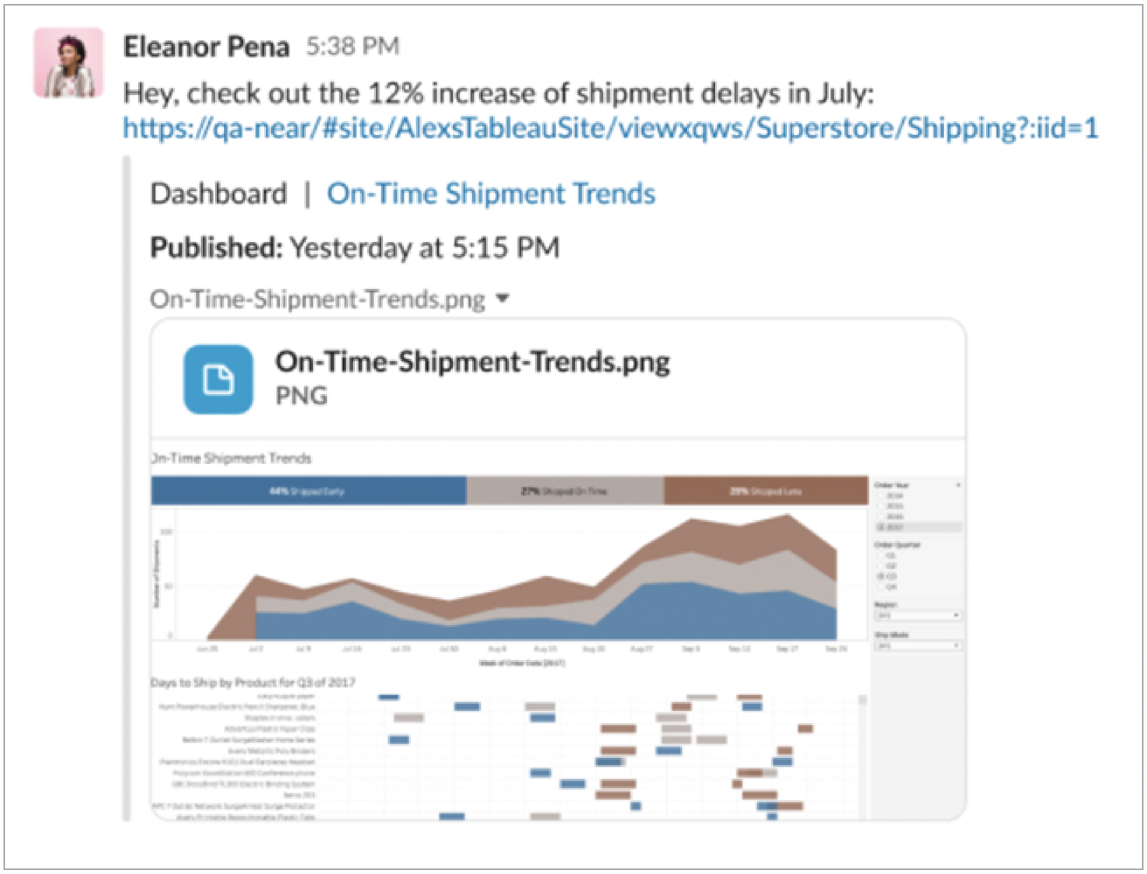
Press 'enter' to submit

There are 5 results for **“Sales profit”**. View all results in Tableau

Email Performance
Workbook: **Tableau Marketing**
Owner: **Janna Johnson**
Modified: **Jun 10, 2021, 5:15 PM**

Email Performance
Workbook: **Tableau Marketing**
Owner: **Janna Jonson**
Modified: **Jun 10, 2021, 5:15 PM**

Choose **Share with Snapshot** to include a preview (Slack link unfurling) of the Tableau content in your message. You can share a snapshot if the Tableau content doesn't contain filters that restrict data access (for example, row-level security). The snapshot is visible to all people you share it with, regardless of their access level.



Eleanor Pena 5:38 PM

Hey, check out the 12% increase of shipment delays in July:
https://qa-near/#site/AlexsTableauSite/viewxqws/Superstore/Shipping?:iid=1

Dashboard | On-Time Shipment Trends

Published: Yesterday at 5:15 PM

On-Time-Shipment-Trends.png ▾

On-Time-Shipment-Trends.png
PNG

And without leaving Slack, you can access recently viewed Tableau content and your Tableau favorites. From the Tableau App for Slack **Home** tab, you see the five Tableau views or workbooks you visited most recently. You can also access five of your favorite Tableau views or workbooks.

Select the name of the Tableau view or workbook to open it directly in Tableau, or select the more actions menu (...) to share favorite or recently viewed Tableau content.

Receive Tableau notifications in Slack

Comments

Get notified when you're @mentioned in a comment to keep the conversation going. For more information, see Comment on Views.

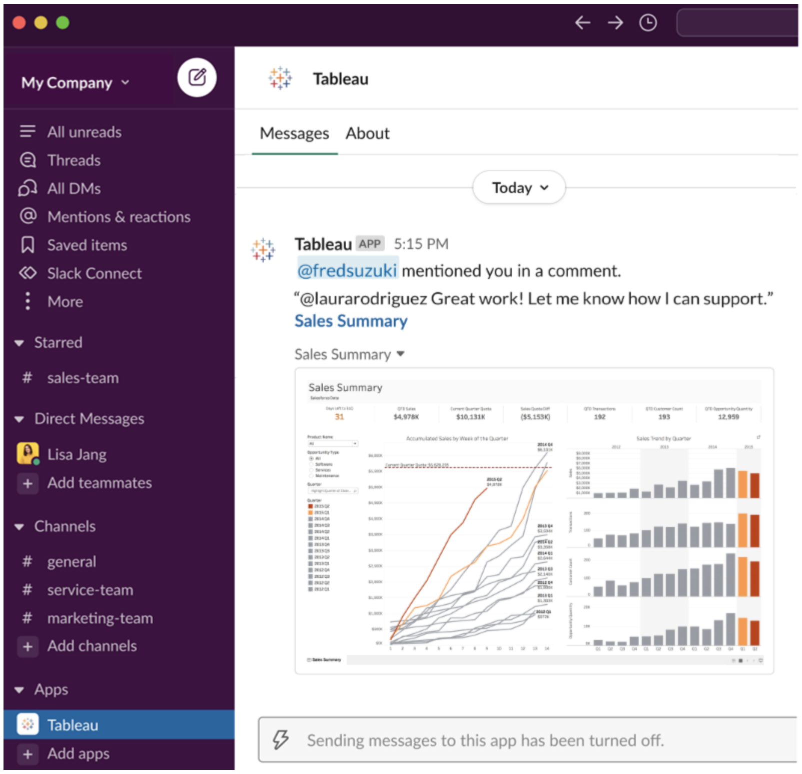

My Company
All unreads
Threads
All DMs
Mentions & reactions
Saved items
Slack Connect
More
Starred
sales-team
Direct Messages
Lisa Jang
Add teammates
Channels
general
service-team
marketing-team
Add channels
Apps
Tableau
Add apps
Tableau
Messages
About
Today
Sales Summary
Sales Summary

Tableau APP 5:15 PM

@fredsuzuki mentioned you in a comment.

“@laurarodriguez Great work! Let me know how I can support.”

Sales Summary

Sending messages to this app has been turned off.

Share

See when a teammate sends a Tableau asset your way, including views, workbooks, and more. For more information about sharing, see Share Web Content.

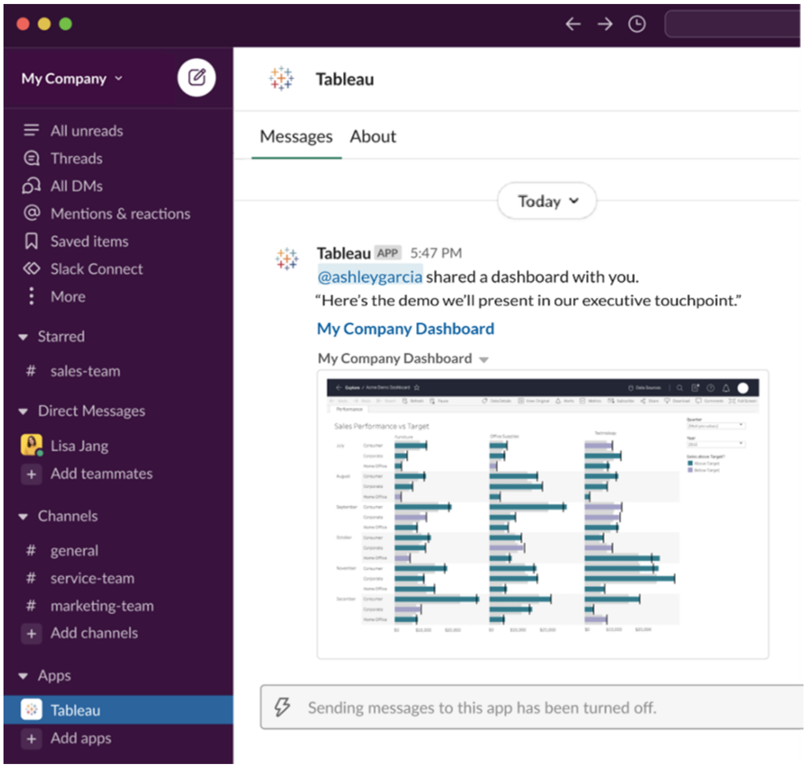

My Company
All unreads
Threads
All DMs
Mentions & reactions
Saved items
Slack Connect
More
Starred
# sales-team
Direct Messages
Lisa Jang
Add teammates
Channels
# general
# service-team
# marketing-team
Add channels
Apps
Tableau
Add apps
Tableau
Messages
About
Today

Tableau APP 5:47 PM
@ashleygarcia shared a dashboard with you.
"Here's the demo we'll present in our executive touchpoint."
My Company Dashboard

My Company Dashboard

Sending messages to this app has been turned off.

Data-driven Alerts

You can specify a threshold for your data and get alerted when it's met. For more information, see Send Data-Driven Alerts from Tableau Cloud or Tableau Server.

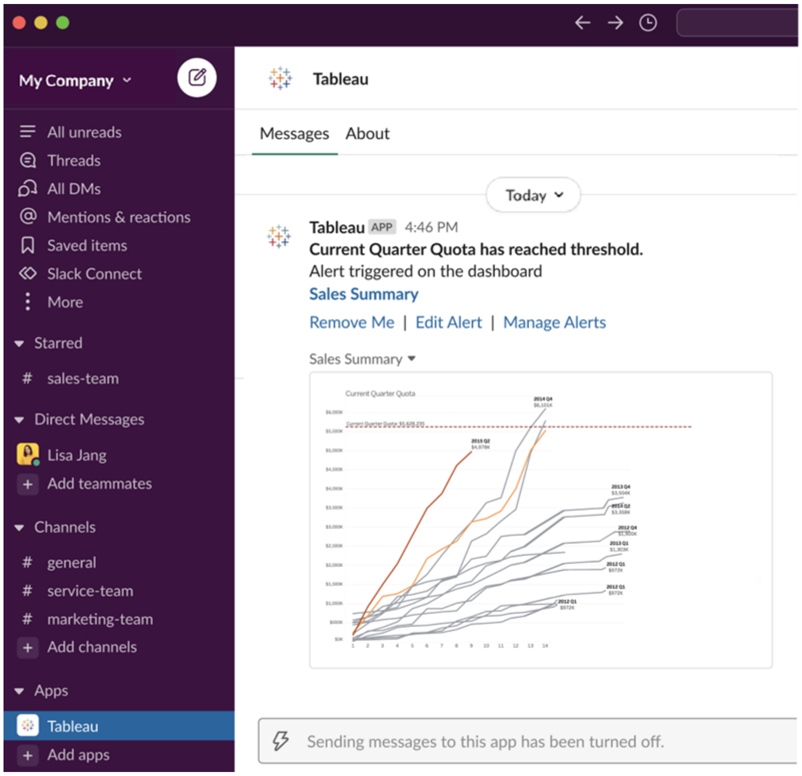

My Company
All unreads
Threads
All DMs
Mentions & reactions
Saved items
Slack Connect
More
Starred
sales-team
Direct Messages
Lisa Jang
Add teammates
Channels
general
service-team
marketing-team
Add channels
Apps
Tableau
Add apps
Tableau
Messages
About
Today
Sales Summary
Current Quarter Quota

Tableau APP 4:46 PM

Current Quarter Quota has reached threshold.

Alert triggered on the dashboard

Sales Summary

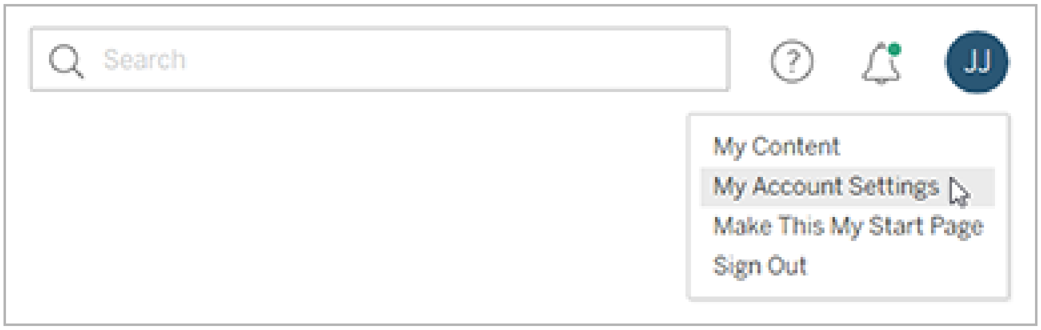
Remove Me | Edit Alert | Manage Alerts

Sending messages to this app has been turned off.

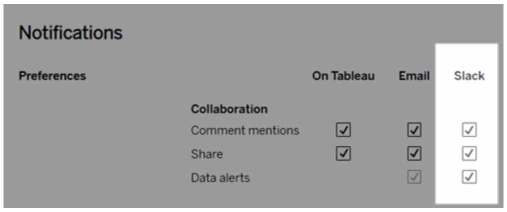
Manage Tableau notifications for Slack

Your Tableau site admin can turn on or off all notifications across the site. Tableau admins and Slack workspace admins integrate your Tableau site with Slack, and control whether site users can receive notifications. If it's enabled and your Tableau site administrator allows notifications, all site users can receive notifications in Slack through the Tableau App for Slack. Sometimes notification preferences aren't available because the site has other settings configured that affect notifications.

To control which notifications appear in your Slack workspace, or to turn off Slack notifications, at the top of a page, click your profile image or initials, and then select **My Account Settings**.



Under Notifications, select or clear the check boxes under **Slack** for comment mentions, share, and data alerts.



Notifications

Preferences		On Tableau	Email	Slack
	Collaboration			
	Comment mentions	☑	☑	☑
	Share	☑	☑	☑
	Data alerts		☑	☑

Select **Save Changes**.

For more information, see **Change notification settings** in Manage Your Account Settings.

Automate Tasks Using tabcmd

Automate site administration tasks on your Tableau Cloud site with the tabcmd command-line utility. For example, you can use tabcmd to create or delete users, projects, and groups. The topics in this section contain information about installing and using tabcmd commands.

tabcmd

Important: Between August 2024 and March 2025, Tableau Cloud sites were migrated to Salesforce's Hyperforce. As a result of the migration, tabcmd 1.0 is no longer supported. Plan your migration to tabcmd 2.0 as soon as possible to ensure you will not be impacted. This retirement does not impact Tableau Server.

Note: In most cases, you must use tabcmd command-line utility 2.0 (tabcmd 2.0) with Tableau Cloud. Tabcmd 2.0 is available at Tableau tabcmd. This new version allows you to: run tabcmd commands on MacOS and Linux, authenticate using personal access tokens (PATs), and allows you to be multi-factor authentication (MFA) compliant. Version 2.0 is built on public endpoints available in the Python-based Tableau Server Client (TSC).

Tableau provides the tabcmd command-line utility which you can use to automate site administration tasks on your Tableau Cloud site. For example, creating or deleting users, projects, and groups.

Important: tabcmd 1.0 does not support multi-factor authentication (MFA). To use tabcmd with Tableau Cloud, use Tableau tabcmd 2.0 (new window). For more information about Tableau Cloud and MFA, see Multi-Factor Authentication and Tableau Cloud.

Install tabcmd

Note: These instructions are for installing the tabcmd 1.0 command-line utility. To install the tabcmd 2.0 command-line utility, go to Tableau tabcmd (new window).

When Tableau Server or Tableau Cloud is upgraded to a new version, if an updated version of tabcmd is required, you can download it from the Tableau *Server* Releases page on the Tableau website.

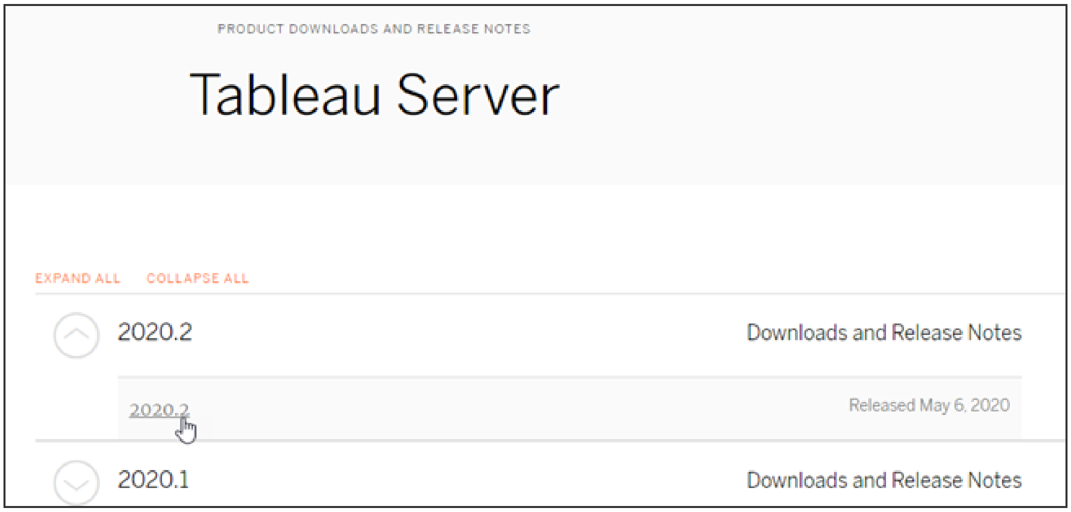
For Tableau Server, we recommend you download the version that matches your server version. For Tableau Cloud, we recommend you always download the latest version to avoid issues caused by version incompatibilities. In either case, using an out of date version of tabcmd can cause errors and unpredictable results.

1. Open a web browser and go to the Tableau Server Releases page. Go to this page even if you use Tableau Online.

2. If you're using:

- **Tableau Cloud**, use Tableau tabcmd 2.0 (new window).
- **Tableau Server (Windows or Linux):** select the release that matches your server version.

In either case, if the expanded information shows maintenance releases, select the latest maintenance release or the one that matches your server version.



PRODUCT DOWNLOADS AND RELEASE NOTES

Tableau Server

EXPAND ALL COLLAPSE ALL

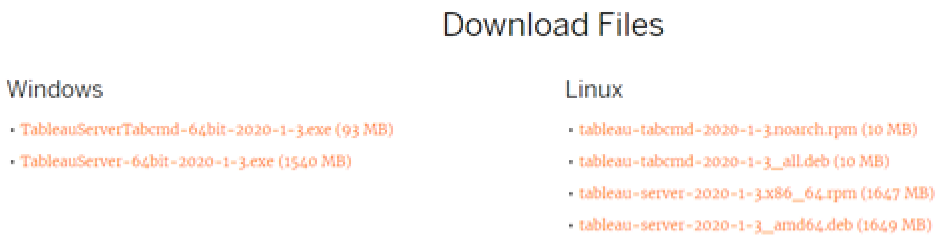
2020.2 Downloads and Release Notes

2020.2 Released May 6, 2020

2020.1 Downloads and Release Notes

This takes you to the release notes page, called Resolved Issues, where you can read about security improvements and resolved issues.

3. Scroll to the **Download Files** section under the resolved issues, select the tabcmd download link that is compatible with the computer on which you'll run the tabcmd commands.



Download Files

Windows

- TableauServerTabcmd-64bit-2020-1-3.exe (93 MB)
- TableauServer-64bit-2020-1-3.exe (1540 MB)

Linux

- tableau-tabcmd-2020-1-3.noarch.rpm (10 MB)
- tableau-tabcmd-2020-1-3_all.deb (10 MB)
- tableau-server-2020-1-3.x86_64.rpm (1647 MB)
- tableau-server-2020-1-3_amd64.deb (1649 MB)

The remaining steps refer to this computer as “the tabcmd computer.”

4. Save the installer to the tabcmd computer, or a location accessible from that computer .

5. Complete the installation steps as appropriate for the operating system of the tabcmd computer:

- ## Windows

  By default tabcmd is installed to `C:\Program Files\Tableau\Tableau Server\<version>\extras\Command Line Utility`. You can change this during installation and recommend that you install tabcmd to a folder named `tabcmd` at the root of the C:\ drive (`C:\tabcmd`). This can make it easier to locate and run, and will accommodate some limitations with the Windows operating system if you add the tabcmd directory to the Windows PATH.

  > **Note** The tabcmd Setup program does not add the tabcmd directory to the Windows PATH variable. You can add it manually, or you can include the full path to tabcmd each time you call it.

  You can install tabcmd in two ways on Windows:

  - Double-click the installer to follow the steps in the UI:

    a. Accept the license agreement.

    b. If you want to install to a non-default location, click **Customize** and type or browse to the location you want to install tabcmd to.

    c. Click **Install**.

       If you are prompted by Windows Defender Firewall or User Account Control, click **Allow access**.

  - Run the installer from a command prompt:

a. Open a command prompt as administrator on the tabcmd computer.

b. Navigate to the directory where you copied the tabcmd installer.

c. Install tabcmd:

   ```
   tableau-setup-tabcmd-tableau-<version_code>-x64.exe /quiet ACCEPTEULA=1
   ```

   To install to a non-default location:

   ```
   tableau-setup-tabcmd-tableau-<version_code>-x64.exe /quiet ACCEPTEULA=1 INSTALLDIR="<path\to\install\directory>"
   ```

   For example:

   ```
   tableau-setup-tabcmd-tableau-<version_code>-x64.exe /quiet ACCEPTEULA=1 INSTALLDIR="C:\tabcmd"
   ```

   For a complete list of command line options you can use with the tabcmd installer, run the installer with a /?. For more information on tabcmd installer command line options, see Install Switches and Properties for tabcmd (Windows).

The tabcmd Setup program creates logs in `C:\Users\<user>\AppData\Local\Temp` you can use if you have problems installing tabcmd. The logs use the naming convention `Tableau_Server_Command_Line_Utility_(<version_code>)_##############.log`.

- ## Linux

> **Note:** To run tabcmd on a Linux computer, you must have Java 11 installed. On RHEL-like systems, this will be installed as a dependency when you install tabcmd. On Ubuntu systems, you need to install Java 11 separately if it is not already installed.
>
> As of July 2022, Debian distributions are no longer supported. For more information, see this Tableau Community post.

a. Log on as a user with sudo access to the tabcmd computer.

b. Navigate to the directory where you copied the `.rpm` or `.deb` package that you downloaded.

   - On RHEL-like distributions, including CentOS, run the following command:

     ```
     sudo yum install tableau-tabcmd-<version>.noarch.rpm
     ```

   - On Ubuntu, run the following command:

     ```
     sudo apt-get install ./tableau-tabcmd-<version>_all.deb
     ```

To uninstall tabcmd from a Linux computer, see the documentation for the Linux variety you are running.

6. (Optional) Add the fully qualified location where tabcmd is installed to your system path to allow you to run tabcmd commands without changing to that location, or specifying the location with each command. Steps to do this depend on the type and version of your operating system. For more information, see PATH_(variable).

How to use tabcmd

The basic steps for using tabcmd are as follows:

1. Open the Command Prompt as an administrator.

   > **Note:** Do not use PowerShell to run tabcmd commands on Windows. Using PowerShell can cause unexpected behavior.

2. On a Windows computer, if you installed tabcmd on a computer other than the initial node, change to the directory where you installed tabcmd.

   On a Linux computer, you do not need to change to the install directory.

3. Run the tabcmd command.

When you use tabcmd, you must establish an authenticated server session. The session identifies the server or Tableau Cloud site and the user running the session. You can start a session first, and then specify your command next, or you can start a session and execute a command all at once.

> **Important:** If you are using tabcmd to perform more than one task, you must run tasks one after another (serially), rather than at the same time (in parallel).

Commands (such as `login`) and the options (such as `-s`, `-u`, etc.) are not case sensitive, but the values you provide (such as `User@Example.com`) are case sensitive.

Examples

The following command demonstrates starting a session:

```
tabcmd login -s https://prod-useast-b.online.tableau.com -t mysite
-u authority@email.com -p password
```

Here's how to start a session and delete a workbook with one command—note that you do not need `login` here:

```
tabcmd delete "Sales_Workbook" -s https://prod-useast-b.on-
line.tableau.com -t campaign -u admin@email.com -p password
```

The options `-s`, `-t`, `-u`, and `-p` are among the tabcmd global variables, which can be used with any command.

For more information, see tabcmd Commands.

tabcmd Commands

Important: Between August 2024 and March 2025, Tableau Cloud sites were migrated to Salesforce's Hyperforce. As a result of the migration, tabcmd 1.0 is no longer supported. Plan your migration to tabcmd 2.0 as soon as possible to ensure you will not be impacted. This retirement does not impact Tableau Server.

Note: In most cases, you must use tabcmd command-line utility 2.0 (tabcmd 2.0) with Tableau Cloud. Tabcmd 2.0 is available at Tableau tabcmd. This new version allows you to: run tabcmd commands on MacOS and Linux, authenticate using personal access tokens (PATs), and allows you to be multi-factor authentication (MFA) compliant. Version 2.0 is built on public endpoints available in the Python-based Tableau Server Client (TSC).

You can use the following commands with the tabcmd command line tool in Tableau Cloud:

login

logout

get *url*

addusers (to group)

creategroup

deletegroup

export

createproject

deleteproject

publish

createextracts

refreshextracts

deleteextracts

delete *workbook-name* or *datasource-name*

createsiteusers

deletesiteusers

removeusers

version

addusers *group-name*

Adds users to the specified group.

Example

```
tabcmd addusers "Development" --users "users.csv"
```

Options

`--users`

> Add the users in the given `.csv` file to the specified group. The file should be a simple list with one user name per line. User names aren't case sensitive. The users should already be created on Tableau Cloud.
>
> For more information, see CSV Import File Guidelines.

`--[no-]complete`

When set to `complete` this option requires that all rows be valid for any change to succeed. If not specified, `--complete` is used.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

createextracts

Creates extracts for a published workbook or data source.

Options

`-d, --datasource`

The name of the target data source for extract creation.

`--embedded-datasources`

A space-separated list of embedded data source names within the target workbook. Enclose data source names with double quotes if they contain spaces. Only available when creating extracts for a workbook.

`--encrypt`

Create encrypted extract.

`--include-all`

Include all embedded data sources within target workbook. Only available when creating extracts for workbook.

`--parent-project-path`

Path of the project that is the parent of the project that contains the target resource. Must specify the project name with --project.

`--project`

The name of the project that contains the target resource. Only necessary if --workbook or --datasource is specified. If unspecified, the default project 'Default' is used.

`-u, -url`

The canonical name for the resource as it appears in the URL.

`-w, -workbook`

The name of the target workbook for extract creation.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

creategroup *group-name*

Creates a group. Use `addusers` to add users after the group has been created.

Example

```
tabcmd creategroup "Development"
```

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

createproject *project-name*

Creates a project.

Example

```
tabcmd createproject -n "Quarterly_Reports" -d "Workbooks showing
quarterly sales reports."
```

Options

`-n, --name`

Specifies the name of the project that you want to create.

`--parent-project-path`

Specifies the name of the parent project for the nested project as specified with the `-n` option. For example, to specify a project called "Nested" that exists in a "Main" project, use the following syntax: `--parent-project-path "Main" -n "Nested"`.

`-d, --description`

Specifies a description for the project.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

createsiteusers *filename.csv*

Adds users to a site, based on information supplied in a comma-separated values (CSV) file. If the user isn't already created on the server, the command creates the user before adding that user to the site.

The CSV file must contain one or more user names and can also include (for each user) a password, full name, license type, administrator level, publisher (yes/no), and email address. For information about the format of the CSV file, see CSV Import File Guidelines.

As an alternative to including administrator level and publisher permissions in the CSV file, you can pass access level information by including the `--role` option and specifying the site role you want to assign users listed in the CSV file.

By default, users are added to the site that you're logged in to. To add users to a different site, include the global `--site` option and specify that site. (You must have permissions to create users on the site you specify.)

Example

```
tabcmd createsiteusers "users.csv" --role "Explorer"
```

Options

`--admin-type`

Deprecated. Use the `--role` option instead.

`--auth-type`

Sets the authentication type (`TableauID` or `SAML`) for all users in the `.csv` file. If unspecified, the default is `TableauID`.

Note: To use SAML authentication, the site itself must be SAML-enabled as well. For information, see Enable SAML Authentication on a Site or TCM.

`--[no-]complete`

Deprecated. Default error behavior: if there are more than 3 errors within a ten-row span, then the command will fail.

`--no-publisher`

Deprecated. Use the `--role` option instead.

`--nowait`

Don't wait for asynchronous jobs to complete.

`--publisher`

Deprecated. Use the `--role` option instead.

`--role`

Specifies a site role for all users in the `.csv` file. When you want to assign site roles using the --role option, create a separate CSV file for each site role.

Valid values are: `ServerAdministrator`, `SiteAdministratorCreator`, `SiteAdministratorExplorer`, `SiteAdministrator`, `Creator`, `ExplorerCanPublish`, `Publisher`, `Explorer`, `Interactor`, `Viewer`, and `Unlicensed`.

The default is `Unlicensed` for new users and unchanged for existing users. Users are added as unlicensed also if you have a user-based server installation, and if the `createsiteusers` command creates a new user, but you have already reached the limit on the number of licenses for your users.

> **Note:** On a multi-site Tableau Server, if you want to assign the `ServerAdministrator` site role using the `--role` option, use the `createusers` command instead of `createsiteusers`.

`--silent-progress`

Don't display progress messages for the command.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

delete *workbook-name* or *datasource-name*

Deletes the specified workbook or data source from the server.

This command takes the name of the workbook or data source as it is on the server, not the file name when it was published.

Example

```
tabcmd delete "Sales_Analysis"
```

Options

`-r, --project`

The name of the project containing the workbook or data source you want to delete. If not specified, the “Default” project is assumed.

`--parent-project-path`

Specifies the name of the parent project for the nested project as specified with the `-r` option. For example, to specify a project called "Nested" that exists in a "Main" project, use the following syntax: `--parent-project-path "Main" -r "Nested"`.

`--workbook`

The name of the workbook you want to delete.

`--datasource`

The name of the data source you want to delete.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

deleteextracts

Deletes extracts for a published workbook or data source.

Options

`-d, --datasource`

The name of the target data source for extract deletion.

`--embedded-datasources`

A space-separated list of embedded data source names within the target workbook. Enclose data source names with double quotes if they contain spaces. Only available when deleting extracts for a workbook.

`--encrypt`

Create encrypted extract.

`--include-all`

Include all embedded data sources within target workbook.

`--parent-project-path`

Path of the project that is the parent of the project that contains the target resource. Must specify the project name with --project.

`--project`

The name of the project that contains the target resource. Only necessary if --workbook or --datasource is specified. If unspecified, the default project 'Default' is used.

`-u, -url`

The canonical name for the resource as it appears in the URL.

`-w, -workbook`

The name of the target workbook for extract deletion.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

deletegroup *group-name*

Deletes the specified group from the server.

Example

```
tabcmd deletegroup "Development"
```

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

deleteproject *project-name*

Deletes the specified project from the server.

Using `tabcmd`, you can specify only a top-level project in a project hierarchy. To automate tasks you want to perform on a project within a parent project, use the equivalent Tableau REST API call.

Example

```
tabcmd deleteproject "Designs"
```

Option

`--parent-project-path`

Specifies the name of the parent project for the nested project as specified with the command. For example, to specify a project called "Designs" that exists in a "Main" project, use the following syntax: `--parent-project-path "Main" "Designs"`.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

deletesiteusers *filename.csv*

Removes users from from the site that you're logged in to. The users to be removed are specified in a file that contains a simple list of one user name per line. (No additional information is required beyond the user name.)

By default, if the server has only one site, or if the user belongs to only one site, the user is also removed from the server. On a Tableau Server Enterprise installation, if the server contains multiple sites, users who are assigned the site role of **Server Administrator** are removed from the site but aren't removed from the server.

If the user owns content, the user's role is change to **Unlicensed**, but the user isn't removed from the server or the site. The content is still owned by that user. To remove the user completely, you must change the owner of the content and then try removing the user again.

Example

```
tabcmd deletesiteusers "users.csv"
```

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

export

Exports a view or workbook from Tableau Cloud and saves it to a file. This command can also export just the data used for a view. View data is exported at the summary level. To export detail-level data, you must use the Tableau Server UI. For details, see Download Views and Workbooks.

Note the following when you use this command:

- **Permissions**: To export, you must have the **Export Image** permission. By default, this permission is Allowed or Inherited for all roles, although permissions can be set per workbook or view.
- **Exporting data**: To export just the data for a view, use the `--csv` option. This exports the summary data used in a view to a .csv file.
- **Specifying the view, workbook, or data to export**:
  - Use part of the URL to identify what to export, specifically the `"workbook/view"` string as it appears in the URL for the workbook or view. Don't use the “friendly name,” and exclude the `:iid=<n>` session ID at the end of the URL.

    For example, the Tableau sample view *Order Details* in the *Superstore* workbook has a URL similar to this: `<server_name>/#/views/Superstore/OrderDetails?:iid=2`

    To export the *Order Details* view, use the string `Superstore/OrderDetails`.

    Do *not* use `Superstore/Order Details`, or `Superstore/OrderDetails?:iid=2`.
  - If the server is running multiple sites and the view or workbook is on a site other than Default, Use `-t <site_id>`.
  - To export a workbook, get the URL string by opening a view in the workbook, and include the view in the string you use.

    In the above example, to export the *Superstore* workbook, use the string `Superstore/OrderDetails`.
  - To export a workbook, it must have been published with **Show Sheets as Tabs** selected in the Tableau Desktop Publish dialog box.

    Note: The Tableau workbook that contains the admin views can't be exported.

  - To filter the data you download, add a parameter filter using this format:

    `?<filter_name>=value`

    or, if filtering on a parameter and that parameter has a display name that matches the name of a measure or dimension:

    `?Parameters.<filter_name>=value`

- **The saved file's format**: Your format options depend on what's being exported. A workbook can only be exported as a PDF using the `--fullpdf` argument. A view can be exported as a PDF (`--pdf`) or a PNG (`--png`).

- **The saved file's name and location** (optional): If you don't provide a name, it will be derived from the view or workbook name. If you don't provide a location, the file will be saved to your current working directory. Otherwise, you can specify a full path or one that's relative to your current working directory.

  Note: You must include a file name extension such as `.csv` or `.pdf`. The command doesn't automatically add an extension to the file name that you provide.

- **Dashboard web page objects not included in PDF exports**: A dashboard can optionally include a web page object. If you're performing an export to PDF of a dashboard that includes a web page object, the web page object won't be included in the PDF.

- **Non-ASCII and non-standard ASCII characters and PDF exports**: If you're exporting a view or workbook with a name that includes a character outside the ASCII character set, or a non-standard ASCII character set, you need to URL encode (percent-encode) the character.

  For example if your command includes the city `Zürich`, you need to URL encode it as `Z%C3%BCrich`:

```
tabcmd export "/Cities/Sheet1?locationCity=Z%C3%BCrich" -full-
pdf
```

Clearing the Cache to Use Real-Time Data

You can optionally add the URL parameter `?:refresh=yes` to force a fresh data query instead of pulling the results from the cache. If you're using tabcmd with your own scripting and the `refresh` URL parameter is being used a great deal, this can have a negative impact on performance. It's recommended that you use `refresh` only when real-time data is required—for example, on a single dashboard instead of on an entire workbook.

Examples

Views

```
tabcmd export "Q1Sales/Sales_Report" --csv -f "Weekly-Report.csv"
```

```
tabcmd export -t Sales "Sales/Sales_Analysis" --pdf -f "C:\Tableau_
Workbooks\Weekly-Reports.pdf"
```

```
tabcmd export "Finance/InvestmentGrowth" --png
```

```
tabcmd export "Finance/InvestmentGrowth?:refresh=yes" --png
```

Workbooks

```
tabcmd export "Q1Sales/Sales_Report" --fullpdf
```

```
tabcmd export "Sales/Sales_Analysis" --fullpdf --pagesize tabloid -f
"C:\Tableau_Workbooks\Weekly-Reports.pdf"
```

Options

`-f, --filename`

Saves the file with the given filename and extension.

`--csv`

View only. Export the view's data (summary data) in `.csv` format.

`--pdf`

View only. Export as a PDF.

`--png`

View only. Export as an image in `.png` format.

`--fullpdf`

Workbook only. Export as a PDF. The workbook must have been published with **Show Sheets as Tabs** enabled.

`--pagelayout`

Sets the page orientation (`landscape` or `portrait`) of the exported PDF. If not specified, its Tableau Desktop setting will be used.

`--pagesize`

Sets the page size of the exported PDF as one of the following: `unspecified`, `letter`, `legal`, `note folio`, `tabloid`, `ledger`, `statement`, `executive`, `a3`, `a4`, `a5`, `b4`, `b5`, or `quarto`. Default is `letter`.

`--width`

Sets the width in pixels. Default is 800 px.

`--height`

Sets the height in pixels. Default is 600 px.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

get *url*

Gets the resource from Tableau Cloud that's represented by the specified (partial) URL. The result is returned as a file.

Note the following when you use this command:

- **Permissions**: To get a file, you must have the **Download/Web Save As** permission. By default, this permission is allowed or inherited for all roles, although permissions can be set per workbook or view.

- **Specifying a view or workbook to get**: You specify a view to get using the `"/views/<workbookname>/<viewname>.<extension>"` string, and specify a workbook to get using the `"/workbooks/<workbookname>.<extension>"` string. Replace `<workbookname>` and `<viewname>` with the names of the workbook and view as they appear in the URL when you open the view in a browser and replace <extension> with the type of file you want to save. Don't use the session ID at the end of the URL (`?:iid=<n>`) or the "friendly" name of the workbook or view.

  For example, when you open a view *Regional Totals* in a workbook named *Metrics Summary*, the URL will look similar to this:

  `/views/MetricsSummary_1/RegionalTotals?:iid=1`

  Use the string `/views/MetricsSummary_1/RegionalTotals.<extension>` to get the view.

  Use the string `/workbooks/MetricsSummary_1.<extension>` to get the workbook.

  When downloading workbooks and views from Tableau Cloud, the content of the .twb or .twbx file is stored in plain text. All data, including filter values that may give semantic clues to the data, will be readable by anyone who opens the file.

- **File extension**: The URL must include a file extension. The extension determines what's returned. A view can be returned in PDF, PNG, or CSV (summary data only) format. A Tableau workbook is returned as a TWB if it connects to a published data source or uses a live connection, or a TWBX if it connects to a data extract.

> **Note**: If you're downloading a view to a PDF or PNG file, and if you include a `--filename` parameter that includes the .pdf or .png extension, you don't have to include a .pdf or .png extension in the URL.

- **The saved file's name and location** (optional): The name you use for `--filename` should include the file extension. If you don't provide a name and file extension, both will be derived from the URL string. If you don't provide a location, the file is saved to your current working directory. Otherwise, you can specify a full path or one that's relative to your current working directory.
- **PNG size** (optional): If the saved file is a PNG, you can specify the size, in pixels, in the URL.

Clearing the cache to use real-time data

You can optionally add the URL parameter `?:refresh=yes` to force a fresh data query instead of pulling the results from the cache. If you're using tabcmd with your own scripting, using the `refresh` parameter a great deal can have a negative impact on performance. It's recommended that you use `refresh` only when real-time data is required—for example, on a single dashboard instead of on an entire workbook.

Examples

Views

```
tabcmd get "/views/Sales_Analysis/Sales_Report.png" --filename
"Weekly-Report.png"
```

```
tabcmd get "/views/Finance/InvestmentGrowth.pdf" -f "Q1Growth.pdf"
```

```
tabcmd get "/views/Finance/InvestmentGrowth" -f "Q1Growth.pdf"
```

```
tabcmd get "/views/Finance/InvestmentGrowth.csv"
tabcmd get "/views/Finance/InvestmentGrowth.png?:size=640,480" -f
growth.png
```

```
tabcmd get "/views/Finance/InvestmentGrowth.png?:refresh=yes" -f
growth.png
```

Workbooks

```
tabcmd get "/workbooks/Sales_Analysis.twb" -f "C:\Tableau_Work-
books\Weekly-Reports.twb"
```

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

login

Important: tabcmd 1.0 does not support multi-factor authentication (MFA). To use tabcmd with Tableau Cloud, use Tableau tabcmd 2.0 (new window). For more information about Tableau Cloud and MFA, see Multi-Factor Authentication and Tableau Cloud.

Logs in a Tableau Cloud user.

Use the `--server`, `--site`, `--username`, `--password` global options to create a session.

Note: When you use the **tabcmd login** command, you can't use SAML single sign-on (SSO), even if your site is configured to use SAML. To log in, you must pass the user name and password of a user who has been created in your site. You will have the permissions of the Tableau Cloud user that you're signed in as.

If you want to log in using the same information you've already used to create a session, just specify the `--password` option. The server and user name stored in the cookie will be used.

If the server is using a port other than 80 (the default), you will need to specify the port.

You need the `--site` (`-t`) option only if the server is running multiple sites and you're logging in to a site other than the Default site. If you don't provide a password you will be prompted for one. If the `--no-prompt` option is specified and no password is provided the command will fail.

Once you log in, the session will continue until it expires on the server or the `logout` command is run.

Example

Log in to the Tableau Cloud site with the specified site ID:

```
tabcmd login -s https://prod-useast-b.online.tableau.com -t siteID
-u user@email.com -p password
```

Options

`-s, --server`

> If you're running the command from a Tableau Server computer that’s on your network, you can use `http://localhost`. Otherwise, specify the computer's URL, such as `http://bigbox.myco.com` or `http://bigbox`.
>
> If the server is using SSL, you will need to specify `https://` in the computer's URL.
>
> For Tableau Cloud, specify the full URL including the pod that your site is deployed to. For example: `https://prod-useast-b.online.tableau.com`.

`-t, --site`

> Include this option if the server has multiple sites, and you're logging in to a site other than the default site.
>
> The site ID is used in the URL to uniquely identify the site. For example, a site named West Coast Sales might have a site ID of west-coast-sales.

`-u, --username`

> The user name of the user logging in. For Tableau Cloud, the user name is the user's email address.

`-p, --password`

> Password for the user specified for `--username`. If you don't provide a password you will be prompted for one.

`--password-file`

Allows the password to be stored in the given `filename.txt` file rather than the command line, for increased security.

`-x, --proxy`

Use to specify the HTTP proxy server and port (Host:Port) for the tabcmd request.

`--no-prompt`

Don't prompt for a password. If no password is specified, the `login` command will fail.

`--cookie`

Saves the session ID on login. Subsequent commands won't require a login. This value is the default for the command.

`--no-cookie`

Don't save the session ID information after a successful login. Subsequent commands will require a login.

`--timeout SECONDS`

The number of seconds the server should wait before processing the `login` command. Default: 30 seconds.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

logout

Logs out of the server.

Example

```
tabcmd logout
```

publish *filename.twb(x)*, *filename.tds(x)*, or *filename.hyper*

Publishes the specified workbook (.twb(x)), data source (.tds(x)), or extract (.hyper) to Tableau Cloud.

If you're publishing a workbook, by default, all sheets in the workbook are published without database user names or passwords.

The permissions initially assigned to the workbook or data source are copied from the project that the file is published to. Permissions for the published resource can be changed after the file has been published.

If the workbook contains user filters, one of the thumbnail options must be specified.

Example

```
tabcmd publish "analysis_sfdc.hyper" -n "Sales Analysis"
--oauth-username "user-name" --save-oauth
```

If the file isn't in the same directory as tabcmd, include the full path to the file.

Example

```
tabcmd publish "\\computer\volume\Tableau Workbooks\analysis_sfd-
c.hyper" -n "Sales Analysis" --oauth-username "username" --save-
oauth
```

Options

`-n, --name`

> Name of the workbook or data source on the server. If omitted, the workbook, data source, or data extract will be named after filename.

`-o, --overwrite`

> Overwrites the workbook, data source, or data extract if it already exists on the server.

`-r, --project`

> Publishes the workbook, data source, or data extract into the specified project. Publishes to the “Default” project if not specified.

`--parent-project-path`

Specifies the name of the parent project for the nested project as specified with the `-r` option. For example, to specify a project called "Nested" that exists in a "Main" project, use the following syntax: `--parent-project-path "Main" -r "Nested"`.

`--db-username`

Use this option to publish a database user name with the workbook, data source, or data extract.

If you connect to the data through a protected OAuth connection and access token, us the `--oauth-username` option instead.

`--db-password`

Use this option to publish a database password with the workbook, data source, or extract.

`--save-db-password`

Stores the provided database password on the server.

`--oauth-username`

The email address of the user account. Connects the user through a preconfigured OAuth connection, if the user already has a saved access token for the cloud data source specified in `--name`. Access tokens are managed in user preferences.

For existing OAuth connections to the data source, use this option instead of `--db-username` and `--db-password`.

`--save-oauth`

Saves the credential specified by `--oauth-username` as an embedded credential with the published workbook or data source.

Subsequently, when the publisher or server administrator signs in to the server and edits the connection for that workbook or data source, the connection settings will show this OAuth credential as embedded in the content.

If you want to schedule extract refreshes after publishing, you must include this option with `--oauth-username`. This is analogous to using `--save-db-password` with a traditional database connection.

`--thumbnail-username`

If the workbook contains user filters, the thumbnails will be generated based on what the specified user can see. Can't be specified when `--thumbnail-group` option is set.

`--thumbnail-group`

If the workbook contains user filters, the thumbnails will be generated based on what the specified group can see. Can't be specified when `--thumbnail-username`option is set.

`--tabbed`

When a workbook with tabbed views is published, each sheet becomes a tab that viewers can use to navigate through the workbook. Note that this setting will override any sheet-level security.

`--append`

Append the extract file to the existing data source.

`--replace`

Use the extract file to replace the existing data source.

`--disable-uploader`

Disable the incremental file uploader.

`--restart`

Restart the file upload.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

refreshextracts *workbook-name* or *datasource-name*

Performs a full or incremental refresh of extracts belonging to the specified workbook or data source.

This command takes the name of the workbook or data source as it appears on the server, not the file name when it was published. Only an administrator or the owner of the workbook or data source is allowed to perform this operation.

Notes:

- This method will fail and result in an error if your Server Administrator has disabled the **RunNow** setting for the site. For more information, see Tableau Server Settings.
- You can use tabcmd to refresh supported data sources that are hosted in the cloud. For example, SQL Server, MySQL, PostgreSQL on a cloud platform; Google Analytics; and so on.
- To refresh on-premises data with tabcmd, the data source must be a type that can be configured for Tableau Bridge Recommended schedules. For all other data sources that connect to on-premises data, you can use Bridge or the command-line data extract utility. Learn more at Use Bridge to Keep Data Fresh and Automate Extract Refresh Tasks from the Command Line.

Examples

```
tabcmd refreshextracts --datasource sales_ds
```

```
tabcmd refreshextracts --project "Sales External" --datasource
sales_ds
```

```
tabcmd refreshextracts --project "Sales External" --parent-project-
path "Main" --project "Sales External" --datasource sales_ds
```

```
tabcmd refreshextracts --workbook "My Workbook"
```

```
tabcmd refreshextracts --url SalesAnalysis
tabcmd refreshextracts --workbook "My Workbook" --addcalculations
```

```
tabcmd refreshextracts --datasource sales_ds --removecalculations
```

Options

`--incremental`

Runs the incremental refresh operation.

`--synchronous`

Adds the full refresh operation to the queue used by the Backgrounder process, to be run as soon as a Backgrounder process is available. If a Backgrounder process is available, the operation is run immediately. The refresh operation appears on the Background Tasks report.

During a synchronous refresh, `tabcmd` maintains a live connection to the server while the refresh operation is underway, polling every second until the background job is done.

> **Note:** The `--synchronous` option isn't available for data sources refreshed with Tableau Bridge.

`--workbook`

The name of the workbook containing extracts to refresh. If the workbook has spaces in its name, enclose it in quotes.

`--datasource`

The name of the data source containing extracts to refresh.

`--project`

Use with `--workbook` or `--datasource` to identify a workbook or data source in a project other than *Default*. If not specified, the Default project is assumed.

`--parent-project-path`

Specifies the name of the parent project for the nested project as specified with the `--project` option.

For example:

- To specify a project called "Nested" that exists in a "Main" project, use the following syntax:
- `--parent-project-path "Main" --project "Nested"`
- To specify a project called "Nested2" that is nested within the "Nested" project:
- `--parent-project-path "Main/Nested" --project "Nested2"`

`--url`

The name of the workbook as it appears in the URL. A workbook published as “Sales Analysis” has a URL name of “SalesAnalysis”.

`--addcalculations`

Use with `--workbook` to materialize calculations in the embedded extract of the workbook or `--datasource` to materialize calculations in the extract data source. Adds the operation to the queue used by the Backgrounder process. If a Backgrounder process is available, the operation runs immediately. This operation appears on the Background Tasks for Extracts administrative view.

`--removecalculations`

Use with `--workbook` or `--datasource` to remove calculations that were previously materialized. Adds the operation to the queue used by the Backgrounder process. If a Backgrounder process is available, the operation runs immediately. This operation appears on the Background Tasks for Extracts administrative view.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

removeusers *group-name*

Removes users from the specified group.

Example

```
tabcmd removeusers "Development" --users "users.csv"
```

Options

`--users`

Remove the users in the given `.csv` file from the specified group. The file should be a simple list with one user name per line.

`--[no-]complete`

Requires that all rows be valid for any change to succeed. If not specified `--complete` is used.

Global options

The following options are used by all `tabcmd` commands. The `--server`, `--user`, and `--password` options are required at least once to begin a session. An authentication token is stored so subsequent commands can be run without including these options. This token remains valid for five minutes after the last command that used it.

`-h, --help`

Displays the help for the command.

Note: Some commands listed may not apply when using tabcmd with Tableau Cloud.

`-s, --server`

The Tableau Cloud URL, which is required at least once to begin session.

`-u, --user`

The Tableau Cloud username, which is required at least once to begin session.

`-p, --password`

The Tableau Cloud password, which is required at least once to begin session.

`--password-file`

Allows the password to be stored in the given `.txt` file rather than the command line for increased security.

`-t, --site`

Indicates that the command applies to the site specified by the Tableau Cloud site ID, surrounded by single quotes or double quotes. Use this option if the user specified is associated with more than one site. Site ID is case-sensitive when using a cached authentication token. If you do not match case you may be prompted for a password even if the token is still valid.

`--no-prompt`

When specified, the command will not prompt for a password. If no valid password is provided the command will fail.

`--[no-]cookie`

When specified, the session ID is saved on login so subsequent commands will not need to log in. Use the `no-` prefix to not save the session ID. By default, the session is saved.

`--timeout`

Waits the specified number of seconds for the server to complete processing the command. By default, the process will wait until the server responds.

`--`

Specifies the end of options on the command line. You can use `--` to indicate to `tabcmd` that anything that follows `--` should not be interpreted as an option setting and can instead be interpreted as a value for the command. This is useful if you need to specify a value in the command that includes a hyphen. The following example shows how you might use `--` in a `tabcmd` command, where `-430105/Sheet1` is a required value for the `export` command.

```
tabcmd export --csv -f "D:\export10.csv" -- -430105/Sheet1
```

Tip: For Tabcmd 1.0 commands available for Tableau Server, see tabcmd commands.

Install Switches and Properties for tabcmd (Windows)

Important: Between August 2024 and March 2025, Tableau Cloud sites were migrated to Salesforce's Hyperforce. As a result of the migration, tabcmd 1.0 is no longer supported. Plan your migration to tabcmd 2.0 as soon as possible to ensure you will not be impacted. This retirement does not impact Tableau Server.

Note: In most cases, you must use tabcmd command-line utility 2.0 (tabcmd 2.0) with Tableau Cloud. Tabcmd 2.0 is available at Tableau tabcmd. This new version allows you to: run tabcmd commands on MacOS and Linux, authenticate using personal access tokens (PATs), and allows you to be multi-factor authentication (MFA) compliant. Version 2.0 is built on public endpoints available in the Python-based Tableau Server Client (TSC).

You can use the following switches when installing the Tableau Server Command Line Utility (tabcmd) version 2019.4.0 or later from the command line on Windows.

Note: There are no equivalent switches for the Linux version of the tabcmd installer.

Switch	Description	Comments
`/install` | `/repair` | `/uninstall` | `/layout` "`<directory>`"	Run Setup to either install, repair, or uninstall tabcmd,	Default is to install, displaying UI and all prompts. If no directory is specified on a fresh install, `C:\Program Files\Tableau\Tableau Server\<version>\extras\Command Line Utility` is assumed.

	or with `/layout`, create a complete local copy of the installation bundle in the directory specified.	
`/passive`	Run Setup with minimal UI and no prompts.	
`/quiet` | `/silent`	Run Setup in unattended, fully silent mode. No UI or prompts are displayed.	**Note:** Use either `/silent` or `/quiet`, not both.
`/norestart`	Run Setup without restarting Windows, even if a restart is necessary.	**Note:** In certain rare cases, a restart cannot be suppressed, even when this option is used. This is most likely when an earlier system restart was skipped, for example, during installation of other software.
`/log "<logfile>"`	Log information to the specified file	If no file location is specified, the log file is written to the user's TEMP folder (`C:\Users\<username>\AppData\Local\Temp`). Check

	and path. By default log files are created in the user's `%TEMP%` folder with a naming convention of `Tableau_Server_Command_Line_utility_<version_code>.log`.	this log file for errors after installation. Example: `<Setup file> /silent /log "C:\Tableau\Logs\tabcmd-Install" ACCEPTEULA=1`

Properties	Description	Comments
`ACCEPTEULA=1|0`	Accept the End User License Agreement (EULA). Required for quiet, silent, and passive install. 1 =	If not included when using `/passive`, `/silent` or `/quiet`, Setup fails silently. If included but set to 0, Setup fails.

	accept the EULA, 0 = do not accept the EULA.	
`INSTALLDIRR="<path\to\installation\directory>"`	Install tabcmd to the specified non-default install location.	Specifies the location to install tabcmd. If not used, tabcmd is installed to `C:\Program Files\Tableau\Tableau Server\<version_code>\extras\Command Line Utility` Example: `<Setup file> /silent INSTALLDIRR="C:\tabcmd"`

Managing Background Jobs in Tableau Cloud

In Tableau Cloud, users can schedule extract refreshes, subscriptions, or flows to run periodically. These scheduled items are referred to as **Tasks**. The Backgrounder process initiates unique instances of these tasks to run them at the scheduled time. The unique instances of the tasks that are initiated as a result are referred to as **Jobs**. Jobs are also created for runs that are initiated manually, by clicking the **Run Now** option in the web interface, programmatically through REST API, or tabcmd commands.

For example, an extract refresh task is created to run daily at 9 AM. This is an extract refresh task, and every day at 9 AM, a job will be created for the Backgrounder to run.

Running all these jobs can mean that Backgrounder uses a lot of resources at various times during the day. Using the Job Management feature, Site administrators can get more details on these jobs that happen in their Site, and take action on those jobs to better manage resource usage.

The **Run Now** settings on the **General** settings page also allows you to manage your resources by either allowing or blocking users from running jobs manually. By default, this option is selected to allow users to run jobs manually. Clear the check box to prevent users from running jobs manually.

The Jobs page which contains the information about jobs can be accessed by navigating to the **Existing Tasks** menu of the left navigation menu.

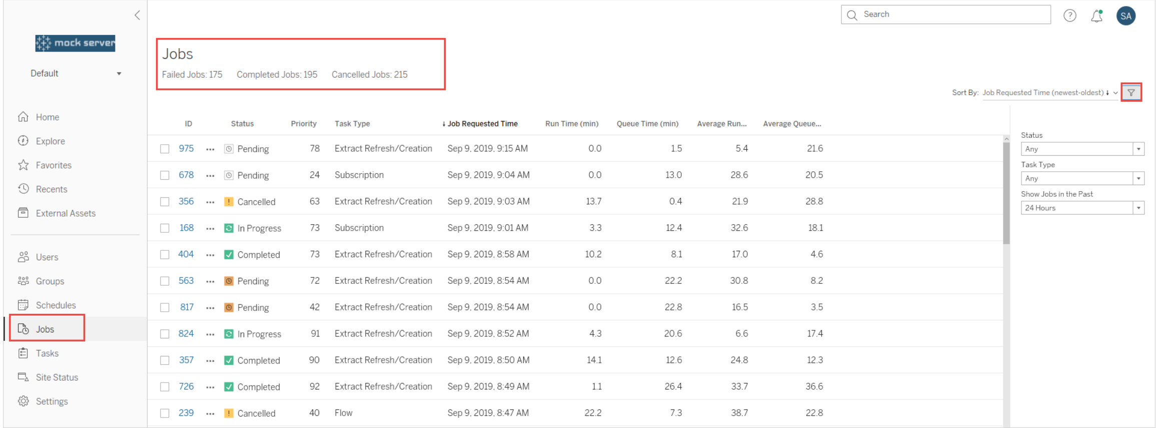
Note: Information about jobs can only be viewed by site administrators.

Overview

This topic describes how to view and understand the information displayed in the Jobs page.

Your Tableau Cloud site comes with capacity to support all your users’ analytic needs. A site’s capacity includes capacity for storage and tasks that need to be performed on the site for extracts, metrics, subscriptions, and flows. (The legacy Metrics feature was retired in February 2024 for Tableau Cloud and in Tableau Server version 2024.2. For more information, see Create and Troubleshoot Metrics (Retired).) The jobs page allows you to monitor the tasks for your Tableau Cloudsite. For more information on site capacity, see Tableau Cloud Site Capacity.

At the top of the page there are high level statistics for the number of **Failed**, **Completed**, and **Canceled** jobs within the past 24 hours. Applying filters does not change these values.



Jobs

Failed Jobs: 175 Completed Jobs: 195 Cancelled Jobs: 215

Sort By: Job Requested Time (newest-oldest)

ID	Status	Priority	Task Type	Job Requested Time	Run Time (min)	Queue Time (min)	Average Run...	Average Queue...
975	Pending	78	Extract Refresh/Creation	Sep 9, 2019, 9:15 AM	0.0	1.5	5.4	21.6
678	Pending	24	Subscription	Sep 9, 2019, 9:04 AM	0.0	13.0	28.6	20.5
356	Cancelled	63	Extract Refresh/Creation	Sep 9, 2019, 9:03 AM	13.7	0.4	21.9	28.8
168	In Progress	73	Subscription	Sep 9, 2019, 9:01 AM	3.3	12.4	32.6	18.1
404	Completed	73	Extract Refresh/Creation	Sep 9, 2019, 8:58 AM	10.2	8.1	17.0	4.6
563	Pending	72	Extract Refresh/Creation	Sep 9, 2019, 8:54 AM	0.0	22.2	30.8	8.2
817	Pending	42	Extract Refresh/Creation	Sep 9, 2019, 8:54 AM	0.0	22.8	16.5	3.5
824	In Progress	91	Extract Refresh/Creation	Sep 9, 2019, 8:52 AM	4.3	20.6	6.6	17.4
357	Completed	90	Extract Refresh/Creation	Sep 9, 2019, 8:50 AM	14.1	12.6	24.8	12.3
726	Completed	92	Extract Refresh/Creation	Sep 9, 2019, 8:49 AM	1.1	26.4	33.7	36.6
239	Cancelled	40	Flow	Sep 9, 2019, 8:47 AM	22.2	7.3	38.7	22.8

Status: Any

Task Type: Any

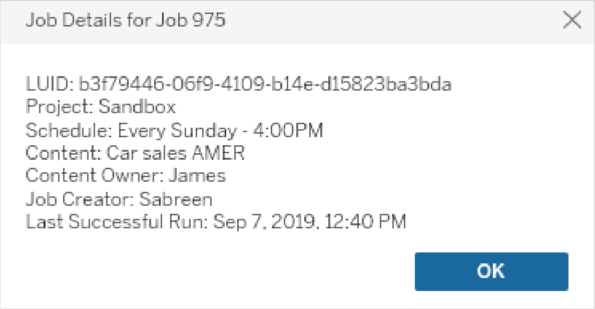
Show Jobs in the Past: 24 Hours

For each job generated, there is a Job ID, the status of that job, the priority, the type of task that the job was generated from, the current run time - if the job is in-progress, current queue time - if queued, as well as the average run time, and average queue time.

Note: The priority for tasks and schedules can't be adjusted in Tableau Cloud.

Tableau records historical run times and queue times to compute the average run times and average queue times. Both average run times and average queue times are calculated as weighted averages using the following formula: ((current run time or queue time average x 4) + most recent run time or queue time)/ 5.

The Job ID can be useful when viewing jobs on **Admin views** . When you click on the Job ID, you will see more detailed information about the job, such as the Job LUID, the project name, the schedule , the content name, content owner, job creator, and the last time the job ran successfully.



Job Details for Job 975

LUID: b3f79446-06f9-4109-b14e-d15823ba3bda
Project: Sandbox
Schedule: Every Sunday - 4:00PM
Content: Car sales AMER
Content Owner: James
Job Creator: Sabreen
Last Successful Run: Sep 7, 2019, 12:40 PM

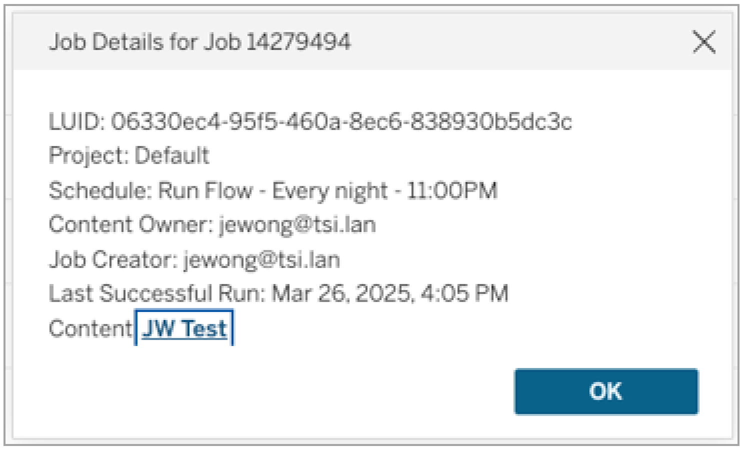
Note: Doing a **Refresh Now** from the **Data Sources** page will only show the LUID information in the **Job Details** dialog box.

Task Types

There are several types of tasks:

- Bridge Refresh: Includes full and incremental extract refreshes that use Cloud schedules. For more information, see About Bridge Refresh jobs.
- Extracts: This includes extract creation, incremental extract refreshes, and full extract refreshes. .
- Subscriptions: Includes subscriptions for workbooks and views. For more information, see Create a Subscription to a View or Workbook.
- Flow: This includes scheduled flows and manual flow runs. See Job runtime capacity for information about the maximum runtime for flows and Concurrent jobs capacity for capacity limits when running concurrent flow jobs. Scheduling more flows than the number of resource blocks you have can result in an error. See the Knowledge Base article Flow Job Pending for more information.

  Starting in version 2025.2, the **Job Details** dialog will show a link to the Tableau Prep flow. Quickly navigate to the Flow Place page to get more details about the flow. If the flow was deleted, then the link will not show.



Job Details for Job 14279494

LUID: 06330ec4-95f5-460a-8ec6-838930b5dc3c
Project: Default
Schedule: Run Flow - Every night - 11:00PM
Content Owner: jewong@tsi.lan
Job Creator: jewong@tsi.lan
Last Successful Run: Mar 26, 2025, 4:05 PM
Content: JW Test

- Encryption: Includes the following:
    - Extract encryption and decryption
    - Flow encryption and decryption
    - Re-key extracts and flows

Filters

You can filter to see only certain jobs. The available filters are by Job Status type, Task Type, and Time Range. For the Time Range filter, you can choose from past one to 24 hours, in four hour increments.

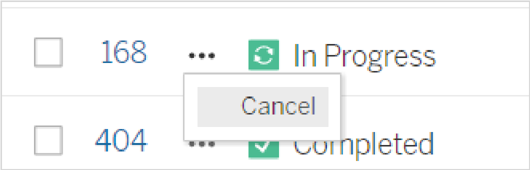
Canceling Jobs

Extract refreshes, subscriptions and flow run jobs can be canceled. You can only cancel one job at a time, and selecting multiple jobs at one time for cancellation is not supported.

When you cancel a job, an email with the time the job was canceled, the affected content, and the time the job ran before being canceled is sent to the recipients that you select in the **Cancel Job** dialog box . In addition you can add your customized notes to be included in the email.

If you do not select any recipients, the job will be canceled, but no email will be sent.

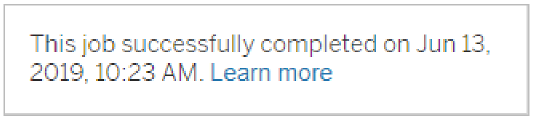
To cancel a job, click on the ellipses next to the Job ID and use the dialog to cancel the job:



Status

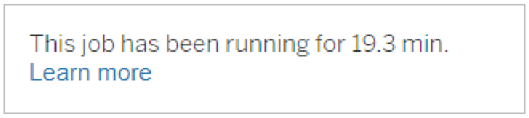
There are seven types of status that jobs can be in, and hovering over each status will display more relevant information.

- **Completed:** This job shows as **Completed successfully** and you can see the time when the job completed in the tooltip that is displayed when you hover over the status.

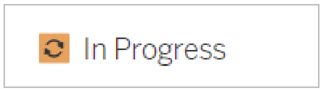
  
  This job successfully completed on Jun 13, 2019, 10:23 AM. Learn more

- **In Progress:** This job shows as **In Progress**. A time for how long the job has been running for is displayed in the tooltip when you hover over the status.

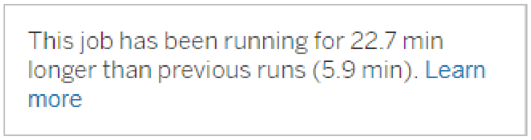
  In Progress

  
  This job has been running for 19.3 min. Learn more

- **In Progress:** This job is **In Progress**, but is **running late**. Tableau keeps track of the average run times for the same job, and if the current run time is longer than the average run time, then it is considered running late. Times for how much longer than average the job has been running and its average run time is provided in the tooltip that is displayed when you hover over the status.

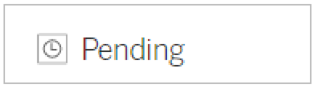


In Progress

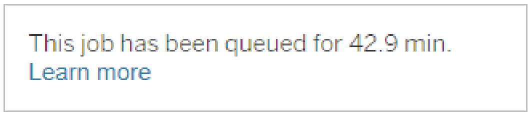


This job has been running for 22.7 min longer than previous runs (5.9 min). Learn more

- **Pending:** This job is currently **Pending**, waiting to be run when there is available Backgrounder capacity. A time for how long the job has been in the queue for is provided in the tooltip that is displayed when you hover over the status.

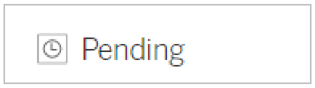


Pending

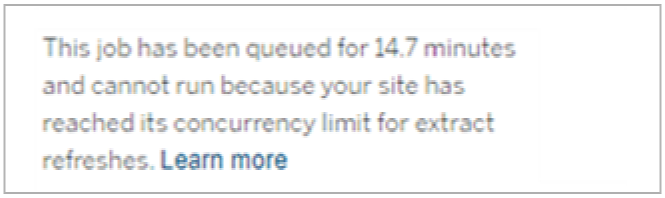


This job has been queued for 42.9 min. Learn more

- **Pending:** The flow cannot be run because the number of Resource Blocks is less than the number of flow you have scheduled and the site has reached its concurrency limit.

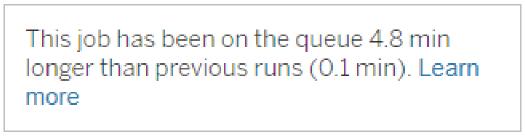


Pending

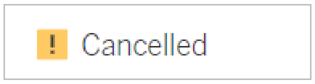


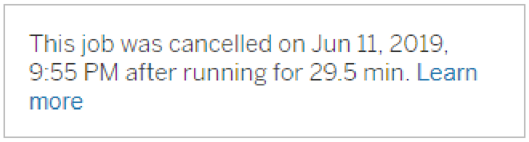
This job has been queued for 14.7 minutes and cannot run because your site has reached its concurrency limit for extract refreshes. Learn more

- **Pending:** This job is currently **Pending**, but is **running late**. Tableau keeps track of the average queue times for the same job, and if the current queue time is longer than the average queue time then it is considered running late. Times for how much longer than average the job has been queued is provided in the tooltip that is displayed when you hover over the status.

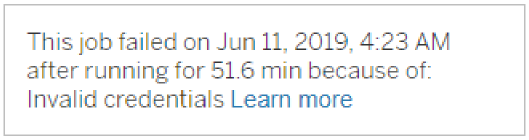

This job has been on the queue 4.8 min longer than previous runs (0.1 min). Learn more

- **Canceled:** This job was **Canceled** by a Site administrator. The time the job was canceled and how long it ran for before cancellation is provided in the tooltip that is displayed when you hover over the status.

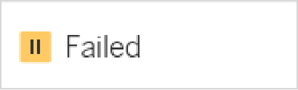



This job was cancelled on Jun 11, 2019, 9:55 PM after running for 29.5 min. Learn more

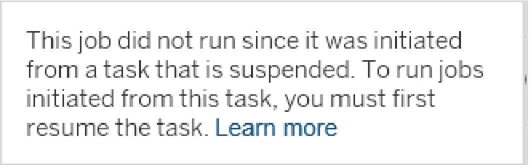
- **Failed:** This job is showing as **Failed**. The time when the job failed, how long it ran for before it failed, and why the job has failed is provided in the tooltip that is displayed when you hover over the status.


This job failed on Jun 11, 2019, 4:23 AM after running for 51.6 min because of: Invalid credentials Learn more

- **Suspended:** This job is showing as **Failed** with a pause icon. If the job fails 5 times consecutively, then the job is suspended. Suspended tasks are still available but Backgrounder will not create jobs for these tasks until they are resumed by the user.



Failed



This job did not run since it was initiated from a task that is suspended. To run jobs initiated from this task, you must first resume the task. Learn more

About Bridge Refresh jobs

Although Bridge Refresh jobs can generate the same statuses as other job types, Bridge Refresh jobs differ in the following ways:

- **Canceling jobs**: Bridge Refresh jobs can't be canceled from the Jobs page. Instead, ensure that Bridge clients are configured with the appropriate timeout limit to prevent any misuse of refreshes. For more information, see Change the Bridge Client Settings
- **"Sent to Bridge" job status**: The refresh job was successfully sent to a Bridge client in the pool.
- **"Completed" job status**: The refresh completed successfully.
- **"Failed" job status**: If a refresh fails for whatever reason, the status changes to "Failed." The publisher (data source owner) is notified through an account alert and a failure email alert. These alerts provide the publisher troubleshooting steps to help resolve the issue.
- **Subscription and Bridge Refresh jobs**: Subscription jobs can't be initiated by completed Bridge Refresh jobs. This is because a completed Bridge Refresh job only indicates whether the refresh job was successfully sent to a Bridge client in the pool and not whether the refresh job was completed successfully.

Notes

- Refresh jobs that originate from Bridge (legacy) schedules are not captured on the Jobs page. To monitor refresh jobs for Bridge (legacy) schedules, you can refer to the Bridge

Extracts admin view. For more information, see Bridge Extracts.

- For troubleshooting Bridge errors you see on the Jobs page, see Troubleshoot pooling.

Monitoring solutions for Data Connect and Tableau Bridge

Several monitoring solutions are available in Tableau Cloud to help you manage different monitoring scenarios for Data Connect and Tableau Bridge. All of these solutions are available to administrators by default. Admin Insights can be made available for other individuals if desired.

- Jobs page: Monitor real-time extract job status for jobs performed in the last 24 hours as described earlier in this topic.
- Administrative Views: Monitor real-time extract job status and performance. Includes recent job history for longer term analysis. See Find Admin Views.
- Admin Insights: Monitor job status and performance using Tableau Cloud data sources that are published in your environment. This data is updated daily and shows historical data for longer term analysis. It can be shared with non-admin users if desired. See Use Admin Insights to Create Custom Views.

For more information on how to use these tools and other best practices for deploying Data Connect and Bridge, download the whitepaper, Accessing Your Private Network Data with Tableau Cloud - Best Practices for Data Connect and Tableau Bridge.

Manage Data

After you configure your Tableau Cloud site with your logo and authentication options, you can start organizing the *content* framework for the way you and your users want to share Tableau data. To populate your Tableau Cloud site with content (data, reports, and so on), you or the data professionals in your organization *publish* that content. Depending on the type of license, users can connect to and publish content from Tableau Desktop, or from the Tableau Cloud web editing environment.

Types of content you can publish include standalone data sources that users can share among multiple workbooks, and workbooks that contain *embedded* data connections with visualizations based on that data. Each of these types has pros and cons, which are explained in the Publishing resources below.

Determine your organization’s publishing needs

As the site administrator, before you open the site for publishing, evaluate how much preparation you think is appropriate for your level of Tableau Cloud use:

- If you don’t have strict requirements around data access—for example, you have just a few users who all share the same data—you might dive in to the Publishing resources, starting with publishing steps, and adjust your publishing and content management practices as you go.
- If people use Tableau across distinct areas of your organization, or if you have a large Tableau user population, we recommend using the Publishing resources to create a test environment, and working out access and discoverability wrinkles. You can still adjust practices as you go, but it’s not as easy to do this after you open up the site to a large group of active users.

Examples of additional factors you might need to consider are authorization (permissions for who gets access to what), data security and compliance requirements, minimizing users' need to contact you for help if they can't figure out where to publish or find their data, and so on. For more information, see Configure Projects, Groups, Group Sets, and Permissions for Managed Self-Service.

Summary of the publishing process

In Tableau Desktop, you open the workbook or data connection you want to upload to Tableau Cloud, and go to the Server menu to publish it.

During the publishing steps, you sign in to Tableau Cloud, entering the Tableau Cloud address (**https://online.tableau.com**) and your credentials.

The publishing steps require you to make decisions related to how you and others in your organization will access your data source or workbook. In some cases, this can involve a few layers of complexity, and it helps for you to understand how these layers fit together. Use the topics in the following lists to determine the level of complexity you need and to help establish appropriate publishing guidelines.

Publishing resources

These resources are part of the Tableau User Help and open in a new browser window.

- **Publishing concepts**

  Prepare for Publishing a Workbook

  Publish Data Sources and Workbooks

  Best Practices for Published Data Sources

- **Basic publishing steps for informal collaboration**

  Simple Steps to Share a Workbook

- **Comprehensive data source planning and publishing steps for meeting compliance and security standards, creating a data “source of truth,” and using best practices**

  Plan the Data Source

  Publish a Data Source

  Publish a Workbook

Tableau Cloud storage limit

A site has a 1 TB storage limit for workbooks and extracts. The storage limit is not configurable. For enterprises that require more storage, Tableau+ or Tableau Enterprise licensing may be a good option For more information, see Understanding License Models.

For additional technical specifications for Tableau Cloud, see Technical Specifications on the Tableau website.

Tableau Cloud data connection support

You can publish data sources and workbooks using direct (live) or extract connections to your underlying database. You can also publish multi-connection data sources that use either or both types of connection. The database connections defined in the workbook or data source determines how you can publish and keep the data fresh on Tableau Cloud.

If you’re familiar with connection types and want a more specific list of data types and their supported connections, see Keep Data Fresh. Otherwise, read on.

Connector types that support direct (live) connections to Tableau Cloud

When you use live connections, published workbooks and data sources always reflect what is current in the underlying database.

Tableau Cloud supports live connections to:

- Google BigQuery, Amazon Redshift data, or SQL-based data hosted on a cloud platform; for example, Amazon RDS, Microsoft SQL Azure, or similar service.

  For direct connections to cloud data, you usually need to add Tableau Cloud to your data provider’s authorized list.

- On-premises relational data, such as SQL Server or Oracle, when you use Tableau Bridge to maintain the connection.

  To learn more about Tableau Bridge, see Use Tableau Bridge to Keep Data Fresh.

You can embed database credentials in live connections so all users who have access to the published content can see the underlying data. Or you can require users to provide their own database credentials. In that case, even if they can open the published content on the server, they need to sign in to the underlying database to see it.

Connector types that support extract connections

For any type of data that Tableau can connect to, users can publish extracts with embedded database credentials, and set up recurring refresh schedules.

You can create an extract in Tableau Desktop, before you initiate the publishing process, to have finer control over the connection definition. You might do this if you want to publish a sampling of the data, or to set up the ability to refresh incrementally. Otherwise, Tableau creates the extract during publishing, and you can do full refreshes only.

After Tableau completes the publishing step, it guides you through the steps for setting up a schedule for refreshing your data. If your Tableau data source or workbook connects to underlying data in the cloud, refreshes are run from Tableau Cloud directly. If the underlying data is on your local network, you use Tableau Bridge.

To learn more about Tableau Bridge, see Use Tableau Bridge to Keep Data Fresh.

Creators: Connect to Data on the Web

Before you can create a workbook and build a view on the web to analyze your data on the web, you must connect to your data. Tableau supports connecting to data sources on the web published through Tableau Desktop, or, connecting to data directly through Tableau Cloud, Tableau Server, or Tableau Public.

Starting in 2019.3, Tableau Catalog is available as part of the Data Management offering for Tableau Server and Tableau Cloud. When Tableau Catalog is enabled in your environment, in addition to navigating and connecting to data from Explore, you can navigate and connect to more kinds of data, like databases and tables, from Tableau Catalog For more information about Tableau Catalog, see "About Tableau Catalog" in the Tableau Server or Tableau Cloud Help. Starting in 2021.4, Data Management includes virtual connections, a central access point to data. For more information, see "About Virtual Connections and Data Policies" in the Tableau Server or Tableau Cloud help.

Open the Connect to Data page

On the web, you use the Connect to Data page to access data to connect to. After you sign in to Tableau Server or Tableau Cloud, you can open this page two ways:

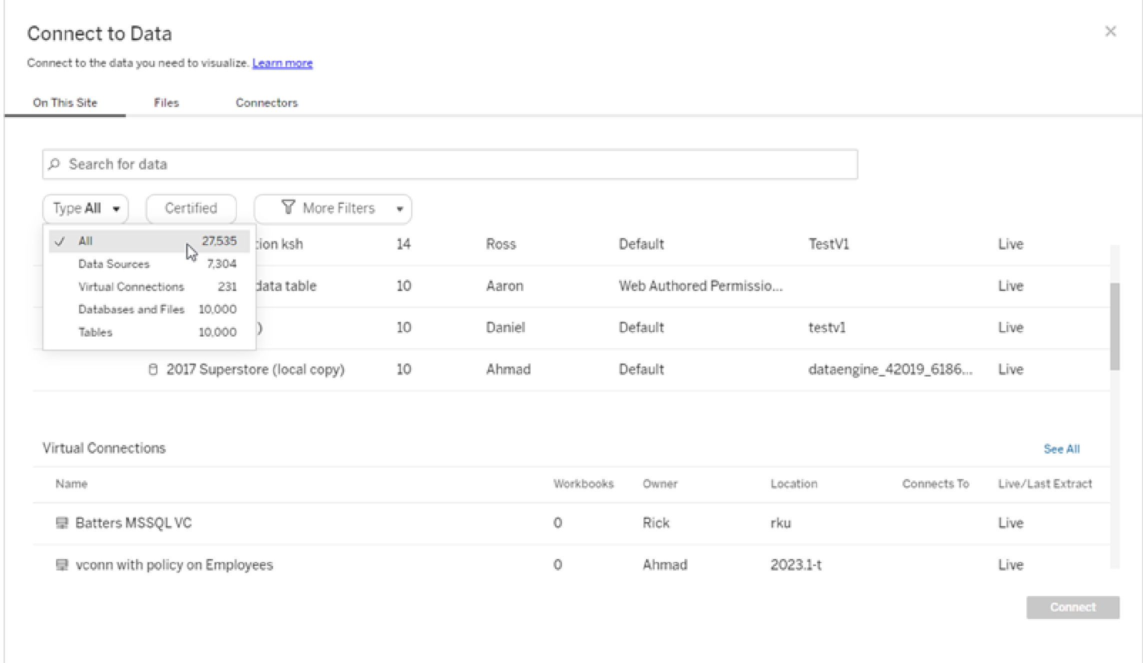
- **Home** > **New** > **Workbook**
- **Explore** > **New** > **Workbook**

If you’re on Tableau Public, you can open this page from your author profile:

- **My Profile** > **Create a Viz**

The **Connect to Data** dialog displays a scrollable list of mixed content that’s popular. If you have a Data Management license, you can connect to data with a virtual connection, and if you have Data Management with Tableau Catalog enabled, you can also connect to external assets, like databases, files, and tables.

The responsive search field shows a list of suggestions that updates as you enter text. Filter search results by type of data, certification status, or other filters that depend on the type of data selected. For example, some types of data may allow you to filter based on tags, connection type, data quality warnings, or other criteria. Older versions of the dialog look and function slightly differently, but the overall function is similar.


Connect to Data
Connect to the data you need to visualize. Learn more
On This Site
Files
Connectors
Search for data
Type All
Certified
More Filters
✓ All 27,535
Data Sources 7,304
Virtual Connections 231
Databases and Files 10,000
Tables 10,000
See All
Connect

tion ksh	14	Ross	Default	TestV1	Live
data table	10	Aaron	Web Authored Permissio...		Live
)	10	Daniel	Default	testv1	Live
2017 Superstore (local copy)	10	Ahmad	Default	dataengine_42019_6186...	Live

Virtual Connections

Name	Workbooks	Owner	Location	Connects To	Live/Last Extract
Batters MSSQL VC	0	Rick	rku		Live
vconn with policy on Employees	0	Ahmad	2023.1-t		Live

On the Connect to Data page, the tabs you see depend on the product you have.

Tableau Server

On Tableau Server, select from the following tabs to connect to data: On this site, Files, and Connectors.

Connect to data On this site

1. Select **On this site** to browse to or search for published data sources.
2. Select the data source under **Name** and click the **Connect** button.

Note: In addition to connecting to data sources, when you have Data Management, you can use **On this site** to connect to data using a virtual connection. When Tableau Catalog is enabled you can also connect to databases, files, and tables.

Connect to files

Tableau supports uploading Excel, text-based data sources (.xlsx, .csv, .tsv), and spatial file formats that only require one file (.kml, .geojson, .topojson, .json, and Esri shapefiles and Esri File Geodatabases packaged in a .zip) directly in your browser. In the **Files** tab of the **Connect to Data** pane, connect to a file by dragging and dropping it into the field or clicking **Upload from Computer**. The maximum file size you can upload is 1 GB.

Use connectors

From the **Connectors** tab, you can connect to data housed in a cloud database or on a server in your enterprise. You must supply connection information for each data connection that you make. For example, for most data connections, you must supply a server name and your sign-in information.

Supported Connectors has information on how to connect Tableau to each of these connector types to set up your data source. If the connector you need doesn't appear in the Connectors tab, you can connect to data through Tableau Desktop and publish your data source to Tableau Cloud or Tableau Server for web authoring. Learn more about how to Publish a Data Source in Tableau Desktop.

When Tableau successfully connects to your data, the Data Source page opens so that you can prepare the data for analysis and begin building your view. To learn more, see Creators: Prepare Data on the Web.

Tableau Server connectors

Actian Matrix*

Alibaba AnalyticDB for MySQL‡

Alibaba Data Lake Analytics‡

Alibaba MaxCompute‡

Google BigQuery**‡

Google BigQuery JDBC**‡

Google Cloud SQL‡

Google Drive‡

Impala‡

OData‡

OneDrive‡

Oracle‡

Pivotal Greenplum Database‡

PostgreSQL‡

Amazon Athena‡

Amazon Aurora for MySQL‡

Amazon EMR Hadoop Hive‡

Amazon Redshift‡

Apache Drill‡

Aster Database*

Azure Data Lake Storage Gen2‡

Box‡

Cloudera Hadoop‡

Databricks‡

Datorama by Salesforce‡

Denodo‡

Dremio by Dremio‡

Dropbox‡

Esri Connector‡

Exasol‡

Kognito*

Kyvos‡

Hortonworks Hadoop Hive

IBM BigInsights

IBM DB2‡

IBM PDA (Netezza)*

Kyvos‡

MariaDB‡

MarkLogic*

Microsoft Azure SQL Database‡

Microsoft Azure Synapse Analytics‡

Microsoft SQL Server‡

MonetDB*

MongoDB BI Connector‡

MySQL‡

Progress OpenEdge*

Presto‡

Qubole Presto‡

SAP HANA (for virtual connections only)‡

SAP Sybase ASE*

SAP Sybase IQ*

Salesforce‡

SharePoint Lists‡

SingleStore (formerly MemSQL)‡

Snowflake‡

Spark SQL‡

Teradata***‡

Vertica‡

*Not available on Linux servers.

**Google BigQuery needs OAuth when creating data sources from the web. Learn more about how server administrators can Set up OAuth for Google.

***Teradata web authoring currently doesn’t support query banding functionality. See Teradata for details.

‡Supports virtual connections if you have Data Management. See About Virtual Connections and Data Policies in the Tableau Server help for details.

Tableau Catalog Supported Connectors

Tableau Catalog supports making a connection with a subset of the data connectors that Tableau Server supports. If a data source, database, file, or table is grayed out, you can't connect from Tableau Server. You can, however, connect from the Tableau Desktop **Connect** pane, if you have the correct permissions.

Tableau Cloud

On Tableau Cloud, select from the following tabs to connect to data: On this site, Files, Connectors, and Dashboard Starters.

Connect to data On this site

1. Select **On this site** to browse to or search for published data sources.
2. Select the data source under **Name** and click the **Connect** button

Note: In addition to connecting to data sources, when you have Data Management, you can use **On this site** to connect to data using a virtual connection. When Tableau Catalog is enabled you can also connect to databases, files, and tables.

Connect to files

Tableau supports uploading Excel or text-based data sources (.xlsx, .csv, .tsv) directly in your browser. In the **Files** tab of the Connect to Data pane, connect to an Excel or text file by dragging and dropping it into the field or clicking **Upload from Computer**. The maximum file size you can upload is 1 GB.

Use connectors

From the **Connectors** tab, you can connect to data housed in a cloud database or on a server in your enterprise. You must supply connection information for each data connection that you make. For example, for most data connections, you must supply a server name and your sign-in information.

Supported Connectors has information on how to connect Tableau to your data using connectors. If the connector you need doesn't appear in the Connectors tab, you can connect to data through Tableau Desktop and publish your data source to Tableau Cloud or Tableau Server for web authoring. Learn more about how to Publish a Data Source in Tableau Desktop.

> **Note**: If you’re unable to connect to your data from Tableau Cloud, check to see if the database is publicly accessible. Tableau Cloud can only connect to data that's accessible from the public internet. If your data is behind a private network, you can connect using Tableau Bridge. To learn more, see Publishers: Use Tableau Bridge to Keep Tableau Cloud Data Fresh.

Tableau Cloud Connectors

Alibaba AnalyticsDB for MySQL‡

Alibaba Data Lake Analytics‡

Amazon Athena‡

Amazon Aurora for MySQL‡

Amazon EMR Hadoop Hive‡

Amazon Redshift‡

Apache Drill‡

Dropbox*‡

Esri Connector‡

Exasol‡

Google BigQuery*‡

Google Cloud SQL (MySQL compatible)‡§

Google Drive‡

Hortonworks Hadoop Hive

OData‡

OneDrive*‡

Oracle‡

Pivotal Greenplum Database‡

PostgreSQL‡

Presto‡

Qubole Presto‡

- Azure Data Lake Storage Gen2‡
- Azure Synapse Analytics (SQL Server compatible)
- Box‡
- Cloudera Hadoop‡
- Databricks‡
- Datorama by Salesforce‡
- Denodo‡
- Dremio by Dremio‡
- Impala‡
- Kyvos‡
- MariaDB‡
- Microsoft Azure SQL Database‡
- Microsoft Azure Synapse Analytics‡
- Microsoft SQL Server‡
- MongoDB BI Connector‡
- MySQL‡
- Salesforce‡
- SAP HANA (for virtual connections only)‡
- SharePoint Lists‡
- SingleStore (formerly MemSQL)‡
- Snowflake‡
- Spark SQL‡
- Teradata**‡
- Vertica‡

*For more information about using OAuth 2.0 standard for Google BigQuery, OneDrive, and Dropbox connections in Tableau Cloud, see OAuth Connections.

**Teradata web authoring currently doesn’t support query banding functionality. See Teradata for details.

‡Supports virtual connections if you have Data Management. See About Virtual Connections and Data Policies in the Tableau Cloud help for details.

§Tableau Cloud doesn't support SSL using Google Cloud SQL.

Tableau Catalog Supported Connectors

Tableau Catalog supports making a connection with a subset of data connectors that Tableau Cloud supports. If a data source, database, file, or table is grayed out, you can't connect from Tableau Cloud. You can, however, connect from the Tableau Desktop **Connect** pane, if you have the correct permissions.

Use Dashboard Starters

On Tableau Cloud, you can author and analyze data from LinkedIn Sales Navigator, Oracle Eloqua, Salesforce, ServiceNow ITSM, and QuickBooks Online using Dashboard Starters. On the **Dashboard Starter** tab, from the list of pre-built designs, select an option and click **Use Dashboard**. See Dashboard Starters for Cloud-based Data Sources for details.

Tableau Public

On Tableau Public, you can connect to data by uploading a supported file.

Connect to files

Tableau supports uploading Excel or text-based data sources (.xlsx, .csv, .tsv) directly in your browser. In the **Files** tab of the Connect to Data pane, connect to an Excel or text file by dragging and dropping it into the field or clicking **Upload from Computer**. The maximum file size you can upload is 1 GB.

If you don’t have a data set, check out the free sample data sets on the Tableau Public website.

Use connectors

From the **Connectors** tab, you can connect to data housed in a cloud database. You must supply connection information for each data connection that you make. For example, for most data connections, you must supply your sign-in information.

Supported Connectors has information on how to connect Tableau to your data using connectors. If the connector you need doesn't appear in the Connectors tab, you can connect to data through Tableau Desktop and create an data extract.

Note: If you're unable to connect to your data from Tableau Public, check to see if the database is publicly accessible. Tableau Public can only connect to data that's accessible from the public internet.

Tableau Public Connectors

Google Drive

OData

After you connect

When Tableau connects to your data, the Data Source page opens so that you can prepare the data for analysis and begin building your view. To learn more, see Creators: Prepare Data on the Web.

Keep data fresh in web authoring

Update uploaded files in Tableau Cloud or Tableau Server: If you manually upload a file (Excel or text) for web authoring, Tableau can't refresh the file automatically. To update your data, select "Edit Connection" to upload a new version of the file.

In Tableau Public, go to your viz and click **Request Update**. You can also keep your data fresh automatically by selecting "Keep this data in sync" in Tableau Desktop Public Edition.

Update file-based published data sources in Tableau Cloud: If you have a published data source in Tableau Cloud (published through Tableau Desktop) that uses file-based data, you can keep it fresh using Tableau Bridge. For more information, see Expand Data Freshness Options by Using Tableau Bridge.

Run Initial SQL

Note: Tableau Prep Builder version 2019.2.2 and later supports using Initial SQL, but doesn't yet support all of the same options supported by Tableau Desktop For information about using Initial SQL with Tableau Prep Builder, see Use Initial SQL to query your connections in the Tableau Prep Builder Salesforce Help.

When connecting to some databases, you can specify an initial SQL command that will run or use a cached value when a connection is made to the database, for example, when you open the workbook, refresh an extract, sign in to Tableau Server, or publish to Tableau Server.

Note: Initial SQL is different than a custom SQL connection. A custom SQL connection defines a relation (or table) to issue queries against. For more information, see Connect to a Custom SQL Query.

You can use this command to:

- Set up temporary tables to use during the session.
- Set up a custom data environment.

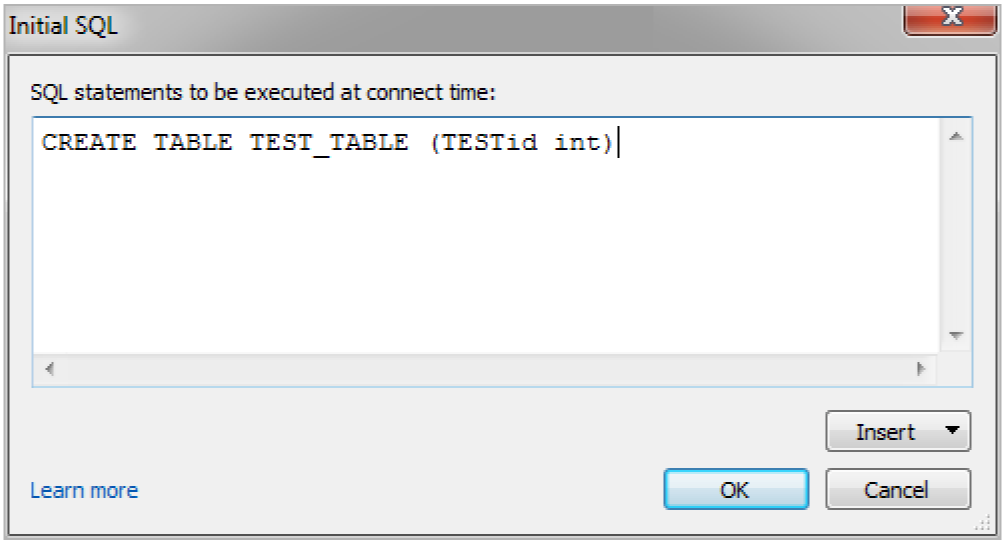
You have the option to add an initial SQL command in the Server Connection dialog box or on the Data Source page.

Note: If your data source supports running an initial SQL statement, an **Initial SQL** link appears in the lower-left corner of the Server Connection dialog box. For information about your data source, see Supported Connectors.

To use initial SQL

1. In the Server Connection dialog box, click **Initial SQL**. Or, on the Data Source page, select **Data** > **Initial SQL** or **Data** > **Query Banding and Initial SQL** depending on the database you connect to.

2. Enter the SQL command into the Initial SQL dialog box. You can use the **Insert** drop-down menu to pass parameters to your data source.



```
CREATE TABLE TEST_TABLE (TESTid int)
```

Note: Tableau doesn't examine the statement for errors. This SQL statement is sent to the database when you connect.

Your software license may restrict you from using initial SQL with your connection. If you publish to Tableau Server, the server must be configured to allow Initial SQL statements. By default, the server software is configured to allow these statements to run when the workbook is loaded in a web browser.

Administrators can configure the server to ignore initial SQL statements by using the `tsm configuration set` command:

```
tsm configuration set -k vizqlserver.initialsql.disabled -v true
```

If the server doesn't allow initial SQL statements, the workbook opens, but the initial SQL commands aren’t sent.

For more information about the `tsm configuration set` command, see the Tableau Server Help.

Parameters in an initial SQL statement

You can pass parameters to your data source in an initial SQL statement. The following list has several benefits of using parameters in a initial SQL statement.

- You can configure impersonation using the **TableauServerUser** or **TableauServerUserFull** parameters.
- If your data source supports it, you can set up row-level security (for example, for Oracle VPD or SAP Sybase ASE) to make sure that users see only the data that they’re authorized to see.
- You can provide more details in logging, for example, the Tableau version or the workbook name.

The following parameters are supported in an initial SQL statement:

Parameter	**Description**	**Example of returned value**
TableauServerUser	The username of the current server user. Use when setting up impersonation on the server. Returns an empty string if the user isn’t signed in to Tableau Server.	jsmith
TableauServerUserFull	The username and domain of the current server user. Use when setting up impersonation on the server. Returns an empty string if the user isn’t signed in to Tableau Server.	domain.lan\jsmith

TableauApp	The name of the Tableau application.	Tableau Desktop Professional Tableau Server
TableauVersion	The version of the Tableau application.	9.3
WorkbookName	The name of the Tableau workbook. Use only in workbooks with an embedded data source.	Financial-Analysis

Warning: Tableau Desktop doesn't include domain. You can include it if you aren't using delegation and you set tsm configuration set -k DelegationUseFullDomainName=-v true--force-keys

The following examples show different ways you can use parameters in an initial SQL statement.

- This example sets the security context on Microsoft SQL Server:

  ```
  EXECUTE AS USER = [TableauServerUser] WITH NO REVERT;
  ```

- This example shows how, on a DataStax data source, you can use parameters to add detail to logging or to set up a session variable to track the data:

  ```
  SET TABLEAUVERSION [TableauVersion];
  ```

- This example can be used to help set up row-level security for Oracle VPD:

  ```
  begin

   DBMS_SESSION.SET_IDENTIFIER([TableauServerUser]);

  end;
  ```

> **Note:**Oracle PL/SQL blocks require a trailing semicolon to terminate the block. Consult Oracle documentation for the proper syntax.

Defer execution to the server

You can defer an initial SQL statement so that it's executed only on the server. One reason to defer execution to the server is if you don't have permission to execute the commands that set up impersonation. Use <ServerOnly></ServerOnly> tags to enclose the commands to be executed only on the server.

Example:

```
CREATE TEMP TABLE TempTable(x varchar(25));
INSERT INTO TempTable VALUES (1);
<ServerOnly>INSERT INTO TempTable Values(2);</ServerOnly>
```

Security and impersonation

When you use the **TableauServerUser** or **TableauServerUserFull** parameter in an initial SQL statement, you'll create a dedicated connection that can't be shared with other users. This can also restrict cache sharing, which can enhance security, but may also slow performance.

Troubleshoot 'create table' for MySQL and Oracle connections

For MySQL connections, tables aren't listed after using initial SQL to create a table

After you connect to MySQL and run an initial SQL statement, the tables might not show because of the way Tableau constructs the query.

```
CREATE TABLE TestV1.testtable77(testID int);
```

To resolve this issue, add `IF NOT EXISTS` to the SQL statement:

```
CREATE TABLE IF NOT EXISTS TestV1.TestTable(testID int);
```

For Oracle connections, using initial SQL to create a table causes Tableau to stall

After you connect to Oracle and run an initial SQL statement, Tableau is stalled with a spinning wheel because of the way Tableau constructs the query.

```
CREATE TABLE TEST_TABLE (TESTid int)
```

To resolve this issue, use the following SQL statement:

```
BEGIN
EXECUTE IMMEDIATE 'create table test_table(testID int)';
EXCEPTION
WHEN OTHERS THEN NULL;
END;
```

Extract Upgrade to .hyper Format

In Tableau version 2018, we introduced the `.hyper` format for Tableau extracts to replace the old `.tde` format. The `.hyper` format has been the standard format used by Tableau to create extracts since 2018, and the large majority of extracts are now `.hyper` files. Beginning in early 2023, Tableau discontinued support for the `.tde` format on Tableau Cloud and Tableau Public. For more details about this deprecation, see this Tableau Community post.

Discontinuation of support for .tde files

Beginning in 2023, the `.tde` format for Tableau extracts was deprecated. This format was replaced by the `.hyper` format in 2018 but continued to be valid for uploaded files until March 2023.

- This change took place for Tableau Cloud and Tableau Public as of March 2023.
- Beginning with version 2023.1.0 of Tableau Server, the uploading of `.tde` format files is disabled.
- 2024.2 is the last version of Tableau Desktop that supports any .tde-based workbooks, data sources, or bookmarks. Versions 2024.3 and beyond only support .hyper format.

Manually upgrade your .tde extract using Tableau Desktop

If you manage extracts locally, you can manually upgrade your `.tde` extract to a `.hyper` extract using Tableau Desktop.

> **Note**: This functionality is only available in Tableau Desktop versions 2024.2 and older.

1. In Tableau Desktop, open a workbook that uses a `.tde` extract.
2. Select the extract data source from the **Data** menu and then select **Extract** > **Upgrade**.
3. Select **File** > **Save**, which saves the workbook and also completes the extract upgrade.

Manually upgrade your .tde with a live connection

If your .tde file uses a live connection (as opposed to an extract), you need to upgrade the file by following the instructions in this Tableau Community post about updating to .hyper files. It is not possible to update .tde files with live connections using Tableau Desktop.

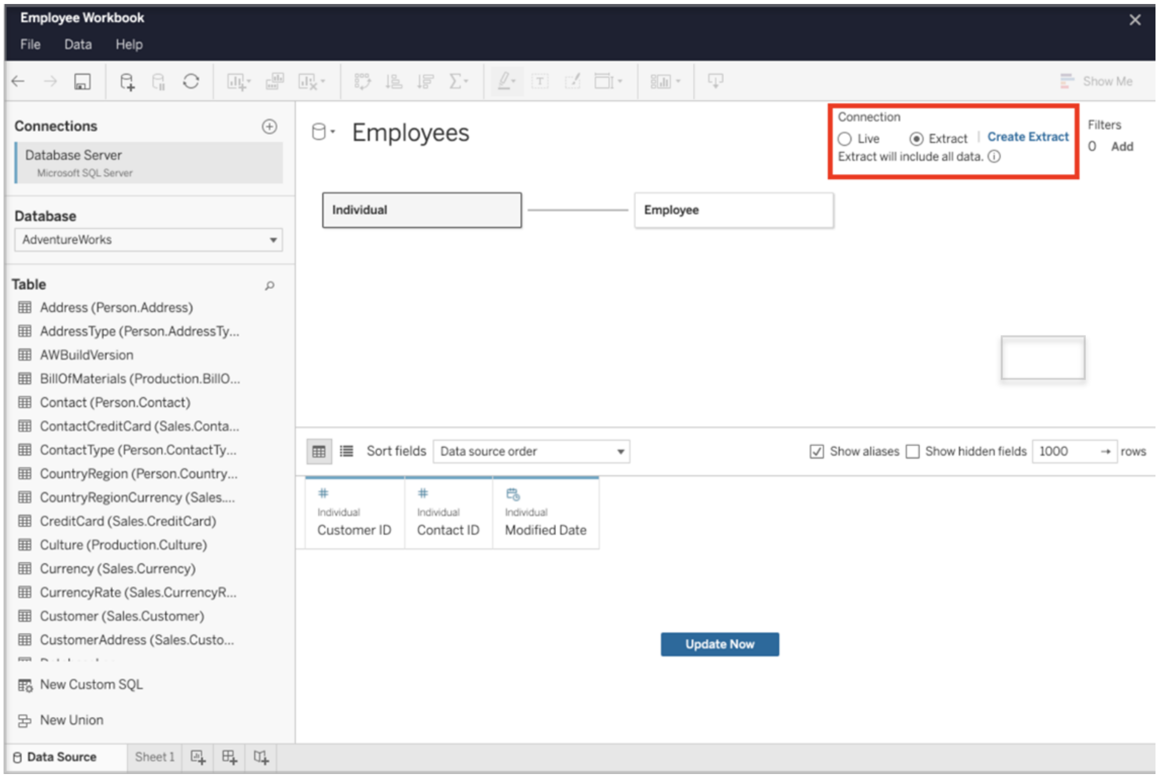
Create Extracts on the Web

You can extract your data sources on the web (without using Tableau Desktop) to improve data source performance and support additional analytical functions. When you extract your data source, Tableau will copy the data from your remote data store to Tableau Server or Tableau Cloud. To learn more about the benefits of extracting your data, see Extract Your Data. On the web, you can extract while in Web Authoring or while in Content Server.

Create extracts in Web Authoring

You can create extracts directly in web authoring with default extract settings.

Extract an Embedded Data Source in Web Authoring


Employee Workbook
File
Data
Help
Show Me
Connections
Database Server
Microsoft SQL Server
Database
AdventureWorks
Table
Address (Person.Address)
AddressType (Person.AddressTy...
AWBuildVersion
BillOfMaterials (Production.BillO...
Contact (Person.Contact)
ContactCreditCard (Sales.Conta...
ContactType (Person.ContactTy...
CountryRegion (Person.Country...
CountryRegionCurrency (Sales....
CreditCard (Sales.CreditCard)
Culture (Production.Culture)
Currency (Sales.Currency)
CurrencyRate (Sales.CurrencyR...
Customer (Sales.Customer)
CustomerAddress (Sales.Custo...
New Custom SQL
New Union
Employees
Connection
○ Live
● Extract
Create Extract
Extract will include all data.
Filters
0 Add
Individual
Employee
Sort fields
Data source order
☑ Show aliases
☐ Show hidden fields
1000
rows
Individual
Customer ID
Individual
Contact ID
Individual
Modified Date
Update Now
Data Source
Sheet 1

Complete the following steps to create an extract in web authoring.

Tip: It's recommended to finalize your data model before you create the extract. Extract creation may take a long time and any changes to your data model, such as adding new logical tables, will invalidate the extract.

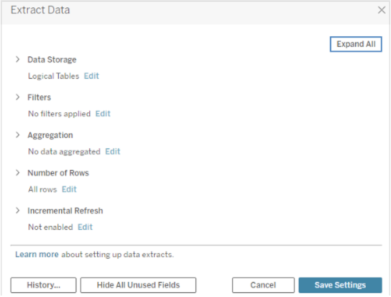
1. Select the **Data Source** tab in the bottom left corner of the web authoring pane. For new workbooks, you will start in the **Data Source** tab.
2. In the top-right corner, change the connection type from **Live** to **Extract**.
3. Select **Create Extract**. You will see the **Creating Extract** dialog box.

Extract creation might take a long time and you can close your authoring session while the extract is being created. To ensure your extract creation isn't lost, in the dialog box, choose **Notify Me When Complete** to specify a location for the extracted workbook to be saved. If your extract succeeds, your workbook will be saved to the specified location and you will be notified that you can continue your web authoring session.

If your extract creation fails, you will be notified that the extract couldn't be created and you can restore your unsaved changes by reopening the original workbook in web authoring.

Define your Extract Settings

You can configure one or more of the following options to tell Tableau how to store, define filters for, and limit the amount of data in your extract.



Data Storage
Logical Tables Edit

Filters
No filters applied Edit

Aggregation
No data aggregated Edit

Number of Rows
All rows Edit

Incremental Refresh
Not enabled Edit

Learn more about setting up data extracts.

Decide how the extract data should be stored

You can choose to have Tableau store the data in your extract using one of two structures (schemas): logical tables (denormalized schema) or physical tables (normalized schema). For more information about logical and physical tables, see The Tableau Data Model. The option you choose depends on what you need.

Logical Tables

Logical Tables store data using one extract table for each logical table in the data source. Physical tables that define a logical table are merged and stored with that logical table. For example, if a data source was made of a single logical table, the data would be stored in a single table.

If a data source was made of three logical tables (each containing multiple physical tables), the extract data would be stored in three tables—one for each logical table.

Select **Logical Tables** when you want to limit the amount of data in your extract with additional extract properties like extract filters, aggregation, Top N, or other features that require denormalized data. Also use when your data uses pass-through functions (RAWSQL). This is the default structure Tableau uses to store extract data.

If you use this option when your extract contains joins, the joins are applied when the extract is created.

Physical Tables

Physical Tables stores data using one extract table for each physical table in the data source.

Select **Physical Tables** if your extract is comprised of tables combined with one or more equality joins and meets the conditions for using the Physical Tables option listed below. If you use this option, joins are performed at query time.

This option can potentially improve performance and help reduce the size of the extract file. For more information about how Tableau recommends you use the Physical Tables option, see Tips for using the Physical Tables option in the Tableau Desktop help.

In some cases, you can also use this option as a workaround for row-level security. For more information about row-level security using Tableau, see Restrict Access at the Data Row Level in the Tableau Desktop help.

Conditions for using the Physical Tables option

To store your extract using the Physical Tables option, the data in your extract must meet all of the conditions listed below.

- All joins between physical tables are equality (=) joins.
- Data types of the columns used for relationships or joins are identical.
- No pass-through functions (RAWSQL) used.
- No incremental refresh configured.
- No extract filters configured.
- No Top N or sampling configured.
- When the extract is stored as physical tables, you can't append data to it.

- For logical tables, you can't append data to extracts that have more than one logical table.

> **Note:** Both the Logical Tables and Physical Tables options only affect how the data in your extract is stored. The options don't affect how tables in your extract are displayed on the Data Source page.

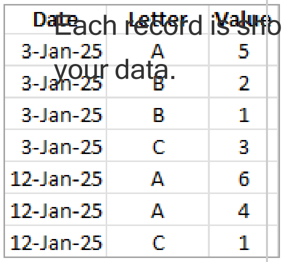
Determine how much data to extract

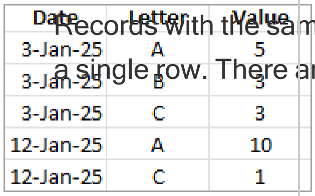
Select **Add** to define one or more filters to limit how much data gets extracted based on fields and their values.

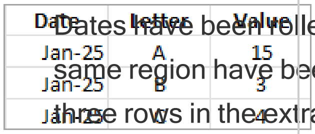
Aggregate the data in the extract

Select **Aggregate data for visible dimensions** to aggregate the measures using their default aggregation. Aggregating the data consolidates rows, can minimize the size of the extract file, and increase performance.

When you choose to aggregate the data, you can also select **Roll up dates** to a specified date level such as Year, Month, etc. The following examples show how the data will be extracted for each aggregation option you can choose.

<table>
<tr>
<td>Original data</td>
<td>
<table>
<tr><th>Date</th><th>Letter</th><th>Value</th></tr>
<tr><td>3-Jan-25</td><td>A</td><td>5</td></tr>
<tr><td>3-Jan-25</td><td>B</td><td>2</td></tr>
<tr><td>3-Jan-25</td><td>B</td><td>1</td></tr>
<tr><td>3-Jan-25</td><td>C</td><td>3</td></tr>
<tr><td>12-Jan-25</td><td>A</td><td>6</td></tr>
<tr><td>12-Jan-25</td><td>A</td><td>4</td></tr>
<tr><td>12-Jan-25</td><td>C</td><td>1</td></tr>
</table></td>
<td>Each record is shown as a separate row. There are seven rows in your data.</td>
</tr>
<tr>
<td>Aggregate data for visible dimensions

<i>(no roll up)</i></td>
<td>
<table>
<tr><th>Date</th><th>Letter</th><th>Value</th></tr>
<tr><td>3-Jan-25</td><td>A</td><td>5</td></tr>
<tr><td>3-Jan-25</td><td>B</td><td>3</td></tr>
<tr><td>3-Jan-25</td><td>C</td><td>3</td></tr>
<tr><td>12-Jan-25</td><td>A</td><td>10</td></tr>
<tr><td>12-Jan-25</td><td>C</td><td>1</td></tr>
</table></td>
<td>Records with the same date and region have been aggregated into a single row. There are five rows in the extract.</td>
</tr>
</table>

Aggregate data for visible dimensions *(roll up dates to Month)*		Dates have been rolled up to the Month level and records with the same region have been aggregated into a single row. There are three rows in the extract.

Date	Letter	Value
Jan-25	A	15
Jan-25	B	3
Jan-25	C	4

Choose the rows to extract

Select the number of rows you want to extract.

You can extract All rows or the Top N rows. Tableau first applies any filters and aggregation and then extracts the number of rows from the filtered and aggregated results. The number of rows options depend on the type of data source you are extracting from.

Notes:

- Not all data sources support sampling. So, you might not see the Sampling option in the Extract Data dialog box.
- Any fields that you hide first in the Data Source page or on the sheet tab will be excluded from the extract.

Configure Incremental Refresh Settings

Most data sources support an incremental refresh. Rather than refreshing the entire extract, you can configure a refresh to add only the rows that are new since the previous time you extracted the data.

For example, you may have a data source that is updated daily with new sales transactions. Rather than rebuild the entire extract each day, you can just add the new transactions that occurred that day. To have incremental refresh as an option when you schedule a refresh you must first define the settings.

Periodically you might want to do a full refresh to ensure you have the most up to date data.

Note: If the data structure of the source data changes (for example, a new column is added), you will need to do a full extract refresh before you can start doing incremental refreshes again.

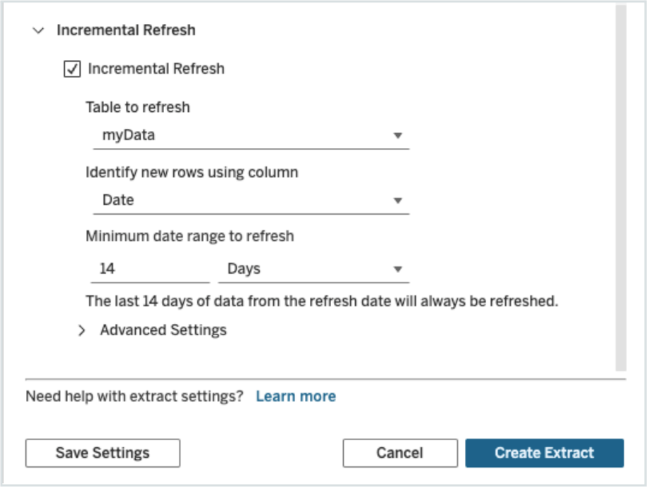
Set up Incremental Refresh

Follow the steps below to set up an extract to be refreshed incrementally. Ensure you’ve selected **All rows** in the **Number of Rows** section.

Incremental refreshes can only be defined when you are extracting from all rows in the database. You can't incrementally refresh a sample extract.

1. Expand the **Incremental Refresh** section.
2. Check the **Incremental refresh** box.
3. Choose a table to refresh.
4. Select a column to use for identifying new rows.
5. (Optional) Enter an amount of time and unit of time in the **Minimum date range to refresh** fields to extract new data added since the last refresh, and also replace a subrange of existing data in the extract to capture changes that may have occurred in the data source. You have the option to define the length of time in multiple ways from seconds to years within this field. For example, you could enter "2" and "months" to have the extract refresh get all new rows, plus refresh the previous two months worth of data.

Note: Configuring extract refreshes along with a minimum date to refresh can be complex to understand. Before you use it, see Configure an incremental extract refresh.



Incremental Refresh
☑ Incremental Refresh
Table to refresh
myData
Identify new rows using column
Date
Minimum date range to refresh
14
Days
The last 14 days of data from the refresh date will always be refreshed.
Advanced Settings
Need help with extract settings? Learn more
Save Settings
Cancel
Create Extract

Use Advanced Settings

You can expand **Advanced Settings** to establish how new rows are retrieved.

> **Note:** If you have set a Minimum date range for refreshing, the Advanced Settings feature won't be accessible.

Advanced Settings allow you to either replace the last rows added by refreshing values equal to or greater than the last recorded value, or retain the last rows added by only refreshing the extract with values greater than the last recorded value.

In the first approach, Tableau allows users to incrementally refresh extracts with a non-unique key column such as date, datetime, or ID.

This method adds a new step when performing an incremental refresh. Tableau will first delete rows in the extract that are equal to the previous highest value seen. Tableau then queries for all rows that are higher than or equal to the previous highest value which will pick up all the deleted rows and any new ones.

Conversely, you can still opt to not replace the last rows added and only add rows with values greater than the last recorded value.

To finish, select **Create Extract**.

Considerations when refreshing extracts

Editing an extract:

If you're editing an existing extract, the last refresh is shown so you can be sure you are updating the extract with the correct data.

Full Refresh:

A Full Refresh replaces all of the rows with the data in the original data source every time you refresh the extract. A Full Refresh can take longer and be expensive on the database.

Date/Time precision and extracts:

The data engine, which is the underlying mechanism that Tableau uses to create extracts, stores time values with a precision of up to 3 decimal places.

If you specify a datetime or timestamp column for Identify new rows using column, and your database uses a higher precision than Tableau, you can end up with duplicate rows after an incremental refresh.

For example, if the database has two rows, one with a datetime value of 2015-03-13 17:30:56.502352 and one with a datetime value of 2015-03-13 17:30:56.502852, Tableau will store both rows using a datetime value of 2015-03-13 17:30:56.502 thereby creating duplicate rows.

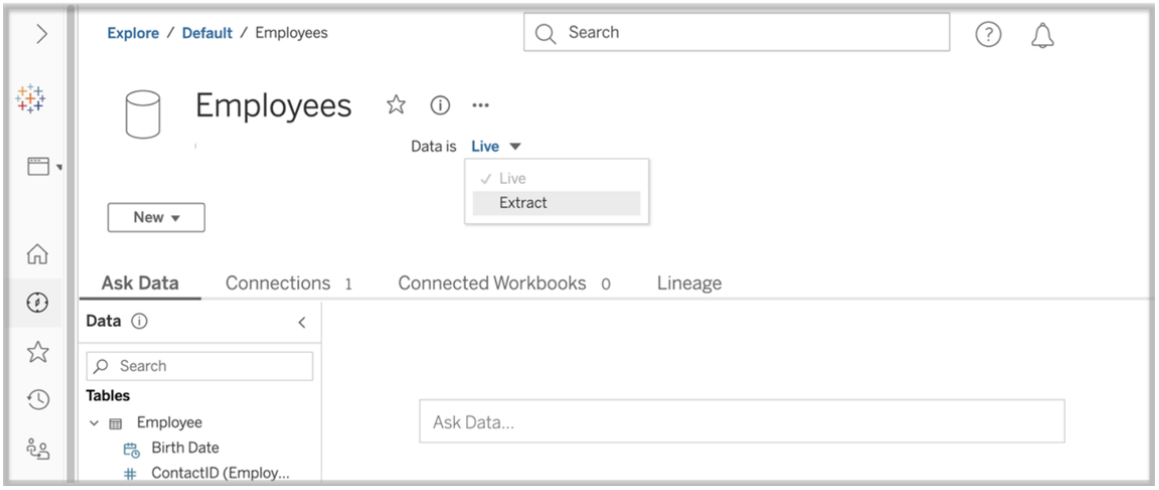
Limitations

- You can't create extracts for embedded data sources that reference published data sources. As a workaround, create the extract directly on the published data source. For more information, see Extract a Published Data Source on Content Server.
- You can't create extracts for file-based data sources. File-based data sources already have special performance features and adding extraction will have no performance benefit.
- This feature doesn't apply to bridge-based data sources in Tableau Cloud.

- Custom SQL Limitation: Custom SQL queries aren't supported with Advanced Settings. Users relying on custom SQL will need to adjust their approach if they wish to use the Advanced Settings for incremental refresh.

Create extracts in Content Server

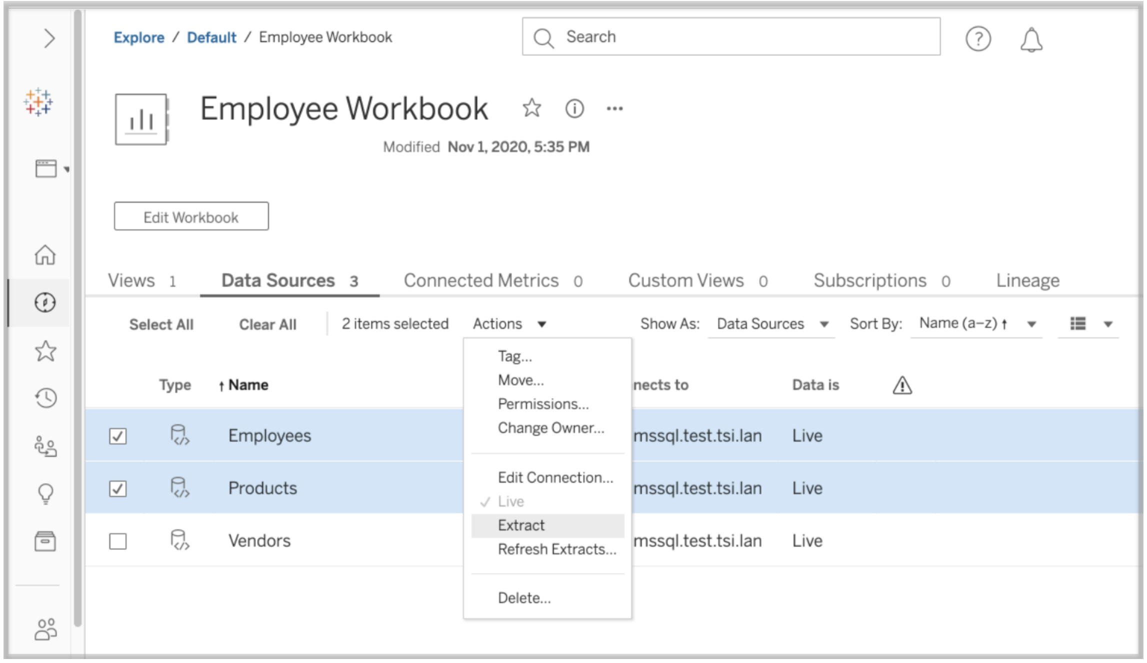
Extract a Published Data Source on Content Server


Explore / Default / Employees
Search
Employees
Data is Live
✓ Live
Extract
New
Ask Data
Connections 1
Connected Workbooks 0
Lineage
Data
Search
Tables
Employee
Birth Date
ContactID (Employ...
Ask Data...

Complete the following steps to extract a published data source.

1. Sign in as an administrator or as the owner of the data source.
2. On the Content tab, select **Explore,** and then select **Data sources**.
3. Select a data source by clicking on the Data Source name.
4. At the top of the screen, under the Data Source name, select the drop-down menu that says **Live**.
5. Change the connection type from **Live** to **Extract**. If the extract encryption at rest feature is enabled on the site, select either **Encrypted** or **Unencrypted**.
6. If you see an error message about embedded credentials, embed your credentials in the data source. To do this, choose **Edit Connection**. Select "Embedded password in connection” and then choose **Save**.

Extract an Embedded Data Source on Content Server


Explore / Default / Employee Workbook
Search
Employee Workbook
Modified Nov 1, 2020, 5:35 PM
Edit Workbook
Views 1
Data Sources 3
Connected Metrics 0
Custom Views 0
Subscriptions 0
Lineage
Select All
Clear All
2 items selected
Actions
Show As: Data Sources
Sort By: Name (a–z) ↑
Tag...
Move...
Permissions...
Change Owner...
Edit Connection...
✓ Live
Extract
Refresh Extracts...
Delete...

	Type	↑ Name	nects to	Data is
☑		Employees	mssql.test.tsi.lan	Live
☑		Products	mssql.test.tsi.lan	Live
☐		Vendors	mssql.test.tsi.lan	Live

Complete the following steps to extract one or more data sources that are embedded in a published workbook.

1. Sign in as an administrator or as the owner of the data source.
2. Navigate to the published workbook.
3. Navigate to the Data Sources tab
4. Select one or more of the data sources.
5. Choose the **Action** button.
6. Select **Extract**. If the extract encryption at rest feature is enabled on the site, select either **Encrypted** or **Unencrypted**.

Limitations

- Your connection credentials must be embedded in the data source.
- You can't create extracts for embedded data sources that reference published data sources. As a workaround, create the extract directly on the published data source.

- You can't create extracts for file-based data sources. File-based data sources already have special performance features and adding extraction will have no performance benefit.
- Starting with version 2023.1, changing a live connection to an extract on Content Server will remove any extract filters that were previously created on Tableau Desktop or Web Authoring.
- This feature doesn't apply to bridge-based data sources in Tableau Cloud.

Keep Extracted Data Fresh

After data is extracted, you can optionally set up an extract refresh schedule to keep the data fresh. For more information, see Schedule Refreshes on Tableau Cloud.

Monitor and Manage Extracts

Server administrators can monitor extract creation on the **Background Tasks for Extracts** admin view. For more information, see Background Tasks for Extracts.

Server administrators can manage extracts on the Jobs page. For more information, see Managing Background Jobs in Tableau Cloud.

Keep Data Fresh

After you publish workbooks and data sources to Tableau Cloud, you can decide how you want to keep the data current. Options for keeping published data fresh depend on the characteristics of your data sources.

Data freshness options by data source

The following table lists data freshness options (and exceptions) that are available depending on the data source.

Exceptions

- Tableau Cloud does not support connections to any cube-based data source.
- Tableau Cloud does not support published connections that use Kerberos authentication.
- Although you can publish extracts of SAP BW data to Tableau Cloud, refreshes are not supported. The best way to update SAP BW data sources is to republish them.

Options

Source	Publish options	Freshness options	Authentication
On-premises data (accessible only from a private network)			
File-based data (Excel, .csv, .txt)	Extract only	Use Tableau Bridge (recommended) Manual refresh from Tableau Desktop Automated command-line scripts	n/a
Statistical file (SAS (*.sas7bdat))	Extract only	Use Tableau Bridge (recommended) Manual refresh from Tableau Desktop Automated command-line scripts	n/a
Data hosted on a cloud platform (For example, Oracle on Amazon RDS)	Live connection or extract, depending on database	Use Tableau Bridge (recommended) Manual refresh from Tableau Desktop Automated command-line scripts	Embedded credentials in Tableau Bridge settings

Source	Publish options	Freshness options	Authentication
Relational database (Relational databases that Tableau Desktop connects to. For example, SQL Server, Oracle, IBM DB2)	Live connection or extract, depending on database	Use Tableau Bridge (recommended) Manual refresh from Tableau Desktop Automated command-line scripts	Embedded credentials in Tableau Bridge settings
Cloud data (accessible from the public internet)			
Data hosted on cloud platforms (See the list of supported platforms in Allow Live Connections to Data Hosted on a Cloud Platform	Live connection or extract	Extracts: Schedule directly on Tableau Cloud	Embedded credentials + IP safe list Edit Connections on Tableau Cloud
Salesforce, Google Analytics	Extract only	Schedule directly on Tableau Cloud Refresh Data Using Saved Credentials	OAuth Connections
Google	Live con-	Extracts:	OAuth Con-

Source	Publish options	Freshness options	Authentication
BigQuery, Google Sheets	nection or extract	Schedule directly on Tableau Cloud Refresh Data Using Saved Credentials	nections
Cloud (Box, Dropbox, OneDrive, Google Drive) file-based data (Excel, .csv, .txt, .tab, .tsv, .json)	Live connection or extract	Extracts: Schedule directly on Tableau Cloud Refresh Data Using Saved Credentials	OAuth Connections
Anaplan Oracle Eloqua ServiceNow ITSM	Extract only	Schedule directly on Tableau Cloud Refresh Data Using Saved Credentials	Embedded credentials Edit Connections on Tableau Cloud
Marketo	Extract only	Schedule directly on Tableau Cloud	Embedded credentials
Web Data Connectors	Extract only	For basic user name and password credentials, use Tableau Bridge. For custom (non-basic) user name and password credentials, use the Tableau Desktop	Tableau Bridge: Embedded credentials Other: n/a

Source	Publish options	Freshness options	Authentication
		Refresh From Source command, or run a manual refresh from Tableau Desktop. For more information, see the WDC Authentication topic in the Tableau Web Data Connector API Help.	

IP addresses for data provider authorization

As a security measure, cloud-based data providers might require you to supply authorized IP addresses from which external applications request access to your data. A request from an IP address that is not explicitly approved could be rejected. To ensure live connections you publish to Tableau Cloud remain uninterrupted, add Tableau Cloud to your data provider's allowlist.

The table below lists Hyperforce IP addresses Tableau Cloud uses based on the pod your site resides on. You can see the pod in the URL that appears after you sign in to Tableau Cloud.

The table below lists IP addresses for each pod. It also lists Hyperforce VPCE IDs to use when your Tableau Cloud data resides in the same region as your Tableau Cloud instance. You can see the pod in the URL that appears after you sign in to Tableau Cloud.

Notes:

- In addition to enabling communication over the Tableau Cloud IP range, you might need to enable access over the appropriate database port (for example, 80 or 443) depending on the communication type (HTTP or HTTPS).
- IP addresses are dedicated to and controlled by Salesforce.

IP addresses for Tableau Cloud

Hyperforce IP addresses are added periodically and will require your data provider's allowlist to be updated. Site admins will receive an email notification alerting them when new IP addresses become available.

You can also stay informed of new IP addresses using *one* or *both* options:

- **Option 1—periodically review the IP address table below:** At least 30 days before the IP addresses are enabled, the IP address table below is updated.
- **Option 2—automate IP address updates using the JSON text file:** Salesforce recommends that your data provider's allowlist mirror the https://ip-ranges.salesforce.com/ip-ranges.json text file at all times by automating the IP address updates. New IP addresses are added to the text file at least 30 days before they're enabled.

  In the text file, the IP address for your pod are listed by the Hyperforce region that your pod resides in. To determine the Hyperforce region, refer to the "Pod" and the associated "Hyperforce Region" columns in the table below. For example, if your pod name is "prod-ca-a", your Hyperforce region is "ca-central-1". In https://ip-ranges.salesforce.com/ip-ranges.json text file, search for "ca-central-1" for the appropriate IP address to include in your data provider's allowlist.

  Notes:

  - When new IP addresses become available, a new version of the text file that contains both new and existing IP addresses replaces the previous text file.
  - The text file version is indicated by the "createDate" (in UTC).
  - Salesforce recommends that you make a copy of the previous version of the text file for your records.
  - Not all regions will receive new IP addresses at the same time.

IP addresses

Location	Hyperforce Region	Pod (Pod Name)	IP Address and Range after Hyperforce Migra-

				tion (Alternatively, search for the Hyperforce region in https://ip-ranges.salesforce.com/ip-ranges.json)
Asia Pacific	Australia	ap-southeast-2	prod-apsoutheast-a	141.163.192.0/23
	Indonesia	ap-southeast-3	prod-apsoutheast-c	141.163.212.0/24
	Japan	ap-northeast-1	prod-apnortheast-a	141.163.208.0/23
	Singapore	ap-southeast-1	prod-apsoutheast-b	141.163.196.0/23
Canada	Quebec	ca-central-1	prod-ca-a	155.226.152.0/23
Europe	Germany	eu-central-1	dub01 (DUB01) eu-west-1a (EW1A)	145.224.208.0/23
	UK	eu-west-2	prod-uk-a	145.224.200.0/23

United States - West	Oregon	us-west-2	10ax (10AX)	155.226.128.0/21
			10ay (10AY)	
			10az (10AZ)	
			uw2b (UW2B)	
			prod-uswest-c	
United States - East	Virginia	us-east-1	prod-useast-a	155.226.144.0/22
			prod-useast-b	
			us-east-1 (useast-1)	
			prod-useast-c	

About the Hyperforce migration

Between August 2024 and March 2025, Tableau Cloud sites were migrated to Salesforce's Hyperforce. This move enhances broader compliance, improves security and privacy, increases regional availability, and ensures future scalability, delivering these benefits more quickly and reliably worldwide.

Previous IP addresses

The migration to Hyperforce resulted in a change to Tableau Cloud IP addresses. The old IP addresses are provided below for reference and to assist you in identifying and removing any inactive IP addresses from your data provider's allowlist.

For active IP addresses, see the table above.

IP addresses before Hyperforce migration

Location		**Hyperforce Region**	**Pod** (**Pod Name**)	**IP Address before Hyperforce Migration**
Asia Pacific	Australia	ap-southeast-2	prod-apsoutheast-a	3.25.37.32/28
	Japan	ap-northeast-1	prod-apnortheast-a	18.176.203.96/28
Canada	Quebec	ca-central-1	prod-ca-a	3.98.24.208/28
Europe	Germany **Note:** Formerly Ireland region prior to the Hyperforce migration.	eu-central-1	dub01 (DUB01)	34.246.74.86 52.215.158.213
			eu-west-1a (EW1A)	34.246.62.141 34.246.62.203
	UK	eu-west-2	prod-uk-a	18.134.84.240/28
United States - West	Oregon	us-west-2	10ax (10AX)	34.208.207.197 52.39.159.250
			10ay (10AY)	34.218.129.202 52.40.235.24
			10az (10AZ)	34.218.83.207 52.37.252.60
			us-west-2b (UW2B)	34.214.85.34 34.214.85.244

United States - East	Virginia	us-east-1	prod-useast-a	3.219.176.16/28
			prod-useast-b	3.219.176.16/28
			us-east-1 (useast-1)	50.17.26.34 52.206.162.101

VPCE IDs for Tableau Cloud

After the migration to Hyperforce, some new requirements apply when accessing Tableau Cloud data stored in an Amazon S3 bucket.

When the data is *in the same region* as your Tableau Cloud instance:

- You *must* use a VPC endpoint (VPCE) instead of IP source addresses to control access to your S3 data.

  VPC endpoints are private connections between a virtual private cloud (VPC) and a resource (your data in S3). Using an endpoint is a better solution because an IP address can change over time.

When the S3 bucket is *in a different region* than the Tableau Cloud site:

- You need to use the IP addresses to control access to the S3 bucket.

This applies to both the S3 connector and the Snowflake connector when the Snowflake instance is on AWS in the same region as the Pod and Internal stage protection is enabled in the Snowflake instance.

IP addresses and VPCE IDs

Location		**Hyperforce Region**	**Pod (Pod Name)**	**IP Address and Range / VPCE ID**
Asia Pacific	Australia	ap-southeast-2	prod-apsouth-east-a	141.163.192.0/23

				vpce-071ca855ea8cc1154
	Indonesia	ap-southeast-3	prod-apsoutheast-c	141.163.212.0/24 vpce-05825e2ebed977018
	Japan	ap-northeast-1	prod-apnortheast-a	141.163.208.0/23 vpce-045516807606e4738
	Singapore	ap-southeast-1	prod-apsoutheast-b	141.163.196.0/23 vpce-0c47ba2622417575b
Canada	Quebec	ca-central-1	prod-ca-a	155.226.152.0/23 vpce-0fd4bd6f2f928fcf7
Europe	Germany	eu-central-1	dub01 (DUB01)	145.224.208.0/23 vpce-091ff41bc3686e6e8
			eu-west-1a (EW1A)	
	UK	eu-west-2	prod-uk-a	145.224.200.0/23 vpce-0101caa470966f49d

United States - West	Oregon	us-west-2	10ax (10AX)	155.226.128.0/21 vpce-090a7c76e361d5013
			10ay (10AY)	
			10az (10AZ)	
			uw2b (UW2B)	
			prod-uswest-c	
United States - East	Virginia	us-east-1	prod-useast-a	155.226.144.0/22 vpce-0ea40e596e16259d1
			prod-useast-b	
			us-east-1 (useast-1)	
			prod-useast-c	

Tableau Bridge connections to Tableau Cloud

To facilitate connections between on-premises data and Tableau Cloud, Tableau Bridge uses common port 443 to make outbound requests to Tableau Cloud. For more information, see Network access section in the Install Tableau Bridge topic.

See also

- Manage Data
- Best Practices for Published Data Sources (Tableau Help)
- Notify Owners When Extract Refreshes Fail
- Edit Connections on Tableau Cloud

Allow Live Connections to Data Hosted on a Cloud Platform

You have many options for managing the data underlying your Tableau Cloud workbooks. You can choose how to keep the data current based on your business needs. Depending on the data source, you can leverage a live connection, or you can create an extract and define an extract schedule to keep the data fresh. You can also embed credentials or require users to provide credentials for accessing the data when they open views that connect to content.

If you maintain relational data on a cloud platform, you can use live connections to that data when you publish workbooks and data sources to Tableau Cloud. When you use a live connection, you don't need to publish a static extract of the data.

Enable encrypted connections

Encrypting connections using SSL is an option for underlying data sources. You can enable SSL encryption for connections to your hosted SQL data when you create the connection in Tableau Desktop. Complete the following steps to enable encrypted connections.

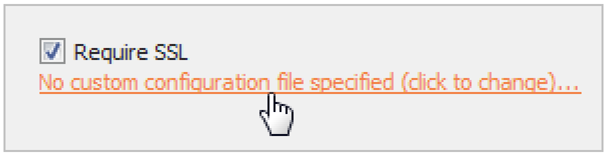
Tip: Make sure that Tableau Cloud is on your data provider's authorized list (safe list).

1. In Tableau Desktop, connect to the data.
2. In the **Server Connection** dialog box, select the **Require SSL** check box.
3. For PostgreSQL, SQL Server-compatible connections, and other connections that don't have an option to embed certificates in the data source, click **OK** to finish.

   For some compatible connections, linked text appears under the **Require SSL** checkbox. This indicates that you can specify an alternative certificate file to use, such as a self-signed certificate.

4. (Optional) Use a self-signed or other custom certificate to connect to this data over SSL.

    a. Select the link text that appears.

    ☑ Require SSL
    No custom configuration file specified (click to change)...

    b. In the **Configure and Use SSL Certificate** dialog, specify the certificate’s **.pem** file.

    For example, for MySQL connections to data hosted on Amazon RDS, you can point to Amazon’s self-signed certificate file at this address.

Untrusted certificates

If you are using certificates that aren't trusted by Tableau Cloud, such as self-signed certificates, or certificates signed by your company's internal CA, you may have problems connecting from Tableau Cloud. Try one of the following solutions.

- If your connector allows embedding custom certificates, then use that. (This is the method used in the previous section)
- Get new certificates for your database which are signed by a trusted public CA.
- Use Tableau Bridge, which is Tableau’s connection proxy. You can configure your certificates to be trusted on the machine running Bridge, either by using TDC files, properties files, or by installing your certificates in the Windows System Trust Store.

Supported connectors

Refer to the "Tableau Cloud" tab in the Creators: Connect to Data on the Web topic for the list of supported connectors.

For more information about supported features by connector, refer to the specific connector topic in the Supported Connectors section of the Tableau User Help.

Note: Not all connectors in this list are supported by Tableau Prep Conductor. To see the supported list of connectors, open Tableau Prep Builder and expand the **Connect** pane.

See also

- Connector Examples in the Tableau Help

Overview of Row-Level Security Options in Tableau

Sometimes you want to filter data based on the user that is requesting it. For example:

- You want regional salespeople to see sales figures only for their region.
- You want sales managers to see statistics only for salespeople that report to them.
- You want students to see visualizations based only on their own test scores.

An approach to filtering data this way is called row-level security (RLS). There are multiple methods to accomplish row-level security both inside and outside of Tableau, each with its own pros and cons.

Create a user filter and map users to values manually

The simplest way to achieve row-level security in Tableau is through a user filter where you manually map users to values. For example, you could manually map a user named “Alice” to the value “East” so that she only sees rows in the data source where the “Region” column is “East”.

This method is convenient but high maintenance, and attention must be paid to security. It must be done per-workbook, and you must update the filter and republish the data source as your user base changes. When you publish an asset with this type of user filter, you need to set permissions so that users cannot save or download it and remove the filter, thereby gaining access to all of the data.

For more information, see Create a user filter and map users to values manually in the Tableau Desktop and Web Authoring help.

Create a dynamic user filter using a security field in the data

Using this method, you create a calculated field that automates the process of mapping users to data values. This method requires that the underlying data include the security information you want to use for filtering. For example, using a calculated field, the USERNAME() function, and a “Manager” column in the data source, you could determine if the user requesting the view is a manager and adjust the data in the view accordingly.

Because filtering is defined at the data level and automated by the calculated field, this method is less error prone than mapping users to data values manually. When you publish an asset with this type of user filter, you need to set permissions so that users cannot save or download it and remove the filter, thereby gaining access to all of the data.

For more information, see Create a dynamic filter using a security field in the data in the Tableau Desktop and Web Authoring help.

Use a data policy

Starting in Tableau 2021.4, when Data Management is enabled in Tableau Server or Tableau Cloud, users with a Creator license can implement row-level security through data policies on virtual connections. Because virtual connections are centralized and reusable, you can manage row-level security for each connection in one place, safely and securely, across all content that uses that connection.

Unlike the above solutions for row-level security in Tableau, this method doesn't carry the same risk of exposing information if an author neglects to properly secure permissions on the workbook or data source, because the policy is enforced on the server for every query.

Row-level security through virtual connection data policies was developed to address shortcomings of other row-level security solutions. We recommend this solution in most situations where it's an option.

For more information on row-level security using data policies on virtual connections, see About Virtual Connections and Data Policies.

Use existing RLS in the database

Many data sources have mechanisms for RLS built in. If your organization has already put effort into building row-level security in a data source, you may be able to take advantage of your existing RLS.

It is not necessarily easier or better to implement a built-in RLS model vs. building it with Tableau in mind; these techniques are generally leveraged when an organization has already invested in these technologies and they want to take advantage of that investment, or when they need to apply the same security policies to other database clients in addition to Tableau.

The main benefit of using built-in RLS is that administrators can implement and control their data security policy in one place: their databases.

Pass user attributes

You can pass user attributes included in a JSON Web Token (JWT) to customize and control access to data in Tableau Cloud embedding workflows. For more information, see Embedding v3 API Help.

Row-level security option comparison

RLS option	Useful when	Pros	Cons
Manual user filter	• You are doing a proof of concept or testing user filtering functionality • You are creating a static workbook to use with an unchanging	• Simple at small scales • Easy to understand mapping • Good for testing	• High-maintenance • Need to update filter and republish as user base changes • Permissions must be secured to prevent users

	group of users • You understand the data security risk of having the permissions set incorrectly		from seeing unfiltered data • Must be replicated in every workbook
Dynamic user filter	• You don't have a Data Management license • The data contains information you can use to filter it • You understand the data security risk of having the permissions set incorrectly	• Relatively easy to set up	• Permissions must be secured to prevent users from seeing unfiltered data • Must be replicated in every workbook or data source
Data policy	• You have a Data Management license • The data contains information you can use to filter it • Ease of data security is a significant concern	• Centralized • Secure • Low-maintenance • Responsibilities for security and analytics can be separated	• Data Management license required
RLS in the database	• Your database has an existing RLS security built into the database • You aren’t using	• Might already be built into your organization’s database • Policies can be applied to data-	• Must use live queries • Might have limitations or requirements. Your IT team can identify

	extracts	base clients other than Tableau	them
User attributes	• You are authenticating and authorizing access to embedded content using Tableau connected apps	• Manage data access policies in the same place you manage other policies and personalization for your users	• Requires user attributes defined in the JWT, site setting enabled, and content authored with user attribute functions

Configure Connections with Analytics Extensions

Analytics extensions allow you to extend Tableau dynamic calculations in a workbook with languages like R and Python, with Einstein Discovery, and with other tools and platforms. These settings endpoints enable you to configure analytics extensions on your site in Tableau Cloud. For more information, see Analytics Extensions API.

For more information about user scenarios and configuring analytics connections in Tableau Desktop or for web authoring, see Pass Expressions with Analytics Extensions, in the *Tableau Desktop and Web Authoring Help*.

> **Note:** Beginning in June 2021, you can create multiple analytics extensions connections for a site, including multiple connection for the same type of extension (you are presently limited to a single Einstein Discovery analytics extension for each site). For details, see Tableau Cloud Release Notes.

This topic describes how to configure sites on Tableau Cloud with analytics extensions.

Security requirements and configuration

For increased security, Tableau Cloud requires an encrypted channel and authenticated access to the external services used for analytics extensions.

Certificate

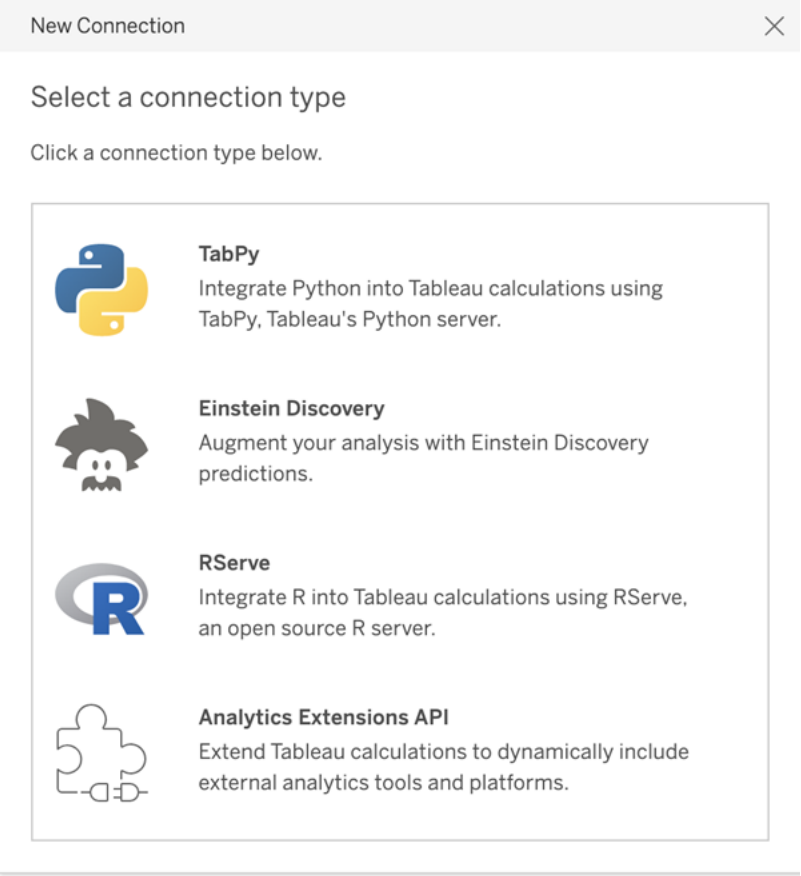
The server running the external service for analytics extensions must be configured with a valid TLS/SSL certificate from a trusted 3rd party certificate authority (CA). Tableau Cloud will not establish a connection with external servers that are configured with a self-signed certificate, a certificate from a private PKI, or a certificate that is not trusted by an established 3rd party CA.

Safelist firewall configuration

Many organizations deploy a firewall that requires safelist exceptions for known hosts outside the network. In this scenario, you will need to specify two Tableau Cloud IP addresses as exceptions. The Tableau Cloud IP addresses used for connections to analytics extensions servers are `44.224.205.196` and `44.230.200.109`.

Configure analytics extensions settings

1. Sign in to Tableau Cloud as a site administrator.
2. Click **Settings**.
3. On the Settings page, click the **Extensions** tab and then scroll to **Analytics Extensions**.
4. Select **Enable analytics extensions for site**.
5. Click **Create new connection**.
6. In the **New Connection** dialog, click the connection type you want to add, then enter the configuration settings for your analytics service:



New Connection

Select a connection type

Click a connection type below.

TabPy
Integrate Python into Tableau calculations using TabPy, Tableau's Python server.

Einstein Discovery
Augment your analysis with Einstein Discovery predictions.

RServe
Integrate R into Tableau calculations using RServe, an open source R server.

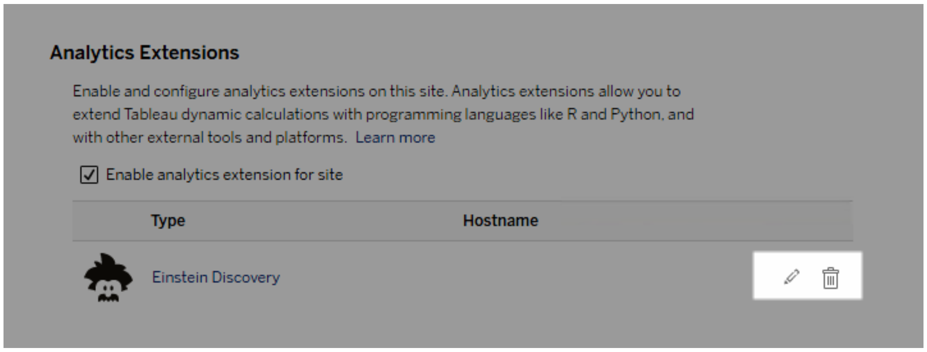
Analytics Extensions API
Extend Tableau calculations to dynamically include external analytics tools and platforms.

1. The options you need to configure depend on the connection type you choose:
   - For an Einstein Discovery connection, click **Enable**.
   - For TabPy, RServer, and Analytics Extensions API connections, enter the following information:
     - **Connection Name**: Specify the server type you are connecting to. RSERVE supports connections to R using the RServe package. TABPY supports connections to Python using TabPy, or to other analytics extensions.
     - **Require SSL**: Select this option to encrypt the connection to the analytics service. If you specify a `HTTPS` URL in the **Hostname** field, then you must select this option.
     - **Hostname**: Specify the computer name or URL where the analytics service is running. This field is case sensitive.
     - **Port**: Specify the port for the service.

  - **Sign in with a username and password**: Select this option to specify user name and password that is used to authenticate to the analytics service.
7. Click **Save**.

Edit or delete an analytics extension connection

To edit or delete a configuration, navigate to **Analytics Extensions** on the **Extensions** tab of your site.



Analytics Extensions

Enable and configure analytics extensions on this site. Analytics extensions allow you to extend Tableau dynamic calculations with programming languages like R and Python, and with other external tools and platforms. Learn more

☑ Enable analytics extension for site

Type	Hostname
Einstein Discovery	

Click the **Edit** or **Delete** icon and follow the prompts to change the configuration.

Script errors

Tableau cannot verify that workbooks that use an analytics extension will render properly on Tableau Cloud. There might be scenarios where a required statistical library is available on a user's computer but not on the analytics extension instance that Tableau Cloud is using.

A warning will be displayed when you publish a workbook if it contains views that use an analytics extension.

> This worksheet contains external service scripts, which cannot be viewed on the target platform until the administrator configures an external service connection.

Table Extensions

Table Extensions allow you to create data tables with an analytics extensions script. You can write a custom TabPy or Rserve script and optionally add one or more input tables. Table extensions are supported by Tableau Cloud, Tableau Server, and Tableau Desktop. This document focuses on Tableau Cloud.

Note: Similar to a live connection, the Table Extension refreshes every time you open up a workbook or refresh a data source.

Benefits

Table Extensions have the following benefits for both new and experienced users.

- Easily integrate scripts or advanced functions into Tableau
- Easily drag data from Tableau data connections as input into scripts
- Low code editor makes adding code to data sources easy
- Integrates with Data Guide and Explain Data
- Integrates with TabPy, Rserve, and other analytics extensions
- Results can be used to construct dashboards or visualizations

Prerequisites

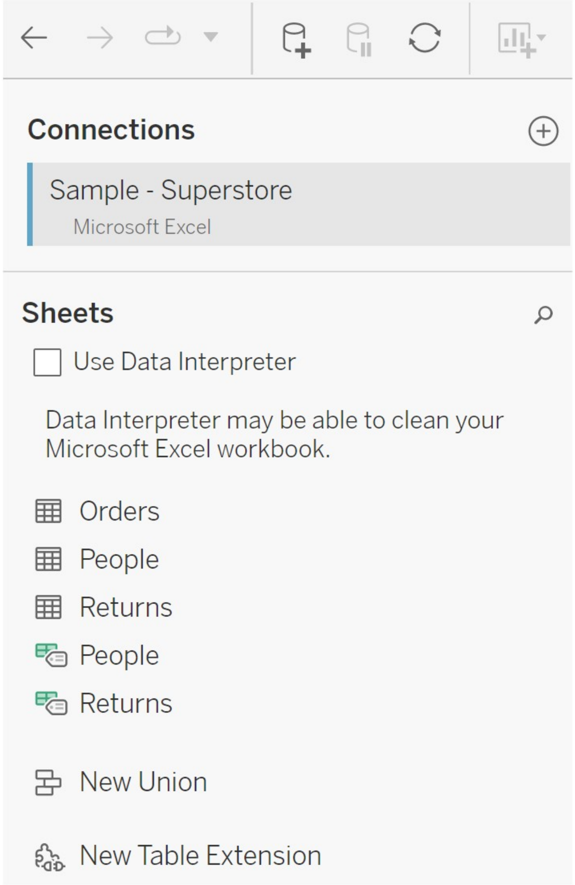
Before you can use table extensions, you must complete the following list.

- Open a data source in Desktop or Web Authoring.
- Configure an analytics extension
  - For steps to configure analytics extension connections, see Pass Expressions with Analytics Extensions.

Create a Table Extension

To create a table extension, complete the following steps.

1. Open a published workbook.
2. Open a data source or create one.
3. Under **connections**, choose **New Table Extension**.



Connections

Sample - Superstore
Microsoft Excel

Sheets

☐ Use Data Interpreter

Data Interpreter may be able to clean your Microsoft Excel workbook.

Orders
People
Returns
People
Returns

New Union

New Table Extension

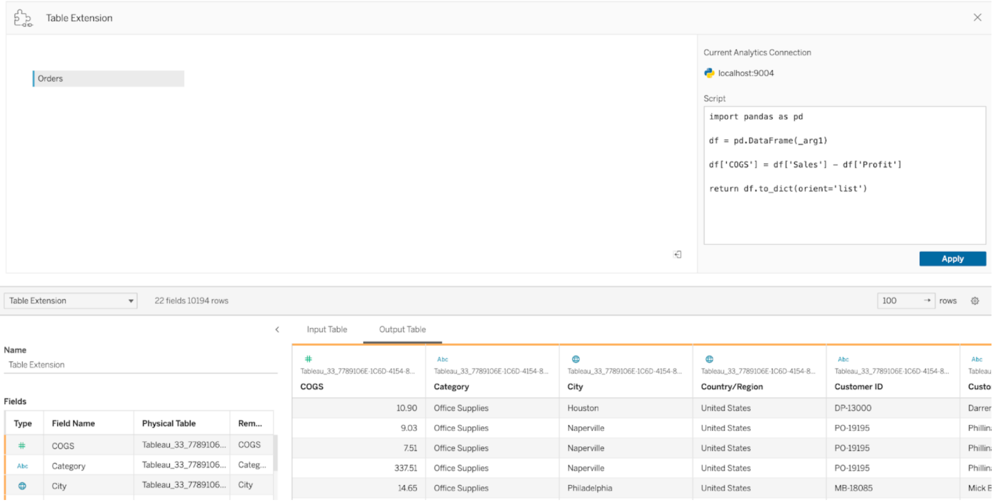
4. Drag it into the data model.
5. (Optional) Drag tables from the data connection into the table extension pane to use as input into your analytics extensions script or function.
    - By default data from Tableau is passed to the analytics extension and defined as the `variable _arg1`, a dictionary-like structure such as: `{'colum_`

```
name’: [1,2,3], ‘column_name_2’: [3,4,5]
```

Python example: The input data could be converted to a pandas dataframe using the following.

```
import pandas as pddf = (pd.DataFrame(_arg1))
```

- When using RServe, the input data is defined as the variable .arg1 and the data type are a named list of lists.
- For supported relational data sources, you can use Custom SQL as an input into a table extension. When parameters are used in the Custom SQL query, changing the parameter causes the query to rerun and the script to recompute. This creates a path to dynamically update parameters in a dashboard and filter or otherwise pass values to the table extension script.



Current Analytics Connection

localhost:9004

Script

```
import pandas as pd

df = pd.DataFrame(_arg1)

df['COGS'] = df['Sales'] - df['Profit']

return df.to_dict(orient='list')
```

22 fields 10194 rows

100 rows

Name

Table Extension

Fields

Type	Field Name	Physical Table	Rem...
#	COGS	Tableau_33_7789106...	COGS
Abc	Category	Tableau_33_7789106...	Categ...
🌐	City	Tableau_33_7789106...	City

# Tableau_33_7789106E-1C6D-4154-8... COGS	Abc Tableau_33_7789106E-1C6D-4154-8... Category	🌐 Tableau_33_7789106E-1C6D-4154-8... City	🌐 Tableau_33_7789106E-1C6D-4154-8... Country/Region	Abc Tableau_33_7789106E-1C6D-4154-8... Customer ID	Abc Tableau Custo
10.90	Office Supplies	Houston	United States	DP-13000	Darrer
9.03	Office Supplies	Naperville	United States	PO-19195	Phillin
7.51	Office Supplies	Naperville	United States	PO-19195	Phillin
337.51	Office Supplies	Naperville	United States	PO-19195	Phillin
14.65	Office Supplies	Philadelphia	United States	MB-18085	Mick E

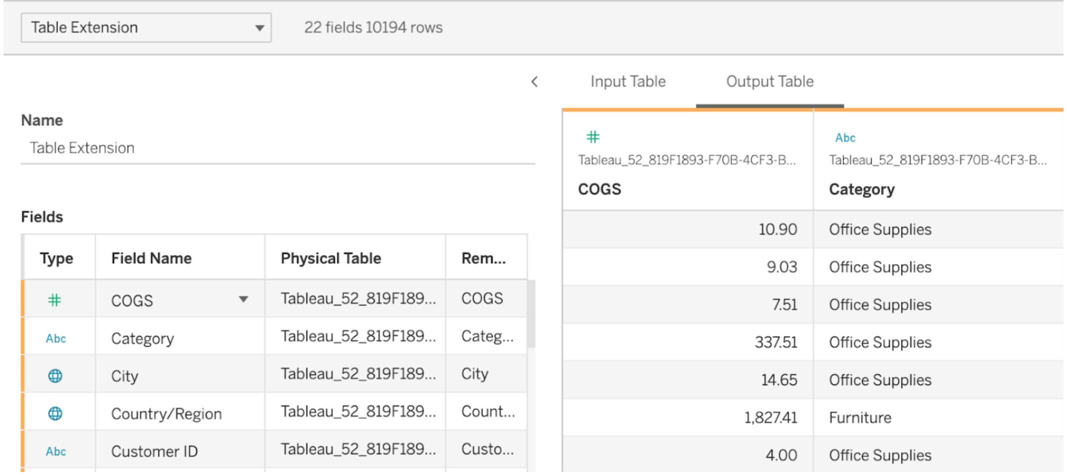
6. In the Script area, enter your script or function call. The script must return a dictionary or list of lists, essentially a JSON object. A script for RServe must return a data.frame or list of named lists while the script for Python must return a dictionary.

   Python example: We use the following explicit return command.

   ```
   return df.to_dict(orient='list')
   ```

Note: Table extensions don't support directly calling TabPy endpoints if TABPY_EVALUATE_ENABLE is disabled in TabPy.

7. Select **Apply** to run the script.
8. (Optional) If you’re relating the table extension to another table in the data model, define the relationship between at least one field in each table. If the fields have the same name, this may happen automatically.
9. Choose **Update Now** and the results appear in the **Output Table** tab.



22 fields 10194 rows

Name
Table Extension

Fields

Type	Field Name	Physical Table	Rem...
#	COGS	Tableau_52_819F189...	COGS
Abc	Category	Tableau_52_819F189...	Categ...
🌐	City	Tableau_52_819F189...	City
🌐	Country/Region	Tableau_52_819F189...	Count...
Abc	Customer ID	Tableau_52_819F189...	Custo...

# Tableau_52_819F1893-F70B-4CF3-B... COGS	Abc Tableau_52_819F1893-F70B-4CF3-B... Category
10.90	Office Supplies
9.03	Office Supplies
7.51	Office Supplies
337.51	Office Supplies
14.65	Office Supplies
1,827.41	Furniture
4.00	Office Supplies

Note: If you don't define a relationship to a table in the data model, the Input Table tab is empty and will display the message ‘Data preview unavailable’.

10. (Optional) In the **Name** field, enter a unique name for your table extension.
11. Go to the Sheet tab to start exploring and visualizing the data. Results from a table extension functions like any other data in Tableau queried from a flat file or relational source.
12. Publish the workbook to share it. The publishing destination, Server or Tableau Cloud, must have an analytics extension of the appropriate type enabled and configured.

Troubleshooting tip: Errors from analytics extensions will be surfaced in a Tableau error message if there’s a problem executing the script. If your table extension is hitting an error, ensure all code and formatting is correct and try using the circular Refresh Data Source button, located next to the Save button, or click Apply again.

Table Extensions vs Analytics Extensions

While some of these products aren't related, table extensions and analytics extensions share several features. The table extensions feature relies on a connection with analytics extensions to work. Let's break down each feature.

Dashboard Extensions

Dashboard extensions allow custom web applications to be added to dashboards using the Dashboard Extension SDK, however, this extension type isn’t related to table extensions.

Table Extensions

The Table extensions feature lets you create a table in a data source that can send data and a script to your analytics extension and return a full table of arbitrary shape as a result. The returned results are displayed as a table in the data model in the Data Source tab and as measures and dimensions in the workbook.

Analytics Extensions

The Analytics extensions feature allows you to extend Tableau calculations with programming languages like Python, external tools, and external platforms. After you create a connection to an analytics extension, you can communicate with your external server through calculated fields called SCRIPT_X or MODEL_EXTERNAL_X, where X is the data type of the expected return values. For more information, see Pass Expressions with Analytics Extensions.

Use Certification to Help Users Find Trusted Data

In a self-service environment with multiple publishers, it's common for a project on Tableau Cloud to contain a variety of content that is named similarly, or is based on the same or similar underlying data, or is published without any descriptive information about it. When this is the case, analysts might lack confidence about the data they should use.

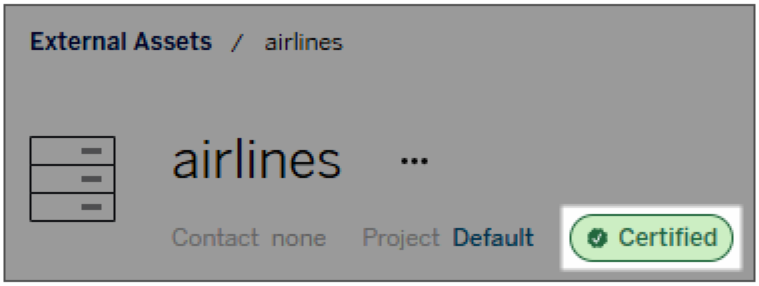
To help your users find the data that's trusted and recommended for their type of analysis, you can *certify* the data that complies with your organization's data standards.

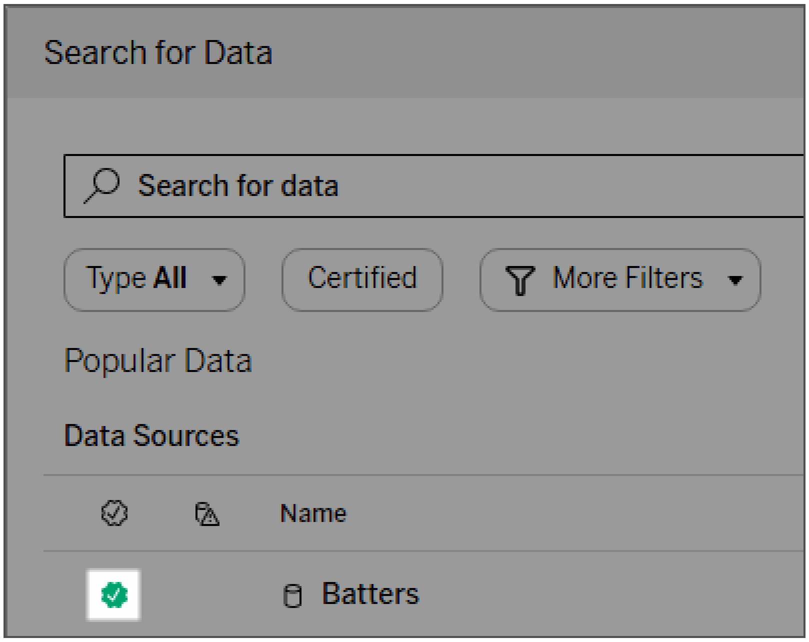
In addition to certifying published data sources, if you have a Data Management license for Tableau Server or Tableau Cloud:

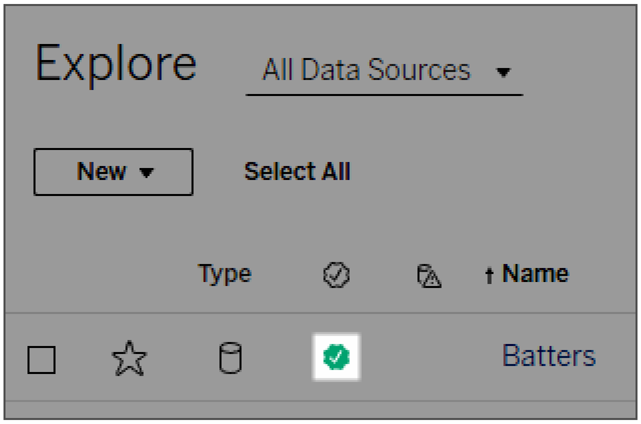
- If Tableau Catalog is enabled, you can certify databases and tables that are associated with your Tableau content. (For more information about Tableau Catalog, see "About Tableau Catalog" in the Tableau Server or Tableau Cloud Help.)
- Starting in Tableau 2022.1, you can certify virtual connections and virtual connection tables.

How certification helps users find trusted data

When you certify an asset, users see a green badge or green check mark, depending on where the asset is being viewed.

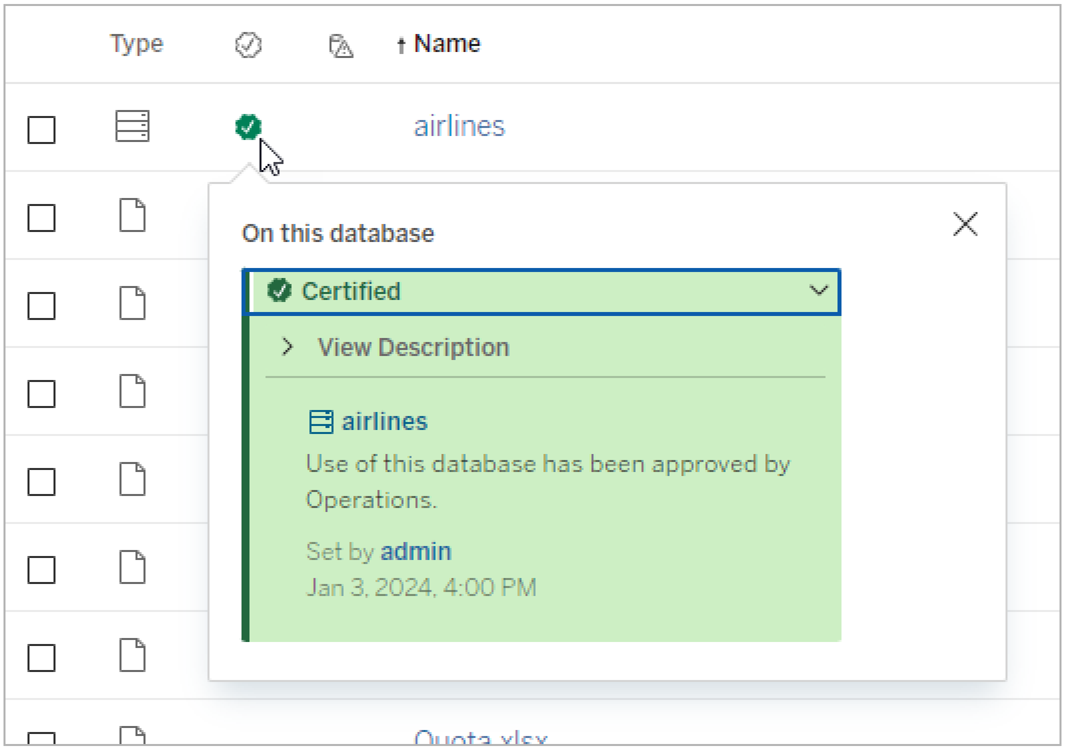



Search for Data
Search for data
Type All
Certified
More Filters
Popular Data
Data Sources
Name
Batters


Explore
All Data Sources
New
Select All
Type
Name
Batters

Certified data sources rank higher in search results and are added to recommended data sources.

In addition, you can provide notes about the certification status, which appear when users click the badge, or in a tooltip when they hover over the data source icon in web authoring or Tableau Desktop. The information also shows who certified the data source.



Use of this database has been approved by Operations.

Set by **admin**
Jan 3, 2024, 4:00 PM

Create guidelines for selecting data to certify

As with most Tableau functionality, certification is flexible. You can define for your organization the criteria you use to determine when to certify an asset. As you do so, document and share your guidelines. The guidelines can help you, other administrators, and project leaders to be consistent with your certification choices. They can also help users understand what certification means.

Whether you use the same certification criteria across all projects, or define unique criteria for each project, the important thing is to be clear about what certification means in your environment.

Who can certify data

To certify a data source, you must

- be a Server or Site Administrator, *or*
- have a site role of **Explorer (Can Publish)** or **Creator** *and* be the project owner or have the **Project Leader** capability for the project containing the data you want to certify.

To certify virtual connections and virtual connection tables, you must have a Data Management license in your environment, and you must

- be a Server or Site Administrator, *or*
- have a site role of **Explorer (Can Publish)** or **Creator** *and* be the project owner or have the **Project Leader** capability for the project containing the data you want to certify.

To certify databases or tables, you must have Tableau Catalog enabled in your environment, and you must

- be a Server or Site Administrator, *or*
- have the **Set permissions** capability on the database to certify that database or any tables within that database.

How to certify data

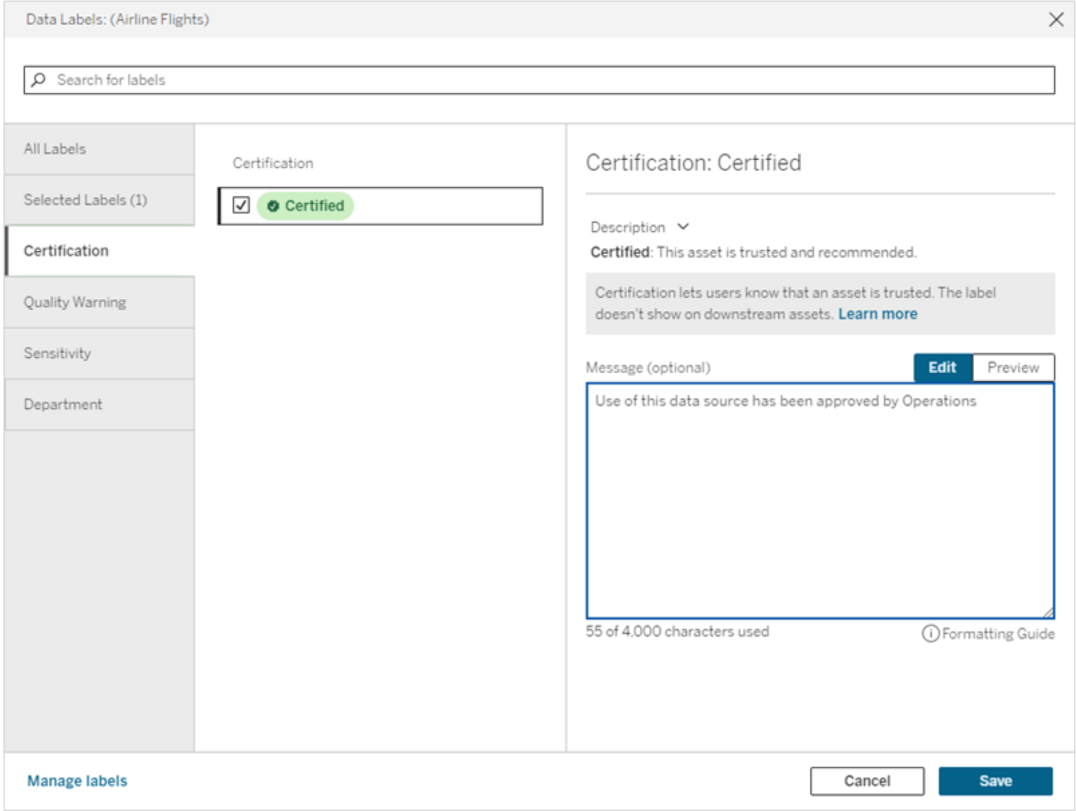
The data you can certify depends on the permissions you have, and whether you have a Data Management license and Tableau Catalog enabled in your environment.

- All users with permissions can certify data sources.
- If you have a Data Management license, users with permissions can also certify virtual connections and virtual connection tables.
- If you have a Data Management license and Tableau Catalog is enabled, users with permissions can also certify databases, tables, and files.

To certify an asset:

Note: Starting in Tableau Cloud February 2024 and Tableau Server 2024.2, you add and remove certifications using the consolidated Data Labels dialog instead of separate dialogs for each type of label. For information on the Data Labels dialog, see The Data Labels dialog.

1. Search for or navigate to the asset. The steps to navigate depend on the type of asset you want to certify:
    - Data source or virtual connection - on the **Explore** page, select **All Data Sources** or **All Virtual Connections**.
    - Virtual connection table - on the **Explore** page, select **All Virtual Connections**, and select the virtual connection that contains the virtual connection table you want to certify. Then select the virtual connection table.
    - Database or table - on the **Explore** page, navigate to the database or table. Or on the **External Assets** page, select **Databases and Files** or **Tables and Objects**.
2. On the page, select the More actions menu (...) next to the asset name you want to certify.
3. Select **Data Labels** > **Certification** (or **Edit Certification** in Tableau Server 2023.1 and earlier)
4. Select the **Certified** checkbox. (In earlier versions of Tableau Server, use the switch.)
5. Add a message if desired. The message gives users context for the certification status, intended use for the data, or other helpful information. Information you add to the **Message** section appears in the certification badge or tooltip, mentioned earlier in How certification helps users find trusted data. You can format the text in a message with bold, underline, and italics, and include a link or an image. To see text formatting tips, click the information (i) icon above the **Save** button. (Starting in Tableau Cloud February 2024, the message is optional. Earlier versions of Tableau Cloud and Tableau Server required it.)


Data Labels: (Airline Flights)
Search for labels
All Labels
Selected Labels (1)
Certification
Quality Warning
Sensitivity
Department
Certification
☑ Certified
Certification: Certified
Description
Message (optional)
Edit
Preview
Formatting Guide
Manage labels
Cancel
Save

Certified: This asset is trusted and recommended.

Certification lets users know that an asset is trusted. The label doesn't show on downstream assets. **Learn more**

Use of this data source has been approved by Operations

55 of 4,000 characters used

6. Select **Save**.

Customize certification

Beginning with Tableau Cloud June 2023 and Tableau Server 2023.3, using the label manager on the Data Labels page or the REST API, an administrator can change the certification description that users see in the certification dialog. For more information, see Manage Data Labels.

Notify Owners When Extract Refreshes Fail

A scheduled extract refresh can fail to complete for a variety of reasons, such as outdated embedded credentials or file path. For scheduled refreshes that run directly from Tableau Cloud, after a refresh has failed five consecutive times, Tableau Cloud suspends the schedule until a site admin or the data source owner takes an action to address the cause.

A site admin can enable Tableau Cloud to send email to the owner of a data source when its scheduled extract refresh does not complete successfully. The data source owner can then opt out individually in their account settings.

The email contains the following information:

- Extract or workbook name.
- The date and time of the last successful refresh. Or, if the last refresh was longer than 14 days ago, the email shows “not in the last *N* days.”
- The number of consecutive times the refresh has failed.
- A suggested action to take to address the cause of the failure, such as updating embedded credentials or a file path, and a link to Tableau Cloud to take the action.

When receiving email about data sources refreshed by Tableau Bridge, there will be some differences. For more information, see Differences for Tableau Bridge refreshes later in this topic.

Enable refresh failure emails

As a site admin, you have the ability to enable (or disable) refresh failure emails for your site using the procedure below. If you opt in, each user can potentially opt out from receiving refresh failure emails from his or her individual account.

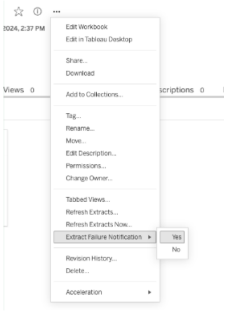
1. Sign in to Tableau Cloud as a site admin and click **Settings**.
2. Under **Manage Notifications** , select or clear the check boxes to allow or disable notifications for all of your site users.

Enable refresh failure emails for non-admins

Note: This option is not available for published data sources created or refreshed from Bridge.

By default, only administrators receive notifications if there is a problem refreshing an extract. However, if a user without administrative privileges is given rights to refresh an extract, they can optionally choose to receive notifications when an extract fails.

To enable email notifications when an extract fails, open the context menu (**...**) in the extract dashboard, select **Extract Failure Notification**, and select **Yes** to receive notifications, or **No** to stop notifications.


...
2024, 2:37 PM
Views 0
scriptions 0
Edit Workbook
Edit in Tableau Desktop
Share...
Download
Add to Collections...
Tag...
Rename...
Move...
Edit Description...
Permissions...
Change Owner...
Tabbed Views...
Refresh Extracts...
Refresh Extracts Now...
Extract Failure Notification
Yes
No
Revision History...
Delete...
Acceleration

Note: If the current user is an owner of the extract, the ability to opt in or out of failure notifications is not available using the context menu.

Differences for Tableau Bridge refreshes

For data sources that are refreshed through Tableau Bridge, notifications will vary. For more information, see Manage Email Alerts for Bridge.

Refresh Data on Tableau Cloud

The topics in this section describe how to manually refresh data, as well as schedule data refreshes.

Schedule Refreshes on Tableau Cloud

You can schedule refresh tasks directly on Tableau Cloud for extracts of cloud-hosted data. This can include extracts of the following types of data:

- Salesforce.com or Google Analytics.
- Google BigQuery or Amazon Redshift, if you do not want to use a live connection. For on-premises Redshift, you must use Tableau Bridge.
- SQL-based or other data hosted on cloud platforms, such as Amazon RDS, Microsoft Azure, or Google Cloud Platform, if you do not want to use a live connection, or if live connection isn’t supported for that data source.

  For a list of supported data sources, see Allow Live Connections to Data Hosted on a Cloud Platform.

Schedules are also available when creating extract refresh with Tableau Bridge. For more information see, Set Up a Private Network Refresh Schedule.

Notes:

- For information about refreshing extracts of Microsoft Excel, SQL Server or other data Tableau Cloud cannot reach directly, see Connectivity with Bridge.
- Your Tableau Cloud site comes with capacity to support all your users’ analytic needs. A site’s capacity includes capacity for storage and tasks that need to be performed on the site includes extracts. For more information, see Tableau Cloud Site Capacity.

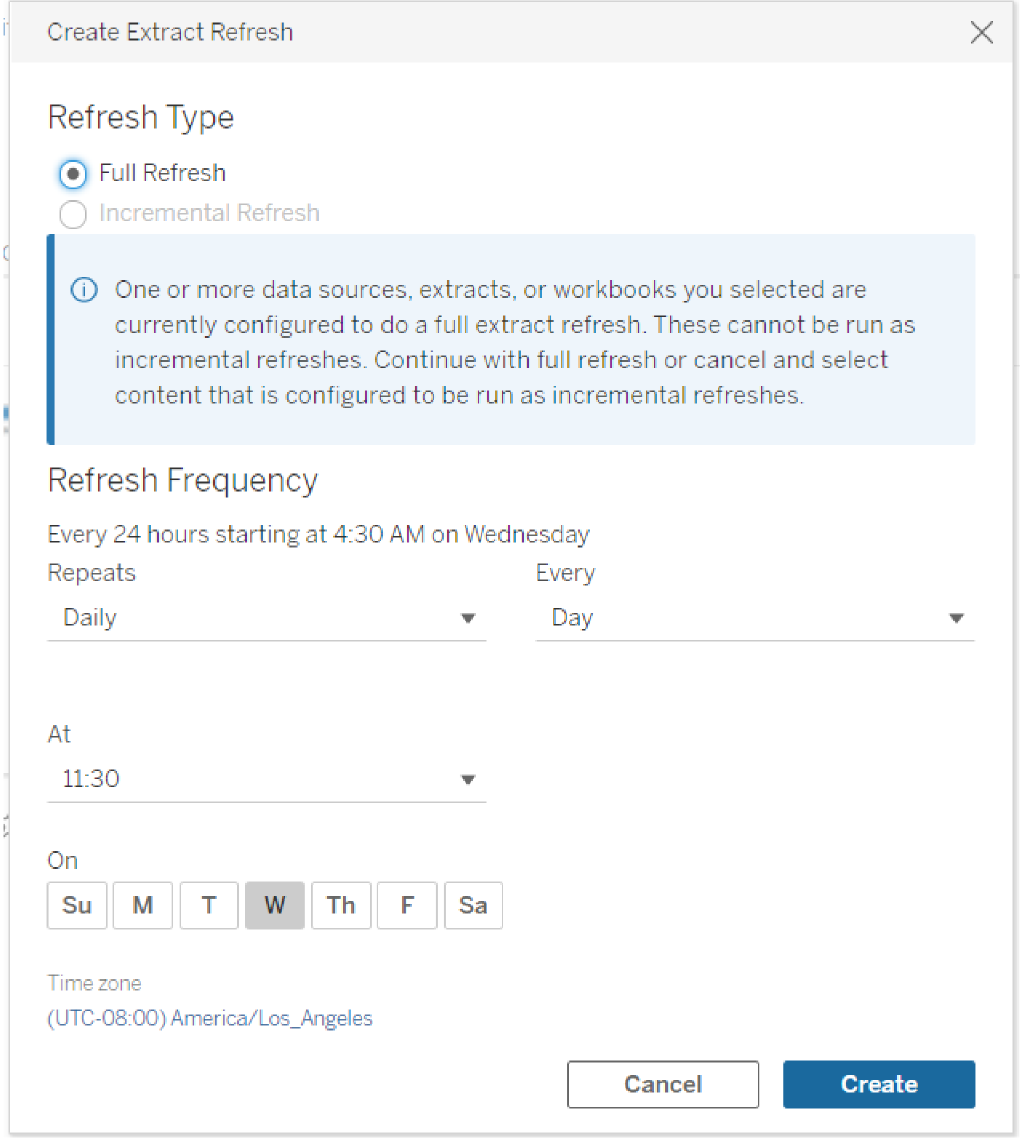
Create a refresh schedule

Important!

- The **Run Now** option is no longer available in **Create an Extract Refresh** dialog box. **Run Now** option is now listed in the **Actions** drop down menu.
- You cannot configure tasks to run sequentially (serially). Instead, you might want to stagger your start time for the extract refreshes, so the tasks run one after the other.
- If you migrate your existing tasks to custom schedules, please note that unless you change your start times for these tasks, they will run in parallel, which may not be desired.

- If you schedule more than one extract refresh for the same workbook or published data source, the jobs are run serially, with one waiting for the previous one to finish.

1. When you’re signed in to Tableau Cloud, select Explore from the left navigation pane, and then, depending on the type of content you want to refresh, select All Workbooks or All Data Sources from the drop-down menu.
2. Select the check box for the workbook or data source you want to refresh, and then select **Actions > Refresh Extracts**.
3. In the Refresh Extracts dialog, select Schedule a Refresh, and complete the following steps:



Create Extract Refresh

Refresh Type

● Full Refresh

○ Incremental Refresh

One or more data sources, extracts, or workbooks you selected are currently configured to do a full extract refresh. These cannot be run as incremental refreshes. Continue with full refresh or cancel and select content that is configured to be run as incremental refreshes.

Refresh Frequency

Every 24 hours starting at 4:30 AM on Wednesday

Repeats: Daily

Every: Day

At: 11:30

On: Su M T W Th F Sa

Time zone

(UTC-08:00) America/Los_Angeles

- **Refresh Type:** Select the type of refresh you want. A full refresh is performed by default. Incremental refresh is available only if you configured for it in Tableau Desktop or web authoring in Tableau Cloud before publishing the extract. If you select one of more workbook or data source that has been set to do full refreshes, then the option to select incremental refresh is disabled. For more information, see Refreshing Extracts in the Tableau Help.

- **Refresh Frequency:** Setup the frequency for the extract refreshes to run. You can set the frequency to run hourly, daily, weekly or monthly. The time and day intervals depend on the repeat frequency that you select as described below:

- **Hourly:** The available frequency is every hour from a specific time to a specific time. This means that the task will run every hour during the specified time.
- **Daily:** The available frequencies are every two, four, six, eight, or twelve hours, or just once a day. You can also choose one or more days of the week, in addition to start and end times. This means you can run a task on all or certain days of the week at specific hourly intervals or once a day.
- **Weekly:** The available frequency is one day of the week at a specific time. This means you can run the task on a certain day of the week, once a week at a certain time.
- **Monthly:** You can set this up in two different ways:
  1. You can select **Day** as the frequency interval which then allows you to select specific dates of the month. For example you can select the task to run on the 2nd, 15th and 28th of every month at 2:45 pm.
  2. You can also choose the first, second, third, fourth, fifth, and the last day of the week at a specific time. For example you can choose to run the task every second Wednesday of the month at 2:45 pm.

Update an Existing Schedule

When making changes to an existing schedule, you will no longer choose from a list of existing schedules, but directly change the recurrence in the schedule.

Time limit for extract refreshes

To ensure that long running refresh tasks don't take up all system resources and don't prevent refreshes of other extracts on your site, Tableau Cloud enforces a time limit, also known as a timeout limit, of 7200 seconds (120 minutes or two hours) for refresh tasks. The timeout limit is the longest allowable time for a single extract to complete a refresh before it's canceled. The timeout limit is not configurable.

Staying within the timeout limit

Although reaching the timeout limit is not common, if you're working in an extract-heavy environment, there are few modifications you can make to your extracts to help avoid reaching the timeout limit.

- Schedule Refreshes on Tableau Cloud
- Set up incremental refreshes
- Decrease the size of extracts
- Use an alternative method for refreshing extracts
- Schedule refreshes at a different time

Set up incremental refreshes

Consider configuring your extracts to be incrementally refreshed instead of fully refreshed each time a refresh task is performed.

By default, extracts are set up to fully refresh. Although a full refresh gives you an exact copy of the data, a full refresh can take a long time to complete. To reduce the time it takes to refresh an extract, consider setting up incremental refreshes of your extracts instead. For more information, see Configure an incremental extract refresh in the Tableau Help.

> **Note:** You must set up the incremental refresh before publishing the extract to Tableau Cloud. After publishing, you will then be able to select Incremental Refresh option in the Create Extract Refresh dialog.

Decrease the size of extracts

You can help refresh tasks complete faster by decreasing the size of your extracts.

There are two common methods for decreasing the size of extracts: hide all unused fields and use data source filters.

- **Hide all unused fields:** Fields that you hide in your data source are excluded when the extract is created. To hide fields while creating the extract, see Create an extract in the Tableau Help.
- **Add data source filters:** You can reduce the number of rows in your extract by adding a data source filter. For more information, see Filter Data from Data Sources in the Tableau Help.

> **Note:** You must hide all unused fields or add data source filters before publishing the extract to Tableau Cloud.

Use an alternative method for refreshing extracts

If possible, consider refreshing your extracts outside of Tableau Cloud.

- **Tableau Desktop:** You can manually refresh published extracts from Tableau Desktop. For more information, see Refresh Published Extracts from Tableau Desktop.
- **Tableau Bridge:** Depending on the data source, you can use Tableau Bridge to set up and refresh published extracts on a schedule. For more information, see Use Bridge to Keep Data Fresh.
- **Tableau Data Extract Command-Line utility (Deprecated):** Depending on the data source, you can use the command-line utility that comes with Tableau Desktop to programmatically refresh published extracts. For more information, see Automate Extract Refresh Tasks from the Command Line.

  > **Deprecated October 2022:** This utility is not available in later releases. To refresh data sources or virtual connections data that Tableau Cloud can't reach directly,

> use Tableau Bridge instead. To initiate refresh jobs using a script, use tabcmd refreshextracts or REST API Run Extract Refresh Task.

Schedule refreshes at a different time

Consider changing when the refresh tasks occur. For more information, see Manage Refresh Tasks.

Errors when refresh tasks reach timeout limit

If a refresh task reaches the timeout limit, you or others might see one of the errors listed below. If you published the extract or are the extract owner, you might see one of these errors in an email notification. If you're a site administrator, you might see one of these errors in the administrative view about Background Tasks for Extracts.

- *The query time resource limit (7200 seconds) was exceeded.*
- *com.tableau.nativeapi.dll.TableauCancelException: Operation cancelled.*
- *The query time resource limit (8100 seconds) was exceeded.*

To help resolve and avoid these errors in the future, see the section above, Staying within the timeout limit.

Refresh Data Using Saved Credentials

To keep data fresh for Salesforce, Google Analytics, Google BigQuery, OneDrive, Dropbox, Quickbooks Online, Anaplan, Oracle Eloqua, and ServiceNow ITSM, you must do the following:

1. Embed credentials into the data connection. The steps are described in this topic

2. If your data source or workbook contains an extract, you can add the extract to a refresh schedule. For the steps to schedule a refresh, see Schedule Refreshes on Tableau Cloud.

If your data source or workbook contains a direct (live) connection to the data, then the data is always fresh, and you don't need to create a scheduled task to refresh it.

Embed credentials into the data connection

You can embed credentials for your connection by following these steps.

1. Sign in to Tableau Cloud and navigate to **Data Sources** page.
2. Select the data source with the connection you want to refresh, and on the **Actions** menu, select **Edit Connection**.
3. The options in the Edit Connection dialog box will vary depending on the data source you selected. Review the options available to you and select the one that meets your needs.

   If you select **Prompt user for <connector name> credentials**, you will need to refresh data manually. You can do this by asking users to republish the data source from Tableau Desktop or by initiating a refresh task on Tableau Cloud.

Connector-specific credential information

Use OAuth credentials

Secure data connections are made using OAuth access tokens for data connections to Google Analytics, Google BigQuery, Google Sheets, OneDrive, Dropbox, Salesforce, and QuickBooks Online. You create access tokens by signing in to the data from Tableau Cloud and approving Tableau Cloud access to the data as long as the credentials exist (or you manually revoke access). When you add a new account, the sign-in page appears. When you sign in, you create a new access token for the credentials you submit.

Note: Dropbox uses OAuth credentials, however Tableau doesn't currently support authenticating to Dropbox using a Google account.

You can embed shared credentials, as you might do if you use a dedicated database account for a group of users. Or you can embed an individual user's credentials. The account you use to create the access token must allow a level of access for running the refresh task.

Use other credentials

Anaplan, Oracle Eloqua, and ServiceNow ITSM each support using saved credentials (for example, user name and password) to connect to the data.

Use Salesforce security tokens

If you embed standard Salesforce credentials, Salesforce might require a security token for you to access a data. For example, if you want to access the Salesforce connection from an IP address that is not included in your organization's trusted IP list. This security token must be appended to the password used in the data connection.

The security token can expire. When Tableau is unable to refresh a Salesforce connection because the security token has expired, Tableau displays an alert to the following users:

- Authors of the relevant workbooks and data sources.
- Authors of workbooks that connect to the relevant data sources.
- Site administrators.

You can renew an expired security token by editing the data connection on the server.

For more information about Salesforce authentication and security tokens see Security and the API in the Salesforce.com *SOAP API Developer's Guide*.

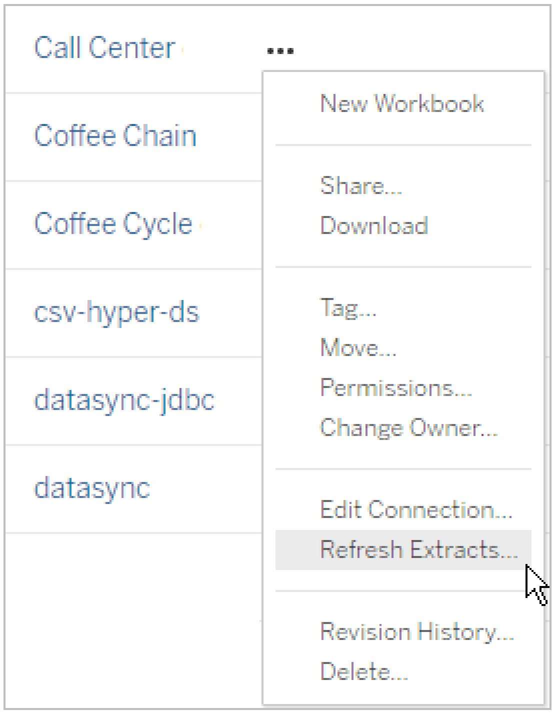
Start a Refresh Task Manually

You can refresh extracts of data hosted with most cloud data providers directly on Tableau Cloud. You can run a refresh from Tableau Bridge for data sources you've set up there.

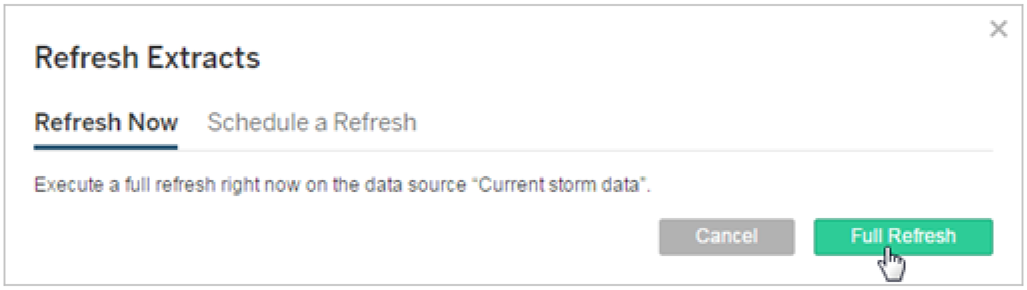
If a data source has scheduled refreshes, running a manual refresh does not affect the schedule.

Run a refresh on Tableau Cloud

1. Sign in to the Tableau Cloud site to which the data source is published.
2. On the Data Sources page, select the **More actions** icon (…) next to the data source you want to refresh, and then select **Refresh Extracts** from the menu.


Call Center
...
Coffee Chain
Coffee Cycle
csv-hyper-ds
datasync-jdbc
datasync
New Workbook
Share...
Download
Tag...
Move...
Permissions...
Change Owner...
Edit Connection...
Refresh Extracts...
Revision History...
Delete...

3. Under **Refresh Now**, select **Full Refresh**.


×
Refresh Extracts
Refresh Now
Schedule a Refresh
Cancel
Full Refresh

Execute a full refresh right now on the data source "Current storm data".

Note: For data sources that have scheduled refreshes, site administrators can initiate a refresh also from the **Actions** menu on the **Tasks** > **Extract Refreshes** page.

Run a refresh in the Tableau Bridge client

Open Tableau Bridge from the Windows system tray, and select the **Run now** icon (⟳) for the data source.

Manage Refresh Tasks

Administrators can manually refresh extracts or delete their schedules.

1. Sign in to the site that has the schedules you want to manage, and then click **Tasks**.
2. Select one or more scheduled extract refreshes.
3. From the **Actions** menu, do any of the following:
    - Select **Change Schedule**, and choose a new schedule from the list.
    - Select **Run Now** to refresh manually.

      Note: If an extract does not have a scheduled refresh, you can refresh it on demand from the Data Connections page.
    - Select **Delete** to completely remove the schedule for the selected data sources.

See also

Notify Owners When Extract Refreshes Fail

Automatically Suspend Extract Refreshes for Inactive Workbooks and Data Sources

To save resources you can automatically suspend extract refresh tasks for inactive workbooks and published data sources. This feature applies to full extract refreshes that occur more frequently than once a week. Incremental refreshes and those that occur less frequently than weekly are not impacted.

Extract refresh tasks for an inactive workbook are suspended after the workbook has been inactive for 32 days.

Note: Support for automatic suspension of extract refreshes for data sources is available beginning in the Tableau Cloud July 2023 release.

For a workbook, if any of the following events occur, the workbook's inactivity countdown timer is reset:

- Viewing the workbook sheets
- Having any data-driven alert or subscription set-up on the workbook
- Downloading the workbook
- Moving the workbook's location or changing the owner

For a published data source, any event which fetches the data from the data source will cause its inactivity countdown timer to be reset. These include:

- Loading a workbook view that is connected to the data source
- Visiting the data source’s Ask Data page
- Tableau Desktop connecting to the data source

Notifications

An email notification is sent three days before the extract refresh schedule is suspended.

Another email notification is sent when the extract refresh schedule is suspended.

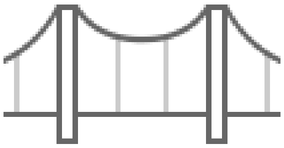
Resume suspended extract refreshes

Suspended extract refreshes won't automatically resume if someone uses the workbook. It must be done manually by a site administrator.

To view and resume extract refreshes that were suspended:

1. Sign in to the site as an administrator and click **Tasks**.
2. Click the **Extract Refreshes** tab.
3. Select one or more items.
4. From the **Actions** menu, select **Resume**.

Use Tableau Bridge



Get Started

- Use Bridge to Keep Data Fresh
- Install Bridge
- Set Up a Private Network Refresh Schedule
- Connect to Private Cloud Data
- Tableau Bridge FAQ

Quick Reference for Site Admins

- About the Bridge Client
- Configure Pools
- Manage Pools
- Change the Bridge Client Settings

Quick Reference for Publishers

- Publish a Private Network Data Source with a Live Connection
- Stop Keeping Data Fresh Through Bridge
- Manage Email Alerts for Bridge
- Troubleshoot Private Network Issues

Enterprise

- Plan Your Bridge Deployment
- Best Practices for Data Connect and Tableau Bridge
- Monitor Bridge Extracts Activity
- Monitor Traffic to Bridge Connected Data Sources
- Monitor Bridge Refresh Jobs

Connectivity

- Connectivity with Bridge
- Update Bridge Connection Information

Security

- Bridge Security

Use Bridge to Keep Data Fresh

For data sources or virtual connections data that Tableau Cloud can't reach directly, you can use Tableau Bridge to keep data fresh. For example, use Bridge when your data source connects to data hosted behind a firewall.

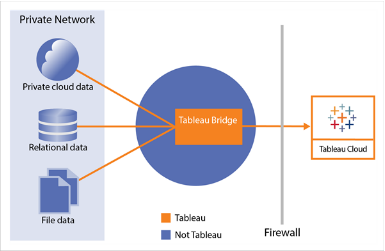
Note: If a data source connects to underlying data hosted in the cloud and is accessible from the public internet, connections run from Tableau Cloud directly.

What is Bridge

Tableau Bridge is client software that runs on a machine in your network. The client works in conjunction with Tableau Cloud to keep data sources that connect to private network data, which Tableau Cloud can't reach directly, up to date. Private network data includes on-premises data and private network cloud data.

How does it work

Tableau Bridge functions like a conduit between private network data, such as Excel files and SQL Server data, and Tableau Cloud. The client communicates with Tableau Cloud through an outbound encrypted connection to enable connectivity between data behind a firewall and your Tableau Cloud site.



For more information about how Bridge communicates with Tableau Cloud, see Tableau Bridge Security.

Who can use it

Although any authorized user of Tableau Cloud can use Bridge, Bridge is optimized for users that perform the following functions in an organization: site admins and data source owners.

Site admins, or users who have the Site Administrator or Site Administrator Creator role on Tableau Cloud, install and manage Bridge clients. For more information, see Plan Your Bridge Deployment.

Content owners, or users who have the Creator or Explorer (can publish) role on Tableau Cloud, typically publish and manage their own content. Content owners use Bridge to facilitate the live and extract connections between Tableau Cloud and private network data.

- For **live connections**, Bridge is detected automatically as part of the data source or virtual connection publishing process. Support for live connections are enabled through pooling.

  More about data sources: Users see the option to publish the data source with a live connection during the publishing process. This option is available when live connections are supported for relational or cloud databases accessible only from inside the network.

  After the user publishes the data source, an available client in the pool facilitates the live queries. That’s all there is to it.

  To get started, users publish a data source to Tableau Cloud, and select the option to maintain a live connection. Or, publish a workbook, then specify a live connection. For more information about publishing data sources, see Publish a Bridge Data Source with a Live Connection.

  Note: If publishing a data source that connects to a private cloud database, follow the steps described at Publish private cloud-based data sources to ensure Bridge is used to facilitate the data freshness tasks.

- For **extract connections**, users can set up refresh schedules for data sources or virtual connections. For more information, see Set Up a Bridge Refresh Schedule.

Note: If publishing a data source that connects to a private cloud database, follow the steps described at Set up schedules for private cloud-based data sources to use Bridge facilitated refresh schedules.

Tableau Bridge FAQ

Find answers to commonly asked questions about Tableau Bridge.

Bridge Basics

What is Tableau Bridge?

Tableau Bridge is a proxy client that runs on a machine in your network and is used to connect your private network data to Tableau Cloud. Bridge is installed behind your organization's firewall. It can access on-premises and virtual cloud (isolated private cloud hosted within a public cloud) data through an established and secure outbound connection from your data to Tableau Cloud.

See Use Tableau Bridge.

What is Tableau Bridge used for?

If some or all of your data is on premise or in a virtual cloud that is behind the firewall, you can use Bridge to securely access and connect data to Tableau Cloud. The data can range from .csv files on your private network or stored in a data warehouse.

Bridge also keeps your data current. If you have a viz that must be refreshed as the data is modified, Bridge can keep data fresh in Tableau Cloud, either by automatically refreshing extracts, or by passing live queries to your on-premise data sources.

What's the cost of Tableau Bridge?

Tableau Bridge is a free, supported client that is used with Tableau Cloud.

What are the supported OS systems and minimum hardware requirements for Tableau Bridge?

Bridge is supported on Windows 64-bit machines and Linux. For Bridge for Linux you must create a customized Docker image. For information about minimum hardware requirements, see Recommended software and hardware.

Do we need a separate Tableau Bridge installation for each Tableau Cloud site?

Yes. Tableau Bridge can only connect to one Tableau Cloud site at any given time. Tableau recommends installing the Bridge client on a dedicated virtual machine behind your firewall so that it doesn’t compete with resources from other applications. Only one client can be installed on a machine. For more information, see Install Bridge.

Can I use Bridge even if I can connect to the data directly from Tableau Cloud?

You don’t need to use Bridge if Tableau Cloud can access the data directly. Bridge acts as a proxy, and depending on throughput, it’s possible that Bridge will be slower than a direct connection to the data source.

How do I install Bridge?

(Windows) Download the installer from the Downloads page and follow the Install Bridge instructions. See Recommended software and hardware.

(Linux) To use Bridge for Linux you must create a customized Docker image, install the RPM package, and then run Bridge from inside the container image.

Security

How does Bridge keep data secure?

All traffic between Bridge and Tableau Cloud is secured using TLS. Bridge makes an initial outbound connection; all communication is initiated from behind a firewall using ports 80 and 443. After the initial outbound connection, communication is bidirectional. Data in transit, to and from Tableau Bridge, is encrypted. Bridge uses the following protocols depending on the connection type used by the content:

- For live connections and extract refreshes that use Bridge refresh schedules, secure WebSockets (wss://).
- For extract refreshes that use Bridge (legacy) schedules, HTTP Secure (https://).

To ensure that your data is transmitted to Tableau Cloud only, you can implement domain-based filtering on outbound connections (forward proxy filtering) from the Bridge client.

See Bridge Security.

Are there other ways to secure data?

You can use whitelisting to identify sites that are allowed access to your data and exclude sites that aren’t included in the list. Some data sources are always “cloud-native”, such as Amazon Athena, Redshift, Azure SQL Database, Google Cloud SQL. In these cases, Tableau Cloud expects to connect directly through IP whitelisting by default when the native connector is used.

It’s possible to configure Tableau Bridge to work with “cloud-native” data sources if the data is isolated from the Internet in a private subnet (and therefore IP whitelisting isn’t an option).

What permissions do I need?

- You need access to the Tableau Cloud account used to log in to the Tableau Bridge client and the site associated with the data.
- To assign the Bridge client to a pool (either a default pool or a named pool), you need either Site Administrator Creator or Site Administrator Explorer role.
- To run refresh extracts:
    - For Bridge refresh schedules, the user needs Creator or Explorer (can publish). The Bridge client must be set up correctly by site admin.
    - For Bridge legacy schedules, because the schedule must be assigned to a particular Bridge client, the user must either be the owner of that Bridge client (if the customer only has Creator or Explorer (can publish) permission) or be a site admin.
- The Creator or Explorer (can publish) role and the Data Management license is required to publish virtual connections and refresh data with Bridge.
- (Windows) The Windows account that is running Bridge must have access to all data sources that are being connected to.

- (Windows) The Windows user account must be a member of the local admin group to run the client in service mode. If the user isn’t a local admin, they can run the Bridge client in Application mode, but they must remain logged in to the Windows machine.

What credentials are used when accessing data?

For extracts with Bridge legacy schedules, access information must be embedded in the Bridge client. The Bridge client owner must log in to the Windows machine and manually enter the credentials. This process results in database credentials being stored on the computer using the Windows credentials manager.

For Bridge refresh schedules, the credentials can be embedded for the published data source in Tableau Cloud.

For data sources accessed via Windows Authentication, there are no credentials to embed, but the Windows account that Bridge is running under must have access to the source database.

Tableau Bridge supports OAuth when connecting to private data that uses OAuth and public data that uses OAuth when it’s joined to private data. Both saved credentials or managed keychain connectors are supported by OAuth: The type of functionality depends on the connector that you use. Bridge supports both live and extract refreshes for data sources with OAuth authentication.

Note: Support for single use refresh tokens (sometimes called one-time use refresh tokens, rolling refresh tokens, or refresh token rotation) for OAuth connections to Tableau Cloud was added with the 2025.2 (Summer 2025) release. Single use refresh tokens are not yet supported in Tableau Bridge or Tableau Server. Support for these tokens in Tableau Bridge and Tableau Server is planned in a future release.

Tableau Bridge supports integrated Windows authentication that uses Kerberos. See Integrated Windows Authentication However, Bridge doesn't support connections that use Kerberos as a standalone authentication mechanism.

What are the multi-factor authentication requirements?

If multi-factor authentication (MFA) is enabled with Tableau authentication, he connected client option must be enabled for the site to allow Bridge clients to run unattended and, if enabled, support multi-factor authentication with Tableau authentication. If connected clients are disabled for the site, Bridge can only support Tableau username and password authentication.

See Access Sites from Connected Clients.

Connections

What connection types does Bridge support?

Extract connection: When data sources or virtual connections use extracts to connect to private network data, Bridge can be used to perform scheduled refreshes of those extracts. See Additional requirements for extract connections.

Live connection: Bridge supports data sources or virtual connections with live connections to a private network. If the content owner publishes a data source or virtual connection that uses a live connection to data that Tableau Cloud detects that it can't reach directly, live queries are used to keep the content fresh. See Additional requirements for live connections.

The type of data that Bridge can support falls into one of the following categories:

- Relational data
- File data, including Excel, text, and statistical (.sas7bdat) files.
- Private cloud data, including Amazon Redshift, Teradata, and Snowflake. For more information, see Connect to Private Cloud Data.
- (Limited) JDBC data.
- (Limited) ODBC data.
- Web Data Connector 2.0 SDK. See Keep Data Fresh.
- Data used in a multi-connection data source (that is, data sources that contain a cross-database join), when all connectors are supported by Bridge. For more information, see Refreshing Cross-Database Joined Data Sources on Tableau Bridge in the Tableau Knowledge Base.

What connection types are not supported by Bridge?

Unsupported connectors:

- Microsoft Analysis Services
- Microsoft PowerPivot
- Oracle Essbase
- SAP NetWeaver Business Warehouse
- Select onnectors (.taco) built with the Tableau Connector SDK and connectors available through Tableau Exchange. See Connectors and data types.

Unsupported connection types:

- Live connections to file-based data (excel, .csv, and so on)
- Live connections to Google Cloud SQL, OData, Progress OpenEdge, and Tableau extracts
- All connections to cube-based data
- Snowflake when used with virtual connections

Can Bridge be set up to run continuously?

(Windows) Bridge can run in two different modes: Application mode and Service mode. Tableau recommends that you run Bridge in Service mode. If your client is set up to run in Service mode, you don’t need to be logged on to the computer running the client, but your computer must be on. By default, the client runs as an Application. This means the Windows user must be logged on to the computer where the client is running for scheduled refreshes to complete. After sign-in, the Bridge client opens from the system tray.

(Linux) Bridge on Linux runs in the background of Linux, which is the equivalent to Service mode in Tableau Bridge on Windows.

See Application versus Service mode.

Can I connect to a data source embedded in a workbook?

Yes. Tableau Bridge supports publishing a workbook directly to Tableau Cloud using embedded data sources.

Load Balancing and Pooling

How can I load balance data refreshes with Bridge?

You can configure a pool to distribute data refresh tasks among the available Bridge clients. Pools map to domains, allowing you to dedicate pools to keeping specific data fresh and maintaining security by restricting access to protected domains in your private network.

See Configure the Bridge Client Pool.

Scaling and Deployment

How can I scale with Bridge?

As a starting point, we recommend initially configuring at least two Tableau Bridge clients for redundancy, and in many Bridge deployments, more than one Bridge client is necessary to support data freshness needs.

Bridge supports up to 10 concurrent published data source extract refreshes by default. This value can be changed based on your workload and hardware requirements. See Change the Bridge Client Settings. Determine how many published data source extracts are necessary in the available time window. In many situations, there are several concentrated time blocks when extracts must occur. You need enough Bridge clients to complete all required extract refreshes this time window. For example, if you have 7 hours of extract refreshes to run, and a 4-hour window to run them in, then 2 Bridge clients would be a reasonable number to use.

Bridge supports 16 live queries per client. Determine the number of concurrent users. Site admins can monitor traffic to data sources with live connections using a built-in administrative view in Tableau Cloud. This gives a high-level view into how often particular data sources with live connections are being accessed.

As part of your pilot and rollout you should monitor usage over time.

See Plan Your Bridge Deployment.

Monitoring

How can I monitor Bridge?

You can use the Traffic to Bridge Connected Data Sources admin view to see the usage of data sources with live connections. This view can help you determine which data sources are most heavily used and those that are used less often.

The Bridge Extracts admin view captures the last 30-days' worth of refresh activity by Tableau Bridge. Only jobs that have been successfully started by the Bridge client have a record in the Bridge Extract admin view.

Plan Your Bridge Deployment

As a site admin, if you're setting up Tableau Bridge for the first time or upgrading, there are a set of recommendations, best practices, and planning tasks to follow to optimize Bridge for your organization.

For a general overview of Bridge, see Use Bridge to Keep Data Fresh.

Before you deploy Bridge, review the following information to help you, as the site admin, understand the different components of Bridge, how these components work together, and how they impact your Bridge deployment.

Bridge software

Bridge is stand-alone software, provided at no additional cost, to use in conjunction with Tableau Cloud. Bridge is a thin client that you install behind a firewall to enable connectivity between private network data and Tableau Cloud.

To take advantage of the latest security and feature updates, always install the latest version of the Bridge client from the Downloads page. For more information, see the Install Bridge topic.

In most cases, you will own the set up and management of several clients, or pools of clients, in your organization.

- Clients can only be registered to one site at a time.
- There is no limit on how many clients that can be registered to a site.

Database drivers

To facilitate connectivity between private network data and Tableau Cloud, Bridge requires drivers to communicate with some databases. Some driver software is installed with the client. Other driver software must be downloaded and installed separately. For more information, see the Install Bridge section in the Install Bridge topic.

Pooling capacity

By default, data freshness tasks, live queries, and data sources or virtual connections that use extract connections refreshed with Bridge refresh schedules, are distributed and load balanced across available clients in a pool.

Data Freshness Task	**Pooling Support**	**Concurrency Capacity**
Live query	Yes	16 live queries per client
Extract connection - Bridge refresh schedule (Published data sources)	Yes	10 refreshes per client (can be configured)
Extract connection - Bridge legacy schedule	No	1 refresh per client

Bridge is designed to scale up and scale out. When configuring your Bridge deployment, consider the following:

- For a smaller pool of clients running on higher specification machines, each client can be scaled up to run more scheduled refresh jobs in parallel.
- For a larger pool of clients running on lower specification machines, though each client can run fewer refresh jobs in parallel, each client still provides high throughput and capacity for the pool as a whole.

For information about Tableau site capacity, see Concurrent jobs capacity.

Data access and authentication

The underlying data that a data source or virtual connection connects to often requires authentication. If authentication is required, the publisher or owner can configure how the database credentials are obtained.

For data sources

The authentication configuration options for data sources are: **Prompt user** or **Embedded password**.

If the data source is set to prompt users, database credentials are not stored with the connection. This means, a user who opens the data source (or workbook that uses the data source) must enter his or her own database credentials to access the data. If a data source is set up with the password embedded, database credentials are saved with the connection and used by anyone who accesses the data source (or workbook that uses the data source). For more information, see Set Credentials for Accessing Your Published Data.

For virtual connections

Database credentials are stored with a virtual connection's connection and used by anyone who accesses the virtual connection.

Content management

In most cases, the site admin owns and manages the Bridge clients. Content owners manage the data sources or virtual connections themselves for tasks that range from publishing to updating database credentials and refresh schedules.

Timeout limits

Live queries have a timeout limit of 15 minutes. This limit is not configurable. Refreshes have a default timeout limit of 24 hours and is configurable by the client. For more information, see Change the Bridge Client Settings.

Hardware recommendations

The following table shows hardware guidelines for virtual environments running Bridge. These guidelines are based on the number of concurrent refreshes you need each client to be able to run in parallel.

	Refreshes running in parallel per client	
	<=5	**<=10**
vCPU	4	8
RAM	16 GB	32 GB
NVMe SSD	150 GB	300 GB

Virtual environments

All of Tableau’s products operate in virtualized environments when they are configured with the proper underlying Windows operating system and minimum hardware requirements.

- Amazon EC2
- Citrix environments (non-streaming)
- Google Cloud Platform
- Microsoft Azure
- Microsoft Hyper-V
- Parallels
- VMware

Linux deployment

To use Bridge on Linux you must create a customized Docker image, install the RPM package, and then run Bridge from inside the container image. The Bridge on Linux project is supported on Red Hat and Amazon Linux. For more information, see Install Bridge for Linux for Containers.

Windows deployment

Tableau recommends installing the Bridge client on a computer behind your firewall. Only one client can be installed on a computer.

- Microsoft Windows 10 or later, 64-bit
- Windows Server 2016 or later
- CPUs must support SSE4.2 and POPCNT instruction sets

For more information, see Windows Client requirements

Required accounts for Windows

There are two types of accounts that your Bridge deployment requires: a Windows service account and a Tableau Cloud account.

Windows services account

Bridge clients can run in one of two modes: Application or Service. To run the client in Service mode, a Windows services account is required. Service mode allows the client to run continuously without a dedicated logged-on user. Service mode is recommended to support 1) data sources or virtual connections with live connections to private network data, and 2) load balancing (pooling) of clients. For more information about each mode, see About the Bridge Client.

Important: We recommend that no more than 10 clients run under a single Windows services account.

Tableau Cloud account

Tableau Cloud authenticates the client by the user that is signed in to and managing the client. Therefore, a Tableau Cloud site admin account is necessary to perform certain management tasks, like adding or removing a client from a pool, both on the client and Tableau Cloud site.

One of the following site roles is required to manage Bridge:

- Site Administrator Creator
- Site Administrator Explorer

The non-administrator site roles, Creator and Explorer can publish data sources, refresh data, and use Bridge to facilitate the live and extract connections between Tableau Cloud and private network data. The Creator or Explorer role and Data Management is required to publish virtual connections and refresh data with Bridge.

Scheduling capacity

Because Bridge clients can easily be connected and disconnected, you can leverage scripts to schedule Bridge capacity (that is, the number of running client machines) in advance of anticipated data freshness workloads.

For example, if your Bridge clients run on virtual machines on AWS, the following AWS resources can help you get started with scheduling:

- AWS Instance Scheduler
- How do I stop and start my instances using the AWS Instance Scheduler?
- How do I stop and start Amazon EC2 instances at regular intervals using Lambda?

New Bridge deployment on Windows

To deploy Bridge, do the following:

1. For each machine, log on using your Windows services account, and install the latest client.

2. After installation, sign in to the client using your Tableau Cloud site admin credentials to ensure that the client is running under Service mode (on by default).

3. Open a browser, sign in to Tableau Cloud using your site admin credentials and go to the Bridge settings page to ensure:

    a. Installed clients are properly linked to the site.

    b. Clients are part of the client pool.

4. Monitor the Bridge live queries using the **Bridge Connected Data Sources** admin view, and refresh jobs from the **Jobs** page on Tableau Cloud.

Upgrade an existing Bridge deployment

As with previous releases, the enterprise improvements in this release are designed to complement your existing Bridge deployment. As with other deployments, we recommend the following steps below.

Notes:

- Sites with default pools can't be configured to access a specific private network. To reduce the scope of access of this pool and to enable more advanced scheduling capabilities, we recommend you create new pools and map them to specific domains. For more information, see Step 2: Configure a pool.

- Because Bridge pools are mapped to and refresh data from specific domains, we strongly recommend that extract data sources that contain connections to multiple domains be updated in one of the following ways:
  - Consolidate underlying data locations so that the connections are in the same domain
  - Change the connection type of each connection to use live query
  - Convert each connection to a data source

- When using 1) Tableau Desktop on a Mac, 2) publishing a file-based data source from a Windows network file share, and then 3) configuring a Bridge refresh schedule, the refreshes will fail. If this file-based data source is business critical resource for your organization, consider configuring a Bridge legacy schedule instead. For more information, see Set up a Bridge legacy schedule.

- Existing data sources, including all file-based data sources that are already configured with Bridge legacy schedules and associated with specific clients will continue to run as expected. **Important:** Support for Bridge legacy schedules will be removed in version 2025.2. To ensure a smooth transition, we recommend you use Bridge refresh schedules. For more information, see Migrate from Bridge legacy to Bridge refresh schedules.

Upgrade steps

1. Add new clients.
2. Create new pools, map domains to a pool, and assign version clients to pools.

   Follow the procedures described in Step 2: Configure a pool, Step 3: Specify a domain for a pool, and Step 4: Add clients to a pool.
3. If you have Bridge legacy schedules, request data source owners to convert the (legacy) schedules. See Migrate from Bridge legacy to Bridge refresh schedules.

   Important: We recommend that data source owners begin the process by converting refresh schedules for extract data sources that are least critical to daily business. This is because converting Bridge legacy to Bridge refresh schedules will immediately delete the existing refresh schedules.
4. Upgrade existing clients. For more information, see Install Bridge.
5. Add existing clients to a pool.

After upgrade, ensure the upgraded clients are running as a Window service and then add those clients to the pool. For more information, see Step 4: Add clients to a pool.

Bridge Site Capacity

A site has a 1 TB storage limit for workbooks and extracts. An individual workbook or data source (live or extract) published to your site can have a maximum size of 15 GB.

Tableau Bridge can have an impact on the site capacity.

- Extracts generated by Tableau Bridge do have an impact on the site storage capacity.
- Virtual connections and embedded data sources that are extracted through Bridge also have an impact on the site capacity. This is because the data is processed through Tableau Cloud Backgrounder.

	Capacity Type	**Bridge Impact on Site Capacity?**
Storage	Site	Yes (Extracts)
	Individual workbook, published data source, or flow size	Yes See Tableau Cloud Site Capacity.
Extract Published Data Sources with Bridge	Daily refreshes	No
	Concurrent refreshes	No
	Individual refresh runtimes	No
Virtual Connections and Embedded Data Sources with Bridge	Daily refreshes	Yes
	Concurrent refreshes	Yes
	Individual refresh runtimes	Yes

Install Bridge

Tableau Bridge is software that you can install and use in conjunction with Tableau Cloud. Always install the latest version of Bridge to take advantage of the latest security and feature updates.

Tableau Bridge is available for Windows installations and Linux for Docker containers.

Note: Support for single use refresh tokens (sometimes called one-time use refresh tokens, rolling refresh tokens, or refresh token rotation) for OAuth connections to Tableau Cloud was added with the 2025.2 (Summer 2025) release. Single use refresh tokens are not yet supported in Tableau Bridge or Tableau Server. Support for these tokens in Tableau Bridge and Tableau Server is planned in a future release.

Before installing Bridge

You do not need a product key to use Bridge. Use of Bridge is subject to your End User License Agreement (EULA). Users of Bridge must be authorized users of Tableau Cloud.

You can find all available versions on the Tableau Bridge Product Download and Release Notes page.

Network access

Because Bridge facilitates connections between your private network data and Tableau Cloud, it requires the ability to make outbound connections through the internet. After the initial outbound connection, communication is bidirectional.

Required ports

Tableau Bridge uses port 443 to make outbound internet requests to Tableau Cloud and port 80 for certificate validation.

Tableau with MFA

Bridge supports multi-factor authentication (MFA). For more information about Tableau with MFA, see About multi-factor authentication and Tableau Cloud.

Database drivers

Bridge uses Tableau connectors to connect to different databases to maintain data freshness. Some of those connectors require drivers to communicate with the databases.

To get drivers for connectors that the client supports, go to the Driver Download page on the Tableau website. Make sure to filter the list for the operating system and use the instructions listed for the data source.

Install the Windows Client

For Windows installations Tableau recommends installing the Bridge client on a dedicated machine behind your firewall so that it doesn’t compete with resources from other applications. Only one client can be installed on a machine.

Bridge client requirements

The following are the admin and access requirements for the Bridge client.

- The Bridge client UI is required to perform interactive login to Tableau Cloud.
- A *User profile* on the boot drive for storing the contents of `My Tableau Bridge Repository.`
- The login user must be, or the equivalent of, the local admin of the machine to run Bridge client in Service mode.
- Access to the OS vault specific to the current login user for storing:
  - Online server login tokens specific to the current login user of the Windows session.
  - Data connection credentials (simple login info) for Remote extract requests.

System recommendations

Bridge is available for the Windows operating system. You can also install the client on a virtual machine. For more information about which versions of Windows are supported and other recommendations, review Plan Your Bridge Deployment

Install Bridge

Follow the procedure below to install a Windows Bridge client. You don’t need a Tableau product key to install or use the client.

1. Download the installer from the Downloads page on the Tableau website. We recommend downloading the latest version listed on the page to take advantage of the latest security and feature updates.

2. Run the installer. You can install the client using a shared Windows service account.

The account that is used to run the client is the account that is logged into Windows at the time of configuration.

If the client is set up with an individual local user account, you can't change the account to a shared service account without reinstalling Bridge. To change the account, uninstall Bridge as the current user, sign into the shared service account, then reinstall and configure Bridge.

For Service mode, the Windows user account must be a member of the local Administrators group on the machine. In addition, to refresh file-based data sources, the account must have domain access to the network shared drive where the file data is hosted.

3. When prompted, accept the license agreement to continue.

4. (Optional) Customize the installation by clicking **Customize**. You can change any of the following options:

    - **Install location:** You can specify a different location to install the client.
    - **Create a desktop shortcut:** Clear the check box if you don't want to automatically create a desktop shortcut for Bridge.
    - **Create a Start menu shortcut:** Clear the check box if you don't want to automatically add a shortcut for Bridge to the Start menu
    - **Enable error reporting:** If Bridge has a problem and closes unexpectedly, crash dump files and logs are generated and sent to Tableau. To turn off this option, clear this check box during installation. You can also turn off this option (or back on) in the client after installation. For more information, see Error reports.

5. Click **Install** to begin the client installation.

After the client is installed, you can start the client by double-clicking the Bridge shortcut on your desktop or from Tableau Desktop (if it's installed on the same machine as Bridge).

About My Tableau Bridge Repository

As part of the Bridge installation, a folder called **My Tableau Bridge Repository** is created on the machine where the client is installed. This repository folder contains critical subfolders, such as **Logs** and **Configuration**, that Bridge needs to operate properly.

The repository folder is created under the Documents folder: *\Users\<user>\Documents\My Tableau Bridge Repository*.

Important: We strongly recommend that you don’t change the folder that Bridge uses as its repository.

Upgrade Bridge

Staying in sync with the latest version of Bridge ensures that you can take advantage of the latest features and fixes included with each new version of the Bridge client.

Parallel upgrade (recommended)

To minimize downtime, we recommend running a parallel upgrade process. In this scenario, you install the new Tableau Bridge client on different hardware from where your existing Bridge client is running. Running a parallel upgrade process allows you to ensure stability and to fall back immediately to a known good state if anything goes wrong during the upgrade.

To run a parallel upgrade of the Bridge client, follow the procedure below.

1. Log on to the machine where the existing Bridge client is installed.
2. If you're running the client in Service mode, in the lower-left corner of the client, next to Mode, select **Application**. Changing to Application mode ensures that the Tableau Bridge service stops completely before the upgrade. Select **Settings** > **Exit**.
3. Add the new computer and install the new Tableau Bridge client as documented in the section above, Install Bridge.
4. Add the new Bridge client to the relevant pool. See Configure Pools.

5. Monitor the health of the Bridge jobs to validate stability before continuing to the next step.
6. Remove the previous Bridge client from the pool. Open the pool, identify the client machine to be removed, and click **Delete**.
7. Wait for the extract refresh timeout process to finish on the Bridge client. The default timeout is 24 hours. For more information, see dataSourceRefreshSettings.
8. After refresh timeout period has elapsed, you may remove the hardware that the previous version of Bridge was running on.

After installation is complete, the client will start as normal. If the client was running in Service mode before the upgrade process, switch back to Service mode.

Non-parallel upgrade

If running two parallel computers is not an option, follow the below steps to upgrade a Bridge client on the same computer. Please note that jobs will not be able to run between steps #2 and #3. You will also not be able to monitor the stability of Bridge jobs before removing the old version.

1. Log on to the machine where the existing Bridge client is installed.
2. If you're running the client in Service mode, in the lower-left corner of the client, next to Mode, select **Application**. Changing to Application mode ensures that the Tableau Bridge service stops completely before the upgrade. Select **Settings** > **Exit**.
3. Follow the steps to install the new Tableau Bridge client as documented in the section above, Install Bridge.

After installation is complete, the client will start as normal. If the client was running in Service mode before the upgrade process, switch back to Service mode.

Error reports

You can help improve Bridge by automatically sending error reports to Tableau. Error reports are composed of crash dump files that are sent to Tableau when the Bridge client has to close unexpectedly (crash). These files are used by Tableau to identify and address issues that can cause the client to close unexpectedly.

Important: Turn off this option if your data is subject to any privacy regulations.

What's in an error report

The encrypted package is made up of the following files: crash and core dump files and manifest files related to the crash.

The files can contain data that include:

- Machine-specific information. For example: hardware, operating system, domain, and so on.
- Snapshot of the memory contents at the time of the crash. For example: which data sources had extracts refreshed, which data sources had live queries, and so on.
- Information that Bridge was processing at the time of the crash, including customer-identifiable information that might be used to correct the error. For example: who is using Bridge with which site, the name of the client that the user is signed in to, and so on.

For more information about how Tableau treats sensitive information, see the Tableau privacy policy on the Tableau website.

Configure automatic error reporting

You can configure Bridge to send error reports automatically in one of two places: During the client installation process or after installation directly in the client.

Enable the automatic error reporting option during client installation

During installation, the option to automatically send error reports from the client is selected by default. However, you can remove the selection.

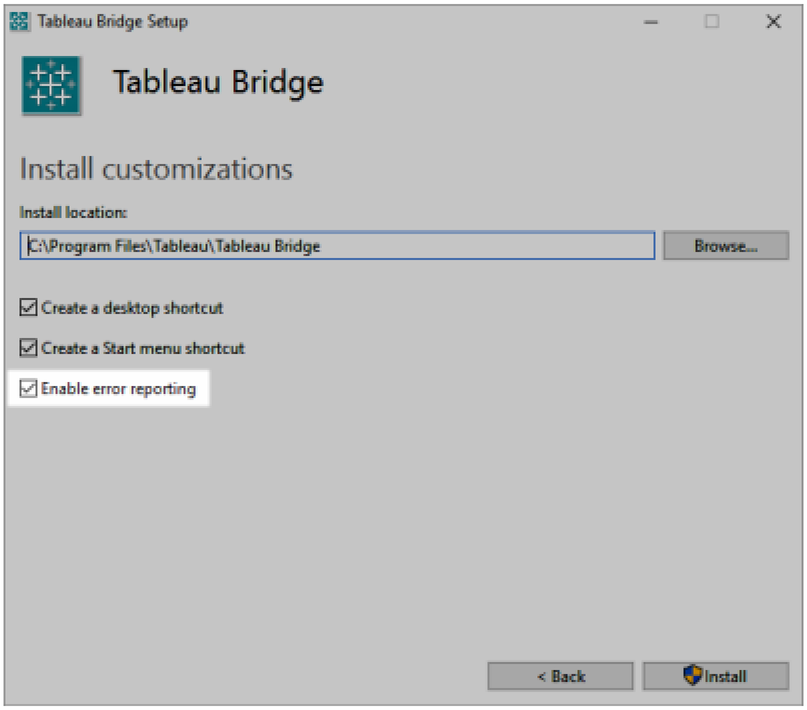


Tableau Bridge Setup
Tableau Bridge
Install customizations
Install location:
C:\Program Files\Tableau\Tableau Bridge
Browse...
☑ Create a desktop shortcut
☑ Create a Start menu shortcut
☑ Enable error reporting
< Back
Install

Disable the automatic error reporting option in the client

If you decided to use the default setting during the installation process and decide later on that you don't want to allow error reports to be sent automatically, you can modify the option from the client menu.

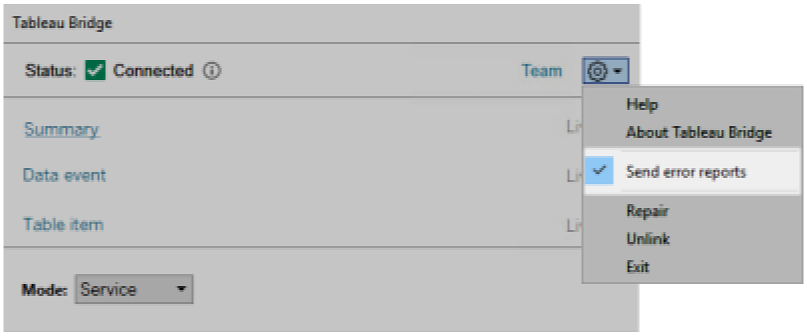


Tableau Bridge
Status: Connected
Team
Summary
Data event
Table item
Mode: Service
Help
About Tableau Bridge
✓ Send error reports
Repair
Unlink
Exit

Install Bridge from the command line

You can install the Bridge client from the command line if you're a local administrator on the machine.

General command line syntax

The syntax for running the Bridge installer from the command line is the following:

```
      tableauBridge<installer_name>.exe /option1 /option2 PROPERTY1
PROPERTY2
```

A few notes about the syntax:

- The `tableau<installer_name>.exe` file is the client installer for the product and version you're installing.
- The options specify how the installation process should run. For example, whether it should display output while installing and whether it should create log files.
- The properties settings specify configuration settings that the installer should make during the installation process.

Example installer command

The following example shows an installer command with some options and property settings.

```
TableauBridge-20232.23.0611.2007-x64.exe/quiet /passive ACCEPTEULA=1
```

You must run the command from the directory where the .exe file is located or specify a full path to the location of the .exe file on the machine. Don’t run the installer from a shared directory on your network. Instead, download the .exe file to a directory on the machine where you want to install the client.

Installer options and properties

You can specify one or more options in the command line for the installer.

Installer options

A couple of notes about the options:

- Each option is prefixed with a slash (/).
- Options must come before properties.

Option	**Description**

`quiet`	Run the installer without messages (status or installation progress) and without requiring user interaction. The client doesn't launch after installation is complete.
`passive`	Run the installer and display dialog boxes and installation status. Doesn’t prompt the user for input. The client launches after installation is complete.
`norestart`	Suppress any attempts to restart. By default, the installer prompts you before restart unless you run the installer in quiet mode.
`log "`*`log-file.txt`*`"`	Log installation information to the specified path and file. Specify the path and file name, such as `/log "c:\logs\logfile.txt"`. The default log file is the system `%TEMP%` directory.
`repair`	Run the installer to repair an existing installation of Bridge.
`h`	Help—lists options and properties for the installer.

Installer properties

You can also include one or more properties in the command line for the installer.

Some notes about the properties:

- All of these properties can be used for the initial installation of the client. They can't be used to update any settings after initial installation.
- Property names are case-sensitive.
- There are no spaces on either side of the equal sign.
- Each property set is delimited with a space.
- Properties must go after options.

Property	Description	Value
`ACCEPTEULA`	Accept the End User License Agreement (EULA). If you don't set this option to `1`, Bridge can’t be installed using	1=Accept 0=Don't accept (default)

	quiet mode.	
`CRASHDUMP`	You can set this option to "1" to help improve Bridge by sending error reports to Tableau automatically when the client crashes. For more information, see Error reports.	1=Yes (default) 0=No
`DESKTOPSHORTCUT`	Create a desktop shortcut.	1=Yes (default) 0=No
`DRIVERDIR`	Specify an installation directory (other than the default) for the database drivers. This option creates the directory and creates an entry in the HKEY_LOCAL_MACHINE\ registry. The default location for drivers is C:\Program Files\Tableau\Drivers.	A path such as `D:\Drivers`
`INSTALLDIR`	Specify an installation directory other than the default. If you specify a custom directory for the installation location and plan to install future releases to this same location, you must specify a version-	A path such as `D:\Software\Tableau Bridge`.

	specific subfolder to install to. Otherwise, you must uninstall the previous version first. Side-by-side installations of multiple versions in the same subdirectory isn’t supported.	
`SKIPAPPLICATIONLAUNCH`	You can set this option to "1" to prevent the new application from opening automatically when the installation process is complete. This option applies to manual installation. This option doesn't apply to quiet installations because Tableau Bridge doesn't open automatically when using that option.	1=Yes 0=No (default)
`STARTMENUSHORTCUT`	Create a Tableau Bridge entry on the Windows Start menu.	1=Yes (default) 0=No

Uninstall Bridge

Although it's not necessary to uninstall previous versions of the Bridge client when installing a newer version, you can uninstall Bridge 2018.2 and later if you no longer need it on your machine.

The primary method for uninstalling the client is through the Windows Control Panel.

Alternatively, you can use the following procedure to uninstall Bridge from the command line.

1. Open the Command Prompt as an administrator.
2. In the location where the .exe was installed, run the following command:

```
tableau<installer_name>.exe /uninstall /quiet
```

Install Bridge for Linux for Containers

Bridge for Linux provides the scalability and streamlined management capabilities of containerized workloads. The following instructions describe a lightweight way to run Bridge for Linux and assumes you have basic knowledge of Docker and the key terms used in the ecosystem.

Install and run Bridge from a Docker container

Bridge for Linux on Containers requires that the host computer has a static IP address to maintain secure connection to Tableau Cloud. Serverless solutions with dynamic IPs are not supported. You can deploy multiple Bridge on Linux containers on a single computer.

To use Bridge on Linux you must create a customized Docker image, install the RPM package, and then run Bridge from inside the container image.

- Bridge legacy schedules are not supported. See Migrate from Bridge (legacy) to Online schedules for more information.
- To connect to SAP HANA using live connections, parameters and variables must be disabled.

Prerequisites

- Installed Docker Engine. For the base image of the docker container, Bridge on Linux is supported on:
  - Amazon Linux 2023
  - Red Hat Enterprise Linux 8
  - Red Hat Enterpirse Linux 9

Note: CentOS is not supported.

- The latest Tableau Bridge RPM package from the Downloads page on the Tableau website.
- Experience with the Linux operating system.
- Basic shell scripting.
- Docker experience.
- Tableau Site admin Personal Access Token (PAT). You must use a dedicated PAT token for each Bridge client.
- If your Bridge host will connect to a remote share, you will need to create a section for UNC mapping in your Docker file. See Connecting to flat files and file-based extracts.

Step 1: Create a Bridge container image

The following steps are the basic instructions for building a Bridge on Linux base image. For more information, see Docker overview.

When Docker is installed, the only user with permission to run commands is root. You can run Docker commands with `sudo` or by a user who is a member of the docker group.

Important Base images will vary according to different drivers and platforms. The examples that follow are intended to illustrate the process of building a base image. You must adapt the build process for your particular environment.

1. Download the Bridge `.rpm` package from the Downloads page on the Tableau website.
2. (Optional) You can edit the configuration settings to change how the client will run. See Change the Bridge Client Settings for more information.
3. Create a working directory and move the `.rpm` package into the directory.

```
cd ~

$ mkdir Docker

$ cd Docker
$ mv <RPM_location>.rpm .
```

4. Create a Docker file in the working directory. For example:

   ```
   $ touch Dockerfile
   ```

5. Edit the Docker file and add the commands to run `yum update`.

   Red Hat Example

   For Red Hat 8:

   ```
   FROM registry.access.redhat.com/ubi8/ubi:latest

   RUN yum -y update
   ```

6. Edit the Docker file and then enter the commands to copy, install, and remove the bridge RPM package from the image. For example:

   ```
   COPY <your_bridge_rpm>.rpm /<path_of_container>

   RUN ACCEPT_EULA=y yum install -y $(find . -name *.rpm) && rm -
   rf *.rpm
   ```

7. Build a new container image using the `docker` build command.

   For example, the following command builds an image in the current directory, tagging it with the word "`bridge_base`":

   ```
   docker buildx build --platform=linux/amd64 -t bridge_base .
   ```

8. Check that the base image you created is displayed in the list of images:

   ```
   docker images | grep bridge
   ```

Step 2: Install the drivers

The Bridge client requires drivers to facilitate connectivity between private network data and Tableau Cloud. For drivers, go to Driver Download, select the data source, and then select **Linux** for the Operating system.

1. Installation can be done interactively after the base image is launched, or separate Dockerfiles can be written as a layer on top of the base image.

   Example

   With the MySQL driver RPM copied into the directory, you can create a separate working directory for layering MySQL drivers using the following Dockerfile:

   ```
   # Using previously built bridge_base image

   FROM bridge_base

   COPY mysql-connector-odbc-8.0.26-1.el8.x86_64.rpm

   RUN yum install -y mysql-connector-odbc-8.0.26-1.el8.x86_64.rpm
   ```

   Example

   Install a postgres JDBC driver. This can also be done in a separate Dockerfile.

   ```
   # Using previously built bridge_base image

   FROM bridge_base

   COPY postgresql-42.3.3.jar /opt/tableau/tableau_driver/jdbc/
   ```

   Example

   Install the Amazon Redshift driver.

   ```
   # Using previously built bridge_base image

   FROM bridge_base

   yum install -y unixODBC

   yum --nogpgcheck localinstall -y

   AmazonRedshiftODBC-64-bit-2.1.7.0.x86_64.rpm
   ```

```
odbcinst -i -d -f /opt/amazon/redshiftodbc/Setup/odbcinst.ini
```

2. Create a new image:

   ```
   docker image build -t bridge_final .
   ```

   The `bridge_final` image uses the cached image from the previous step and automates the driver installation for all your Bridge instances. If you have an image repository, you can publish the image to the repository and distribute the image to all the machines you want to run Bridge on.

Step 3: Run the Bridge container

Now that you have a base image built, you can deploy it using a variety of methods. The basic steps are:

1. Start the instance of the Bridge container.
2. Log in and start the worker.
3. Assign the agent to a pool.

Note: Bridge for Linux doesn't support Bridge (legacy schedules). See Migrate from Bridge (legacy) to Online schedules for more information.

1. Before you start deploying the container, create a Personal Access Token (PAT). The PAT is required to log in to the agent. Tableau Cloud supports 104 PATs per user. We recommend that you use one PAT token per client.

   Note: The following token names must match: The patTokenId (used when running the `run-bridge.sh` command), the token name in the JSON file, and the token name when generating the PAT in Tableau Cloud.

2. Set the locale in Docker using `ENV LC_ALL en_US.UTF-8`. You can also set the locale by adding the following to the `/etc/profile` file:

   ```
   export LANG="en_US.utf8"
   ```

```
export LANGUAGE="en_US.utf8"
```

```
export LC_ALL="en_US.utf8"
```

3. Start an instance of the Bridge container. There are many ways you can set up and start the container image. The following interactive method illustrates the steps necessary to start the worker. When you exit, the container stops running.
   1. Use the following method to move to the shell prompt for the container as `root`. The rest of the commands are executed in the context of this interactive session of the container.

      ```
      docker container run -it bridge_final /bin/bash
      ```

   2. Add the PAT token to a flat file in JSON format. For example:

      ```
      /home/jSmith/Documents/MyTokenFile.txt
      ```

      Example token syntax:

      ```
      {"MyToken" : "uLICC7e8SUS8ZNGe8RIFn4u-
      u==:lRihmYHI0XBKle7e8S4uSORXGqAkAl4"}
      ```

   3. Change the file permissions to restrict access to the current user. For example:

      ```
      chmod 600 MyTokenFile.txt
      ```

   4. Start the worker with the `run-bridge.sh` command and provide the following command options:

Command	Description
`--patTokenId`	The ID of the PAT. See Personal Access Tokens for more information.
`--userEmail`	User email associated with the PAT.
`--client`	The name that you want to give to the Worker.

`--site`	Site name as it appears in the URI. Don't include the URI path.
`--patTokenFile`	File name and path to the PAT text file.
`-e`	(Optional) By default, the Bridge client worker runs as a background service. To run the worker in the foreground, include the -e argument.
--`poolId`	(Optional) Pool Id that is assigned to the client. See Using a pool ID.

Command example

```
/opt/tableau/tableau_bridge/bin/run-bridge.sh -e --
patTokenId="Mytoken" --userEmail="admin@tableau.com" --cli-
ent="myBridgeAgent" --site="mySite" --patTokenFile-
e="/home/jSmith/Documents/MyTokenFile.txt" --
poolId="1091bfe4-604d-402a-b41c-29ae4b85ec94"
```

Note: If you are installing older versions of the Bridge for Linux, you must run a different command to start the worker. For versions 2024.2 and older, start the worker with the `TabBridgeClientWorker` command (not the `run-bridge.sh` command. All of the command options are the same.

The following message indicates the agent is started. `“Service started: ...”`

Use `Control-C` to stop the worker. Rather than restart the worker, you can start a new worker for the container image.

If you didn't assign a pool using the command option `--poolId`, the client is assigned to the default pool. If you want to use the client with specific domains or VConns, you can assign the client to a named pool using the UI. The menu for this on Tableau Cloud

Home > **Settings** > **Bridge**. For more information, see Configure the Bridge Client Pool.

Using a pool ID

When starting the Bridge worker with the `run-bridge.sh` command, the `poolId` is optional. However, the behavior of the client depends on whether the client is registered to a site, and whether the client is assigned to a pool. Tableau Bridge can only connect or register to one Tableau Cloud site at any given time. The client is registered to a site when you log off and log back in.

If a pool ID isn't provided

- If the Bridge client has been registered, the client status remains the same:
  - If the client is assigned to a pool, it remains assigned to the pool, regardless of whether it's a named pool or default pool.
  - If the client isn't assigned to a pool, it will remain unassigned.
- If the Bridge client is new (you never signed in to Tableau Cloud), the client is assigned to the default pool.

If a pool ID is provided

- If the pool ID is provided and is correct, the Bridge client is assigned to the named pool.
- If the pool ID is provided and incorrect:
  - If the Bridge client isn't t registered, then the client is assigned to the default pool.
  - If the Bridge client is registered, the client status remains the same, regardless of named pool, default pool, or unassigned.

Finding the Pool ID

To find the pool ID, go to the **Settings** > **Bridge** page and click on the name of the pool. For example:

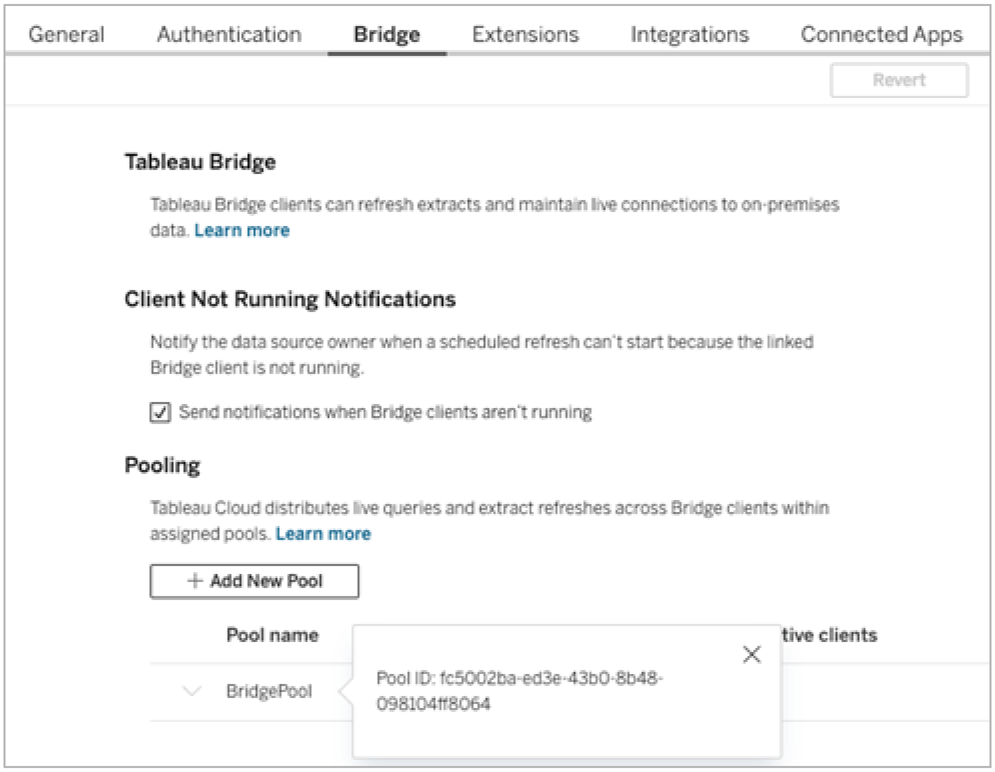


Tableau Bridge

Tableau Bridge clients can refresh extracts and maintain live connections to on-premises data. Learn more

Client Not Running Notifications

Notify the data source owner when a scheduled refresh can't start because the linked Bridge client is not running.

☑ Send notifications when Bridge clients aren't running

Pooling

Tableau Cloud distributes live queries and extract refreshes across Bridge clients within assigned pools. Learn more

Pool ID: fc5002ba-ed3e-43b0-8b48-098104ff8064

Upgrading Bridge for Linux client

Staying in sync with the latest version of Bridge ensures that you can take advantage of the latest features and fixes included with each new version of the Bridge client.

You can not run an in-place upgrade for the container. Instead, you must build a new container image with the latest Bridge binaries and then add the Bridge client to the pool side-by-side with the previous version. After you validate functionality, you then remove the previous Bridge client. Follow these steps:

1. Install and configure the new Tableau Bridge client as documented in the sections above.

2. Add the new Bridge client to the relevant pool. See Configure Pools.

3. Monitor the health of the Bridge jobs to validate stability before continuing to the next step.

4. Remove the previous Bridge client(s) from the pool. Open the pool, identify the client machine to be removed, and click **Delete**.

5. Wait for the extract refresh timeout process to finish on the Bridge client. The default timeout is 24 hours. For more information, see dataSourceRefreshSettings.

6. After refresh timeout period has elapsed, you may remove the previous instance of Bridge client.

Troubleshooting

Installing older versions

If you are installing older versions of the Bridge for Linux, you must run a different command to start the worker. For versions 2024.2 and older, start the worker with the `TabBridgeClientWorker` command (not the `run-bridge.sh` command).

All of the command options are the same as documented above in Step 3: Run the Bridge container .

For example:

```
/opt/tableau/tableau_bridge/bin/TabBridgeClientWorker -e --
patTokenId="Mytoken" --userEmail="admin@tableau.com" --cli-
ent="myBridgeAgent" --site="mySite" --patTokenFile-
e="/home/jSmith/Documents/MyTokenFile.txt" --poolId="1091bfe4-604d-
402a-b41c-29ae4b85ec94"
```

Worker start up error

In some cases, the following error will be displayed after running the `run-bridge.sh` command:

```
Missing log in parameters. Aborting the attempt to start service
worker.
```

In most cases, re-running the command with the original options and the `-e` option fixes the issue. The `-e` option runs the Bridge worker service in the foreground.

If you are running the Bridge client in background mode and you see a start up error, verify that all the input parameters include paths to any required files. For example, in background mode, the user context is not provided to resolve a path to the token file.

Working with log files

Log files are stored in the user's `My_Tableau_Bridge_Repository/Logs` folder. To save logs in a `tmp` folder, run the following command:

```
docker container run --volume /tmp/bridge_logs:/root/Documents/My_
Tableau_Bridge_Repository/Logs -it bridge_final /bin/bash
```

In this example, the location is specified by */tmp/bridge_logs*. Using the docker command simplifies saving the log files and avoids having to manually copy the Bridge logs files from the container to your local file system.

MySQL driver fails

If `LC_MESSAGES` aren’t set with `UTF-8` locales, you may experience read and display issues. You can edit the `/etc/profile` file, or relaunch the worker using the following command:

```
LC_ALL=en_US.UTF-8 /opt/tableau/tableau_bridge/bin/run-bridge.sh -e
```

Bridge Client stops unexpectedly due to Personal Access Token expiration

When a Personal Access Token (PAT) expires it will cause the Bridge Client to become disconnected from Tableau Cloud and may cause the container to shut down. From the Bridge Client you can validate if your PAT has expired by executing the Start command in the foreground. If the PAT is expired you will see the following error:

```
The client credentials are invalid. To complete the request, reset
the credentials, and sign in to the Tableau Bridge client.
```

If you are the original PAT owner, you can also verify if the PAT is expired by visiting **Manage Account Settings** in Tableau Cloud. To resolve the issue, you will need to generate a new PAT and follow the steps above, Step 3: Run the Bridge container .

Embedded extract and embedded live connection timeout errors

The 24.3 release of Bridge on Linux provided significant performance improvements for embedded extracts and embedded live connections. If you experience timeout errors on prior releases, we recommend upgrading to a 24.3+ release of Bridge on Linux. If this does not resolve the issue, Publish the Data Source separately from the workbook.

Connectivity with Bridge

When data sources or virtual connections connect to private network data that Tableau Cloud can't reach directly, Tableau Bridge is used to facilitate connectivity.

Connection types

Tableau Bridge supports on-premise data or data in a virtual cloud that is behind the firewall. The data can range from CSV files on your private network or data stored in a data warehouse.

For cloud data that Tableau Cloud can reach directly, setting up refresh schedules directly with Tableau Cloud is almost always a better choice. For example, you might be able to connect to a MySQL database hosted on a cloud platform. In a scenario like this, you can set up a refresh schedule for extracts that connect to this type of data directly with Tableau Cloud.

Extract refreshes

When data sources or virtual connections use extracts to connect to private network data, Bridge can be used to perform scheduled refreshes of those extracts. Refreshes can be scheduled, in most cases, by the content owner as part of the publishing process. For extract refresh requirements, see Additional requirements for extract connections.

Live connections

Bridge supports data sources or virtual connections with live connections to private network data using a feature called live queries. If the content owner publishes a data source or virtual connection that uses a live connection to data that Tableau Cloud detects that it can't reach directly, live queries are automatically used. For live query requirements, see Additional requirements for live connections.

- Bridge doesn't support live connections for some cloud data sources. These include Google Cloud SQL, OData, and Progress OpenEdge. Use extract connections to keep data fresh.
- Bridge doesn't support live connections for some private cloud-based data sources. These include Google Drive, Box, OneDrive, Dropbox, and Azure Data Lake Storage Gen2. Use extract connections to keep data fresh.
- Live connections to file-based data such as CSV, text, Excel, statistical (.sas7bdat) isn’t supported.

Virtual connections

Bridge supports virtual connections, which provide a sharable central access point to data.

- Snowflake isn’t supported when used with virtual connections.
- OAuth for virtual connections is supported on a connector basis. See the following Knowledge base article and OAuth Connections.

File data

The latest version of Windows client and Bridge for Linux for Containers support extracting file data including CSV, Excel, text, statistical (.sas7bdat), PDF, and spatial files.

- Extract refreshes for published data source files are supported. We recommend using the UNC format for file data connectivity. If you are connecting to a local file path, you must use the Default pool.

- Extract refreshes for embedded data source files are supported. You must use a configured pool for embedded data sources and the file path must use the UNC format.

- Extract refreshes and live query of Hyper files on a file share are not supported.

- Live connections to file-based data aren’t supported.

- Refreshing flat file data using Bridge is not supported for Prep Conductor Flows. To enable successful Prep Conductor Flow refreshes, move the flat file to a location that is accessible by Tableau Cloud directly (Google Drive, Box, Dropbox, etc.).

Connections to cube-based data

Cube-based data is not supported.

Embedded data sources

Tableau Bridge supports data sources that are embedded in workbooks.

- Live connections for files data such as CSV, text, Excel, statistical (.sas7bdat) aren’t supported.
- The default pool does not support embedded data sources. You must use a pool that has been configured. For more information, see Configure the Bridge Client Pool.

Published data sources

Scheduled extracts of published data sources don’t support multiple pools.

Tableau Prep Builder

Starting in version 2025.1, private network connections for Tableau Prep through Tableau Bridge are supported. You can use a Tableau Bridge Client to connect to and refresh your data in Tableau Cloud. For more information, see "Databases" in the Tableau Cloud section of Publish a flow from Tableau Prep Builder.

Refreshing flat file data using Bridge is not supported for Prep Conductor Flows. To enable successful Prep Conductor Flow refreshes, move the flat file to a location that is accessible by Tableau Cloud directly (Google Drive, Box, Dropbox, etc.).

Writing output data to external databases using Bridge is not supported for Prep Conductor flows.

User attribute functions

User attributes functions are not supported in Tableau Bridge workflows.

Connectors and data types

Bridge supports a combination of connectors that Tableau Desktop and Tableau Cloud supports. Unsupported connectors and limitations for connectors and data types are listed below.

Include External Files

Include External Files is not supported.

Private cloud data

In most cases, Tableau Cloud will automatically detect the Bridge client. In some cases, you might need to manually configure your connection to ensure that Bridge is used. For more information, see Connect to Private Cloud Data.

Unsupported connectors

- Connectors built by third parties that are not on the Tableau Exchange are not supported.
- Some Exchange Connectors are not supported. See section below.
- AWS S3
- Sharepoint Lists (JDBC)
- Microsoft Analysis Services.
- Microsoft PowerPivot.
- Oracle Essbase.
- SAP NetWeaver Business Warehouse.

Exchange Connectors

Tableau Bridge can be used to query data using the select connectors available on the Tableau Exchange connector page. The Exchange connectors that are supported are Actian JDBC, Altinity Connector for ClickHouse, Guidanz BI Connector, Couchbase Analytics, Stratio Crossdata, Data Virtuality JDBC, Jethro ODBC, Oracle NetSuite, SAP SuccessFactors, ServiceNow, and SingleStoreDB JDBC.

To use Exchange Connectors with Tableau Bridge, follow these steps for each Exchange connector and each Bridge client in the pool that will access the target data source.

1. Download the .taco file from the Tableau Exchange connector page.
2. Add the .taco file to the Tableau repository connector directory:
    - On Windows: `C:\Users[Windows User]\Documents\My Tableau Bridge Repository\Connectors`
    - On Linux: `/root/Documents/My_Tableau_Bridge_Repository/Connectors`
    - For Data Connect, run the following command to create the Connector directory in your base image: `mkdir -p /home/tableau/Documents/My_Tableau_Bridge_Repository/Connectors`
3. Follow the instructions on the Tableau Exchange for your connector to download the required driver.
4. Install the driver on the Bridge client.
5. Restart the Bridge client.

Connectors that don’t support Live connections

- Google Cloud SQL
- OData
- Progress OpenEdge
- IBM Netezza Performance Server
- Flat files

SAP HANA

To connect to SAP HANA using live connections, parameters and variables must be disabled.

Snowflake

Snowflake isn’t supported when used with virtual connections.

Data used in a multi-connection data source

Tableau Bridge can be used to refresh cross-database joined data sources. The database connections defined in the workbook or data source determine how you can publish and keep the data fresh on Tableau Cloud. As long as all the individual data connections are of a type that Tableau Bridge can refresh, then the cross-database joined data source can be refreshed.

Other Databases

- Tableau provides limited customer support for connections using JDBC. See Tableau support for Other Databases (JDBC) connections.
- Tableau provides limited customer support for connections using ODBC. See Tableau support for Other Databases (ODBC) connections.

Web data connectors

- Bridge is not able to connect to data from Web Data Connector 3.0. For more information, see Connectors Built with the Web Data Connector 3.0 SDK.
- The Web Data 2.0 is deprecated as of the 2023.1 release. See Web Data Connector 2.0.
- Tableau doesn’t support connectors or other programs written to interface with the WDC API.

Bridge for Linux

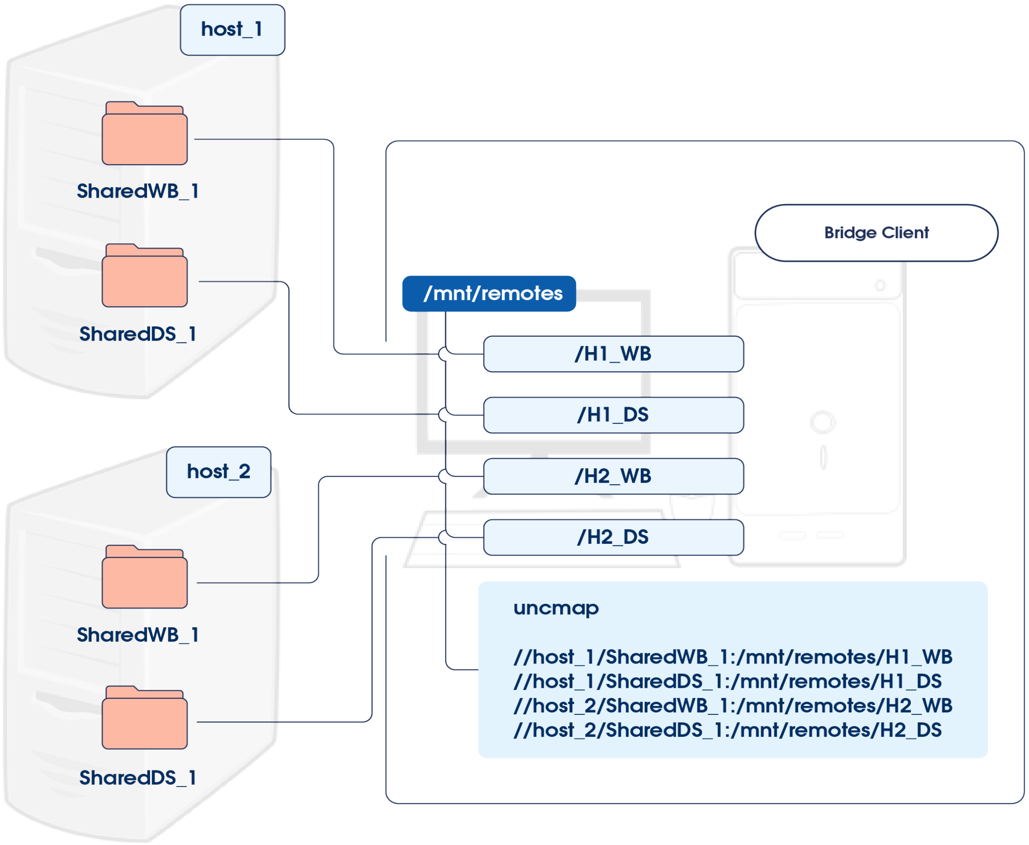
Tableau Bridge supports a Linux-based operating system designed for container workloads. Limitations and differences include:

- Bridge for Linux does not support legacy schedules.
- Bridge for Linux runs in the background, which is the equivalent to Service mode in Tableau Bridge on Windows.
- To save log files, copy the files or folders between your docker container and your local file system.

- Currently, Bridge for Linux is installed by running commands in a running container using Docker executables.
- Bridge for Linux does not support Window integrated authentication.
- Bridge for Linux only supports Exchange Connectors that have a Linux Driver.

Connecting to flat files and file-based extracts

As of February 2025 release, you can configure Bridge for Linux to connect to remote shares.


host_1
SharedWB_1
SharedDS_1
host_2
SharedWB_1
SharedDS_1
Bridge Client
/mnt/remotes
/H1_WB
/H1_DS
/H2_WB
/H2_DS
uncmap
//host_1/SharedWB_1:/mnt/remotes/H1_WB
//host_1/SharedDS_1:/mnt/remotes/H1_DS
//host_2/SharedWB_1:/mnt/remotes/H2_WB
//host_2/SharedDS_1:/mnt/remotes/H2_DS

1. Create and set access permissions on the remote share. For example, `SharedWB_1`. The resulting UNC path for this computer, host1, would be `//host1/SharedWB_1`.

2. On the host computer where you are running the Bridge client, mount the remote share on the local file system. For example, `/mnt/remotes/H1_WB`.

3. In a text file create a UNC map using the format: `//<remote UNC>:/<local mount>`. For example, `//host1/SharedWB_1:/mnt/remotes/H1_WB`.

4. Configure the remote share for the Docker contain by including the following content in the Docker file. The example remote share configuration below corresponds to the diagram above.

   ```
   dnf install -y cifs-utils
   export CRED=/mnt/remotes/creds/
   mkdir -p $CRED && chmod 700 $CRED

   # Prepare credential files for host_1 ($CRED/.h1) and host_2
   ($CRED/.h2)
   #    credential file format should be:
   #          username=...
   #          password=...
   chmod 600 $CRED/.h1
   chmod 600 $CRED/.h2

   # Add these CIFS entries to /etc/fstab (this will be auto-
   matically mounted on
   # reboot)
   cat >> /etc/fstab << EOE
   //host_1/SharedWB_1    /mnt/remotes/H1_WB    cifs    cre-
   dentials=/mnt/remotes/creds/.h1    0    0
   //host_1/SharedDS_1    /mnt/remotes/H1_DS    cifs    cre-
   dentials=/mnt/remotes/creds/.h1    0    0
   //host_2/SharedWB_1    /mnt/remotes/H2_WB    cifs    cre-
   dentials=/mnt/remotes/creds/.h2    0    0
   //host_2/SharedDS_1    /mnt/remotes/H2_DS    cifs    cre-
   dentials=/mnt/remotes/creds/.h2    0    0
   EOE
   ```

```
# and mount fstab entries
mount /mnt/remotes/H1_WB
mount /mnt/remotes/H1_DS
mount /mnt/remotes/H2_WB
mount /mnt/remotes/H2_DS

# Create the UNC map file
cat > /mnt/remotes/uncmap << EOM
//host_1/SharedWB_1:/mnt/remotes/H1_WB
//host_1/SharedDS_1:/mnt/remotes/H1_DS
//host_2/SharedWB_1:/mnt/remotes/H2_WB
//host_2/SharedDS_1:/mnt/remotes/H2_DS
EOM
```

The Bridge client periodically reads from the UNC map file to check for changes. To avoid Bridge restarting after changes, keep your mounted directories and location of the UNC map file in the same directory.

5. Run the following to finish the configuration:

```
docker container run \
...
-e TABLEAU_BRIDGE_UNC_MAP_OVERRIDE='/mnt/remotes/uncmap' \
--mount type=bind,source="/mnt/remotes",target=/mnt/remotes \
...
```

Authentication

The connected client option must be enabled for the site to allow Bridge clients to run unattended and, if enabled, support multi-factor authentication with Tableau authentication. If connected clients are disabled for the site, Bridge can only support Tableau username and password authentication.

OAuth

- Tableau Bridge for Windows and Bridge for Linux do not support OAuth for Azure SQL, Azure Synapse, and Dremio.
- OAuth with embedded data sources and published data sources for Google Drive and OneDrive is supported.
- When using your own identity provider (IdP) with the Amazon Athena connector, you must set up the OAuth client configuration file. See Use your own identity provider with Amazon Athena.

Windows Authentication

The Windows user account must be a member of the local admin group to run the client in service mode. If the user isn’t a local admin, they can run the Bridge client in Application mode, but they must remain logged in to the Windows machine.

Kerberos

Bridge on Windows supports Integrated Windows authentication through the "run-as" account, for both files and some databases

Update Bridge Connection Information

This topic describes how a data source owner can update the connection information for a data source that connects to private network data.

Note: For information about connection information for virtual connections, see Create a Virtual Connection.

Embed or update database credentials

For live queries and scheduled refreshes to run as expected, data sources that require user authentication must have the database credentials embedded with the data source.

You can embed database credentials for your data source in one of two ways: 1) during publish time from Tableau Desktop or 2) after publishing from the data source's Connection tab in Tableau Cloud. The procedure below describes how to embed database credentials on

Tableau Cloud. For more information about embedding database credentials in Tableau Desktop, see Set Credentials for Accessing Your Published Data.

1. Sign in to Tableau Cloud and navigate to your data source.
2. From the data source page, click the **Connections** tab.
3. Select the check box next to the connection, click the Actions menu, and select **Edit Connection**.
4. In the Edit Connection dialog box, enter the database credentials required for accessing the data, and click **Save**.

Embed or update database credentials for Bridge legacy schedules

If you use **Bridge legacy** schedules to refresh your data sources, you must embed the database credentials in the connection information in the Bridge client. This task must be done even if you embedded the database credentials at publishing time on Tableau Desktop.

1. Open the Windows system tray and click the Bridge icon to open the client.
2. Point to the data source, and then click the **Edit** icon (✎) that appears.
3. In the dialog box, enter the database credentials required for accessing the data, and then click **Save**.

Change the file path for a data source

In some cases, you might need to update the file location that the client references under the following circumstances:

- **Source file location has changed**
- **Data source was published from a mapped drive:** If a client used to perform refresh is running in Service mode and the data source was published from a mapped drive, the file path referenced by the client must be updated to use the full UNC path. The Windows services account that the client is running under must also have access

to the UNC path location of the file. We strongly recommend clients running in Application mode also reference the UNC path for its file-based data sources.

If you are using Bridge refresh schedules, you can change the data source file path to use the full universal naming convention (UNC) path by performing the following steps:

1. Download the data source from Tableau Cloud.
2. Launch Tableau Desktop.
3. Open the published data source or workbook.
4. Navigate to the **Data Source** tab.
5. Right-click the data source name then select **Edit Connection**.
6. In the file navigator window and the file path field, type the UNC path to the file. For example: \\server_name\datasource.xls.
7. Select **Server** > **Publish Data Source** and publish the data source.

You can confirm the UNC path is recognized for the data source in Tableau Desktop, by right-clicking the data source and selecting **Properties**.

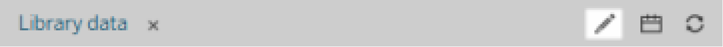
Change the file path for (legacy)

If **Bridge legacy** schedule is used to refresh, saved with the data source is the location of the file.

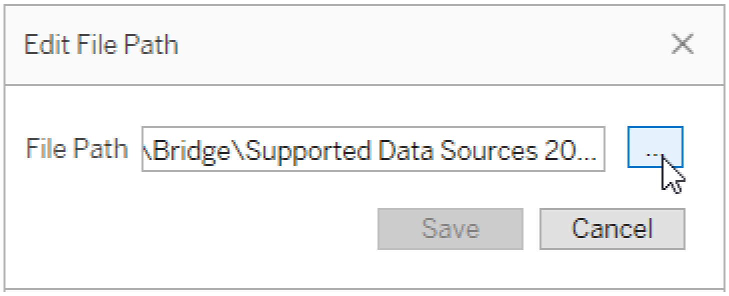
You can use the following procedure below to change the file path for the data source.

1. Open the Windows system tray and click the Bridge icon to open the client.

2. Point to the data source, and then click the **Edit** icon (✎) that appears.



3. In the dialog box, enter the path location information and then click **Save**.



File Path: \Bridge\Supported Data Sources 20...

Use .tdc files for generic JDBC or ODBC connections

You can use the steps described below to ensure customizations for generic JDBC or ODBC connections enabled through a Tableau Datasource Customization (TDC) file are also used by Bridge.

Step 1: Customize the generic JDBC or ODBC connection

If you aren’t already familiar with the type of customizations you can make to your JDBC and ODBC connections and how to create a TDC file, see Customize and Tune a Connection in the Tableau Help.

Step 2: Save the TDC file in the My Tableau Bridge Repository

In order for Bridge to use the customizations specified for generic ODBC or JDBC connections, you must save the TDC file in the location specified by the procedure below. To refresh JDBC or ODBC connections through Bridge pools, this step must be performed for all clients in the pool.

1. On the machine where the client is installed, go to the **Datasources** folder in the My Tableau Bridge Repository.

   The default location of the folder is

   - Windows: `C:\Users\myuser\Documents\My Tableau Bridge Repository\Datasources`

    - Linux: `/root/Documents/My_Tableau_Bridge_Repository/Datasources/`

2. Place the TDC (.tdc) file into the **Datasources** folder.

3. Exit and restart the client for the changes to take effect. The way you restart the client depends on whether the client is running in Application or Service mode.

    - For Application mode - from the client menu, select **Exit**.
    - For Service mode - from the Mode drop-down menu, select **Application**; then from the client menu, select **Exit**.

4. Repeat steps 1-3 for all clients in the pool.

Notes:

- For more information about creating and customizing a TDC file, see the Tableau Desktop help topic, Customize and Tune a Connection.
- After you save the TDC file to the required location, customizations are applied to all generic JDBC or ODBC connections to the same underlying data.

- To validate the TDC file is being used, you can review the client log files (for example, C:\Users\jsmith\Documents\My Tableau Bridge Repository\Logs) for either of the following log entries:

    - `Found matching TDC`
    - `Applying customization for genericjdbc` or `Applying customization for genericodbc`

Change the connection type

A data source can use one of two connection types: live or extract. The connection type determines the frequency at which the content can be updated to reflect the changes in the underlying data. Depending on the data that is being connected to, some data sources can have live or extract connections but other data sources can only have extract connections. For more information, see Connectivity with Bridge.

To change the connection type of an embedded data source of a workbook, see Editing the data source.

Repair connections

Occasionally something causes one or more of the connections to stop functioning normally. When this happens, an alert appears in the client, and it usually provides information that can direct you toward the cause of the problem. However, if the alert can't provide any troubleshooting information and your client is running in **Service** mode, you can use the **Repair** option to try to reset the connections.

1. Open the Windows system tray and right-click the Bridge icon.
2. From the drop-down menu, select **Repair**. This option stops and restarts the service, which can be enough to resolve the issue.

Publish a Private Network Data Source with a Live Connection

This topic describes how a data source owner can publish a data source that uses a live connection to private network data. Data sources that connect to private network (including private cloud) data rely on Tableau Bridge. The tasks described in this topic assume Bridge has already been set up and is being maintained by your site admin.

- Bridge supports keeping data fresh for data sources embedded in workbooks. To publish a workbook with embedded data sources, see Use Embedded Data Sources.
- To publish a private cloud-based data source that uses a live connection, see Connect to Private Cloud Data.
- To publish a virtual connection with a live connection, see Create a Virtual Connection

Publish a data source

The procedure below describes how you can publish a data source that uses a live connection. To support live connections to data sources that connect to private network data, Bridge uses functionality called live queries. To keep the data source up to date, Bridge queries the database directly and returns the results of the query for use in the data source.

1. In Tableau Desktop, create your data source.
2. Select **Server** > **Publish Data Source** to begin the publishing process. If you haven't already signed in to Tableau Cloud, you will be prompted to.
3. In the Publish Data Source to Tableau Cloud dialog box, configure the various options for your data source and ensure you do the following:
    - Under Authentication, click **Edit** and select **Embedded password** or **Server Run As account** depending on the option you see.
    - Depending on the data that the data source is connected to or how you've configured the data source, the dialog can default to publishing a live connection or give you the option to publish a live connection or extract. If you are provided with options, select **Maintain a live connection**.
4. Click the **Publish** button. This opens a browser window to Tableau Cloud.
5. In the Publishing Complete dialog box, click the **Done** button.

Use Embedded Data Sources

Tableau Bridge supports embedded data sources (EDS) and published data sources. With EDS support, existing content requiring Bridge can be migrated as-is rather than converting embedded data sources to published data sources.

Note: For Bridge extract refresh connections that contain embedded data sources, you can combine data from multiple sources. See Multiple connection scenarios.

Considerations

- Bridge can support up to 16 live queries per client. With embedded data sources support, there’s an additional count against the refreshed quota.
- See Bridge Site Capacity for information about how Tableau Bridge can impact site capacity.

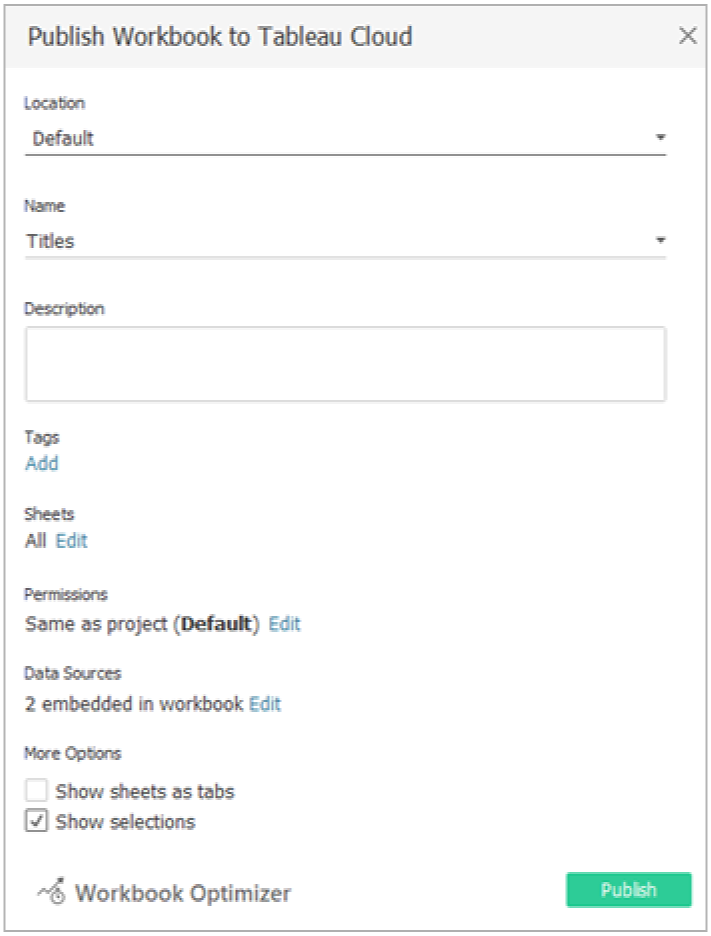
- When data is embedded in the workbook it's exclusive to the workbook; it's not available for other Tableau Desktop users to connect to. You can set up extract refresh schedules as you do for data sources that are published.
- Each embedded data source has a separate connection to the data. Performance can be affected when connecting to duplicate copies of data, for example when connecting to the same original data and each workbook has its own refresh schedule.
- Existing scheduled jobs will be routed to Bridge once the pool mappings and private network allowlist for the data source are configured. This is because the network type for embedded data sources is determined by the pool mappings and private network allowlist.
- A published data source is typically the best option for long-running extract refresh tasks. For more information, see Optimize Bridge Refresh Performance.

Limitations

- Bridge legacy schedules aren’t supported.
- The default pool does not support embedded data sources. You must use a pool that has been configured. For more information, see Configure the Bridge Client Pool.
- Live connections for file data (such as .cvs and .xlsx) aren’t supported by Bridge when the connection is an embedded data source.
- Extract refreshes for embedded data source files are supported on the Bridge Windows client. You must use a configured pool for embedded data sources and the file path must use the UNC format. Tableau recommends that you limit the size of files to 5 GB.
- File data isn’t supported on Bridge for Linux for Containers.

Embedded Data Source with a Live connection

1. Set up pool mappings for the data source. For more information, see Configure the Bridge Client Pool.
2. From Tableau Desktop set the data source connection to **Live**.
3. From the worksheet, click **Server** > **Publish Workbook**.



Publish Workbook to Tableau Cloud

Location: Default

Name: Titles

Description

Tags: Add

Sheets: All Edit

Permissions: Same as project (**Default**) Edit

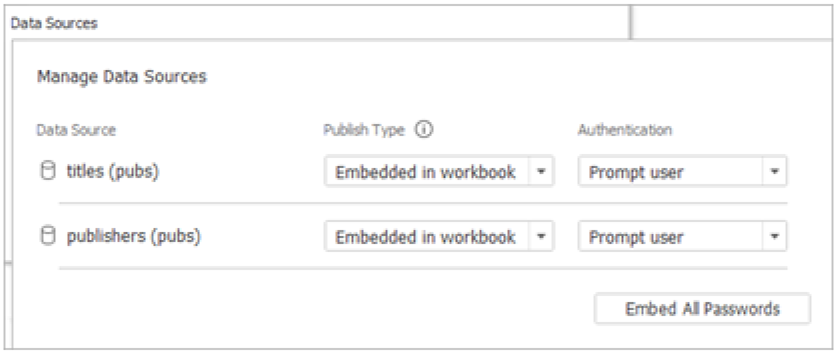
Data Sources: 2 embedded in workbook Edit

More Options

☐ Show sheets as tabs

☑ Show selections

4. To see the data sources embedded in the workbook, click **Data Sources**.



Data Sources

Manage Data Sources

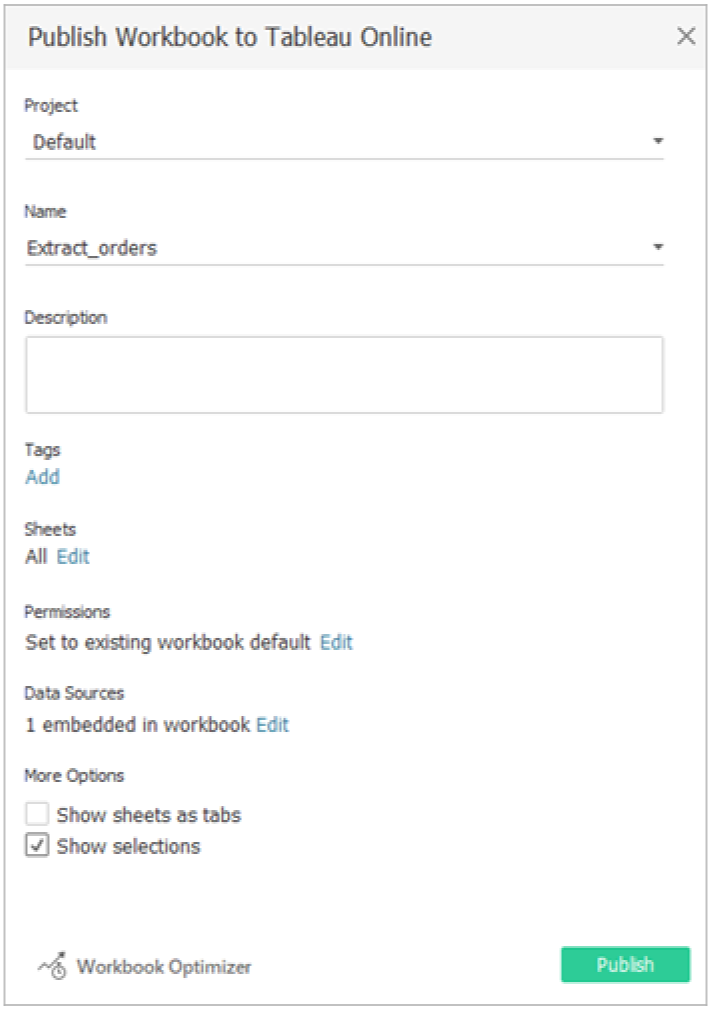
Data Source	Publish Type	Authentication
titles (pubs)	Embedded in workbook	Prompt user
publishers (pubs)	Embedded in workbook	Prompt user

5. Click **Publish**.

After the workbook is published, the workbook is rendered with the data sources included in the workbook.

Embedded Data Source with an Extract connection

1. Set up pool mappings for the data source. For more information, see Configure the Bridge Client Pool.
2. From Tableau Desktop set the data source connection to **Extract**.
3. Click the worksheet and in the **Save Extract As** form, provide a name for the extract data source.
4. From the worksheet, click **Server** > **Publish Workbook**.



Publish Workbook to Tableau Online

Project: Default

Name: Extract_orders

Description:

Tags: Add

Sheets: All Edit

Permissions: Set to existing workbook default Edit

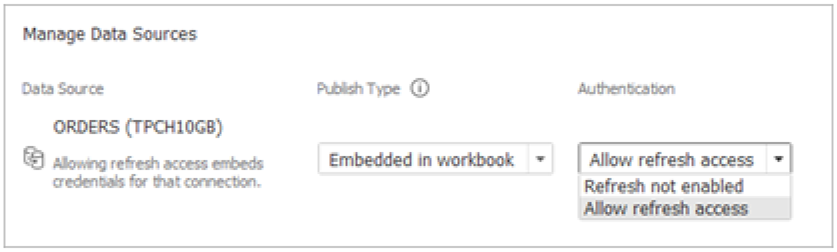
Data Sources: 1 embedded in workbook Edit

More Options

☐ Show sheets as tabs

☑ Show selections

5. (Optional) In the Manage Data Sources menu, choose to allow refresh access.


Manage Data Sources
Data Source
Publish Type
Authentication
Refresh not enabled
Allow refresh access

ORDERS (TPCH10GB)

Allowing refresh access embeds credentials for that connection.

Publish Type: Embedded in workbook

Authentication: Allow refresh access

6. Click **Publish**.

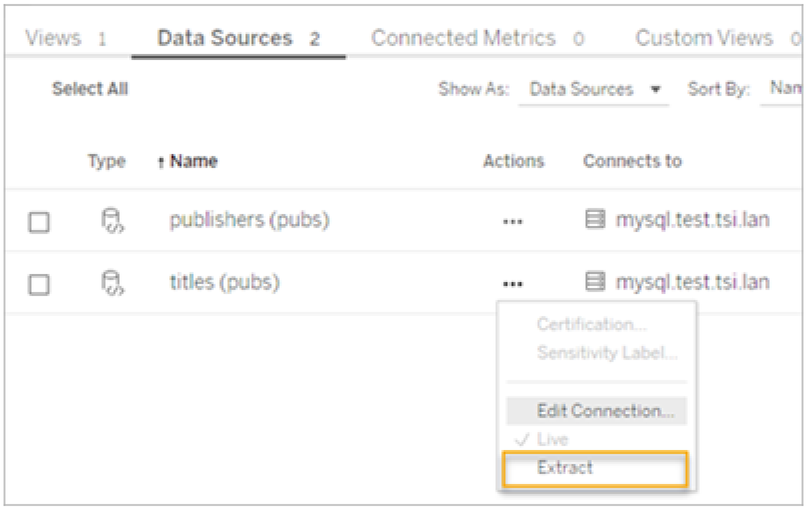
   After the workbook is published, the workbook is rendered with the data sources included in the workbook.

Editing the data source

Optionally, after you publish the workbook, you can change the connection type from Live to Extract from the Data Sources tab or from the workbook. You can also change the connection type from Extract to Live from the workbook.

To change the connection type from Live to Extract from the Data Sources tab:

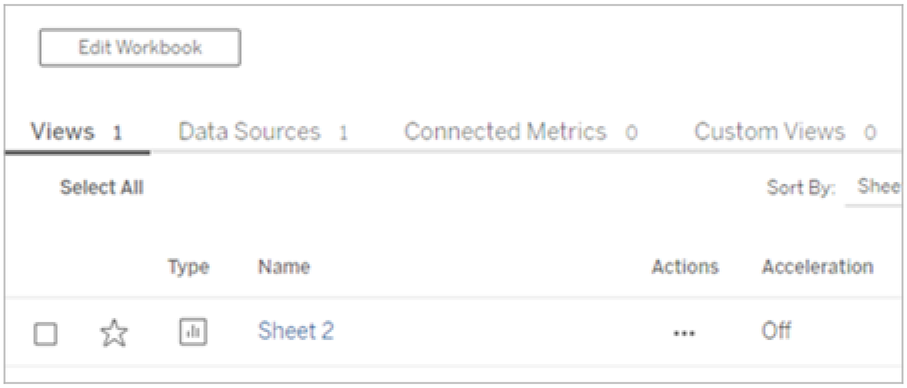
1. Go to the **Data Sources** tab.
2. From the Actions menu, select **Extract**.


Views 1
Data Sources 2
Connected Metrics 0
Custom Views 0
Select All
Show As: Data Sources
Sort By: Nam
Certification...
Sensitivity Label...
Edit Connection...
✓ Live
Extract

Type	↑ Name	Actions	Connects to
☐	publishers (pubs)	•••	mysql.test.tsi.lan
☐	titles (pubs)	•••	mysql.test.tsi.lan

To change the connection type from Live to Extract from the workbook:

1. Go to the **View** tab.
2. Click **Edit Workbook**.

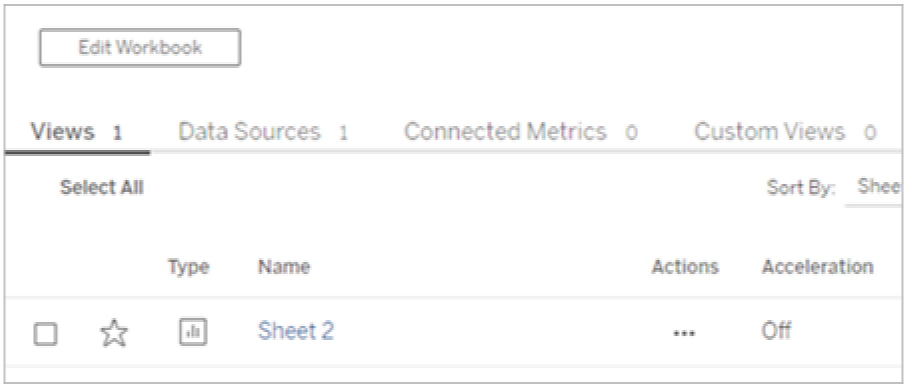

Edit Workbook
Views 1
Data Sources 1
Connected Metrics 0
Custom Views 0
Select All
Sort By: Shee
Type
Name
Actions
Acceleration
Sheet 2
•••
Off

3. Click the **Data Source** tab in the lower left corner, and then click **Extract** in the upper right corner.
4. Click **Create Extract**.

   When a workbook data source is changed to Extract, a job is automatically created.

To change the connection type from Extract to Live, change the connection from the workbook. Do not change the data source from Extract to Live from the **Data Sources** tab.

1. Go to the **View** tab.
2. Click **Edit Workbook**.

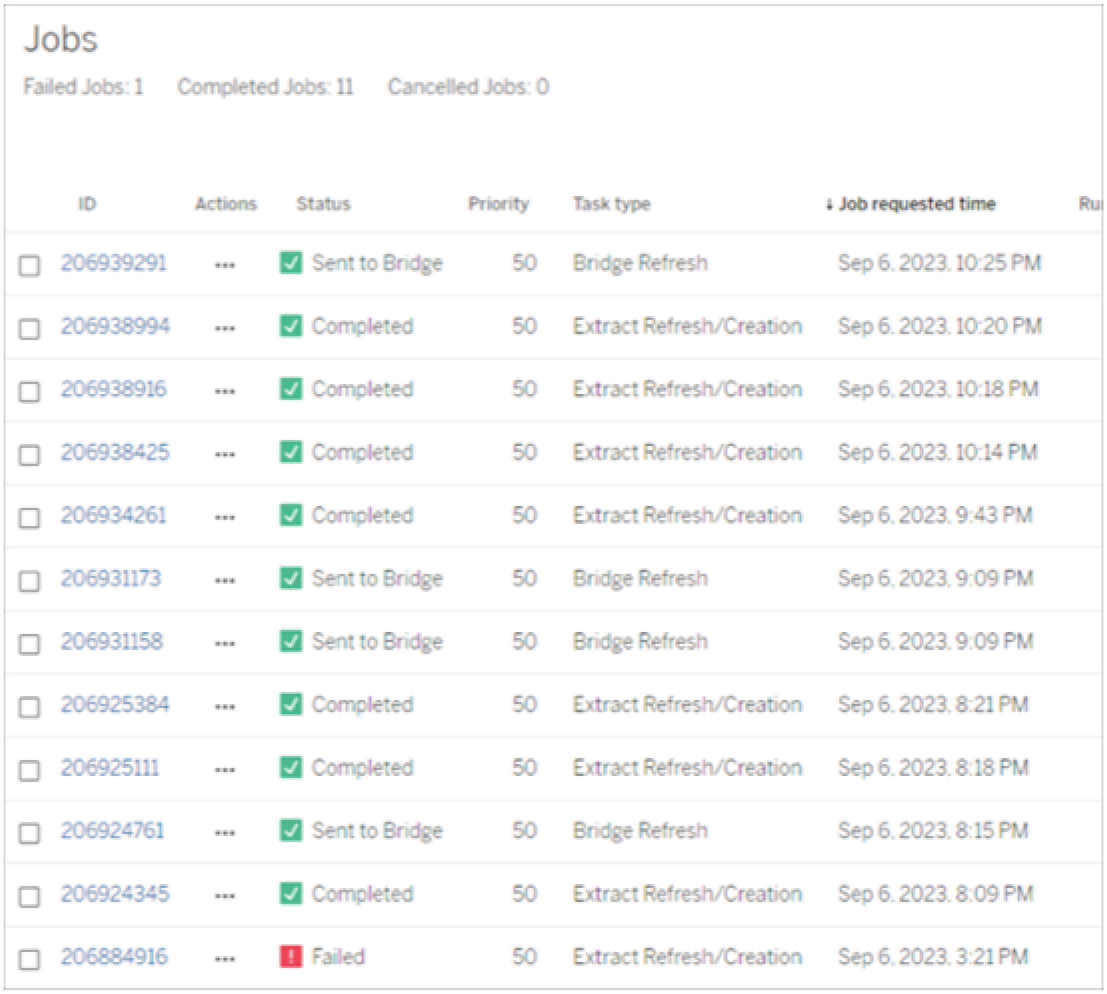

Edit Workbook
Views 1
Data Sources 1
Connected Metrics 0
Custom Views 0
Select All
Sort By: Shee
Type
Name
Actions
Acceleration
Sheet 2
•••
Off

3. Click the **Data Source** tab in the lower left corner, and then click **Live** in the upper right corner.
4. Click **Publish** and refresh the workbook page.

Viewing refresh jobs

There are several Task Types available to view from the Jobs page.

For embedded data sources that use Bridge, the task type is **Extract Refresh/Creation**. For published data sources that use the Bridge client, the task type is **Bridge Refresh**.



Jobs

Failed Jobs: 1 Completed Jobs: 11 Cancelled Jobs: 0

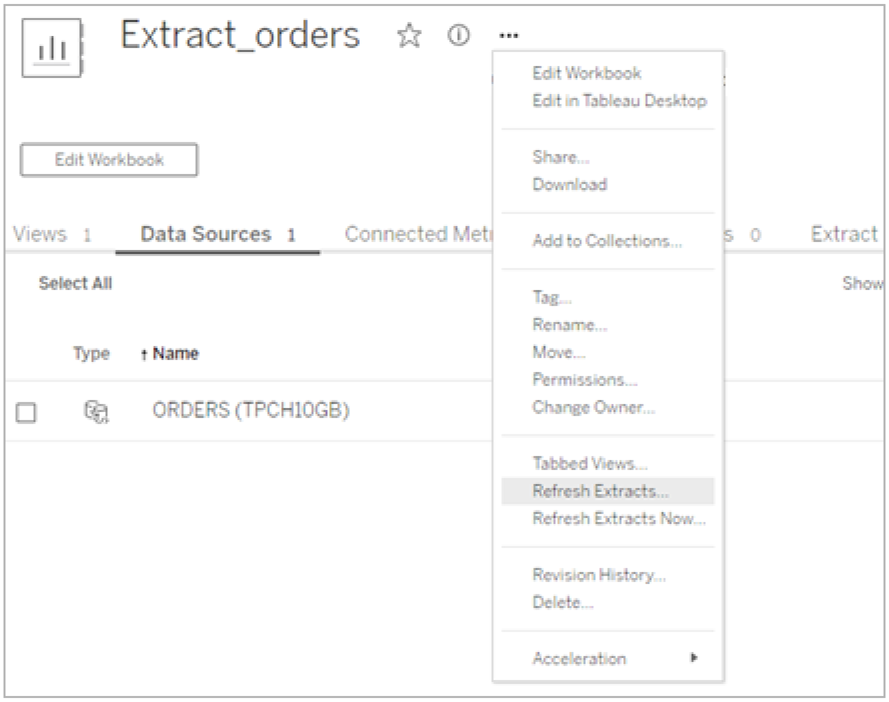
	ID	Actions	Status	Priority	Task type	↓ Job requested time	Ru
☐	206939291	...	✓ Sent to Bridge	50	Bridge Refresh	Sep 6, 2023, 10:25 PM	
☐	206938994	...	✓ Completed	50	Extract Refresh/Creation	Sep 6, 2023, 10:20 PM	
☐	206938916	...	✓ Completed	50	Extract Refresh/Creation	Sep 6, 2023, 10:18 PM	
☐	206938425	...	✓ Completed	50	Extract Refresh/Creation	Sep 6, 2023, 10:14 PM	
☐	206934261	...	✓ Completed	50	Extract Refresh/Creation	Sep 6, 2023, 9:43 PM	
☐	206931173	...	✓ Sent to Bridge	50	Bridge Refresh	Sep 6, 2023, 9:09 PM	
☐	206931158	...	✓ Sent to Bridge	50	Bridge Refresh	Sep 6, 2023, 9:09 PM	
☐	206925384	...	✓ Completed	50	Extract Refresh/Creation	Sep 6, 2023, 8:21 PM	
☐	206925111	...	✓ Completed	50	Extract Refresh/Creation	Sep 6, 2023, 8:18 PM	
☐	206924761	...	✓ Sent to Bridge	50	Bridge Refresh	Sep 6, 2023, 8:15 PM	
☐	206924345	...	✓ Completed	50	Extract Refresh/Creation	Sep 6, 2023, 8:09 PM	
☐	206884916	...	! Failed	50	Extract Refresh/Creation	Sep 6, 2023, 3:21 PM	

Note: When changing the published workbook connection type from Live to Extract, a scheduled job is created. However, the Task type doesn't indicate that the Bridge client was used for the data source for the scheduled job refresh or when running Refresh Now. The task type is listed as **Extract Refresh/Creation**.

Refreshing an Extract

You can refresh extracts of data hosted with most cloud data providers directly on Tableau Cloud.

1. Sign in to the Tableau Cloud site to which the data source is published.
2. On the Data Sources page, select the More actions icon (…) next to the data source you want to refresh, and then select Refresh Extracts or Refresh Extracts from the menu.


Extract_orders
Edit Workbook
Views 1
Data Sources 1
Connected Met
s 0
Extract
Select All
Show
Type
↑ Name
ORDERS (TPCH10GB)
Edit Workbook
Edit in Tableau Desktop
Share...
Download
Add to Collections...
Tag...
Rename...
Move...
Permissions...
Change Owner...
Tabbed Views...
Refresh Extracts...
Refresh Extracts Now...
Revision History...
Delete...
Acceleration

3. Selecting Refresh Extract schedules the refresh, but doesn't run the refresh immediately. To run the refresh, go to the **Extract Refreshes** tab, select the **More actions** icon (**…**) next to the data source, then click **Run Now**.

Optimize Bridge Refresh Performance

Tableau Bridge supports extract refreshes of published data sources and embedded data sources. Publish data sources allow you to widen the audience for your data analysis within your organization. Embedded data sources are saved to a workbook and can be shared easily without having to separately share the data source.

Both published data sources and embedded data sources have advantages. In general, a published data source refresh through bridge is best for long-running refresh tasks. An embedded data source refresh through bridge is best for short running refresh tasks and for integrated data sources.

The table below shows a few recommendations for choosing between published data sources and embedded data sources based on performance when using Bridge.

> **Note**: Performance can vary depending on the hardware and infrastructure you’re running on.

Use a published data source	Use an embedded data source
Publishing data sources is a step toward centralizing data management. You can share the data source with multiple workbooks and create policies geared toward minimizing data source proliferation and helping people find the right data for the work they do. For more information about published data sources, see Best Practices for Published Data Sources.	You don’t want to share the data sources. Data is available only inside the workbook; it isn’t available for other users to connect to.
When connecting to an integrated data source that includes only private network connections or where there are only lightweight public connections along with private network connections.	The embedded data source includes large data sets from a public network data source and short-running tasks from private network connections.
For long-running refresh tasks, and depending on your Bridge deployment, a published data source can deliver better performance.	For short running refresh tasks. Using embedded data sources may not provide optimal performance if the refresh time for your data source is expected to be more than 10 minutes on an existing published data source

	or workbook with direct connections to data. To ensure that long-running refresh tasks don't take up all system resources and don't prevent refreshes of other extracts on your site, Tableau Cloud enforces a timeout limit of 120 minutes for refresh tasks. See Time limit for extract refreshes.

Troubleshooting an embedded data source extract refresh

If a refresh task reaches the timeout limit, you can try to resolve the issue using the following options.

- Reduce the size of extracts. For more information, see Optimize for Extracts.
- If you’re using a full refresh, using an incremental refresh may help in some instances. For more information, see Staying within the timeout limit.
- Convert the embedded data source to a published data source.

Set Up a Private Network Refresh Schedule

This topic describes how a Tableau data source owner can set up and update refresh schedules for data sources that connects to private network data. Refresh schedules for data sources that connect to private network data rely on Tableau Bridge. The tasks described in this topic assume Bridge has been set up and is being maintained by your site admin. Exceptions are noted.

This topic does not cover setting up refresh schedules for virtual connections. For more information about virtual connections, see Schedule Extract Refreshes for a Virtual Connection.

Notes:

- Bridge supports keeping data fresh for data sources embedded in workbooks. See Using Embedded Data Sources.
- To set up and configure refresh schedules for a private cloud-based data sources, see Connect to Private Cloud Data.

Bridge refresh schedules versus Bridge legacy schedules

For data sources that are set up to use extract connections, Bridge uses refresh schedules to keep data fresh.

There are two types of refresh schedules that you can configure for Bridge to use:

- Bridge refresh schedules
- Bridge legacy schedules: To allow customers additional time to migrate off of legacy schedules, deprecation of Bridge legacy schedules has been postponed to the 2025.2 release. Until that time legacy schedules will continue to be supported by Tableau. For more information about how to migrate to Bridge refresh schedules see the section below, Migrate from Bridge legacy to Bridge refresh schedules.
  Note: Bridge legacy schedules do not support refreshes for virtual connections.

The schedule you use can depend on a couple of factors, including the version the original schedule was created and the type of underlying data that the data source connects to. In summary, Bridge refresh schedules are designed to leave client management tasks to the site admin and enable you to perform all your data source management tasks directly on Tableau Cloud.

Version

Beginning with Bridge 2021.4.3, extract refreshes for file-based published data sources can use Bridge refresh schedules. Bridge refresh schedules for file-based data sources require at least one Bridge 2021.4.3 (or later) client be set up and added to the client pool by your site admin.

Beginning with Bridge 2024.2.1, extract refreshes for file-based embedded data sources can use Bridge refresh schedules. Bridge refresh schedules for file-based embedded data sources require at least one Bridge 2024.2.1 (or later) client to be set up and add to a Named Pool by your site admin.

By default, schedules created for file-based data sources that were created prior to Bridge 2021.4.3 use Bridge legacy schedules. Bridge legacy schedules can be converted to Bridge refresh schedules.

Compare schedules

The following table describes the differences between Bridge refresh and Bridge legacy schedules.

	Bridge refresh schedule	**Bridge legacy schedule**
Supported data types	Relational data File data On premises data Private cloud data	Relational data File data On premises data
Supported query types	Published Data Sources Live and Extract Embedded Data Sources Virtual Connections Incremental refresh	Published Data Sources Live and Extract
Schedule management	Data source page Workbook (live connections only) Distributed schedule management Integrated with Tableau Cloud schedules allowing for more control and shared visibility	Data source page Only accessible by user that is signed into Bridge client

Additional feature support	Supports pooling to load balance work loads Monitoring available: Jobs, Admin Insights, and Admin Views. REST API: Run Extract Refresh Now REST API:Update Data Source Now	Not supported

Manage schedules

Though the scheduling tasks are exactly the same, there are two primary entry points for setting up a Bridge refresh schedule for a data source that connects to private network data. The first entry point is during the data source publishing process, from Tableau Desktop. The second entry point is at any time after the data source publishing process.

Set up a schedule

In most cases, you will set up a schedule as you publish your data source from Tableau Desktop.

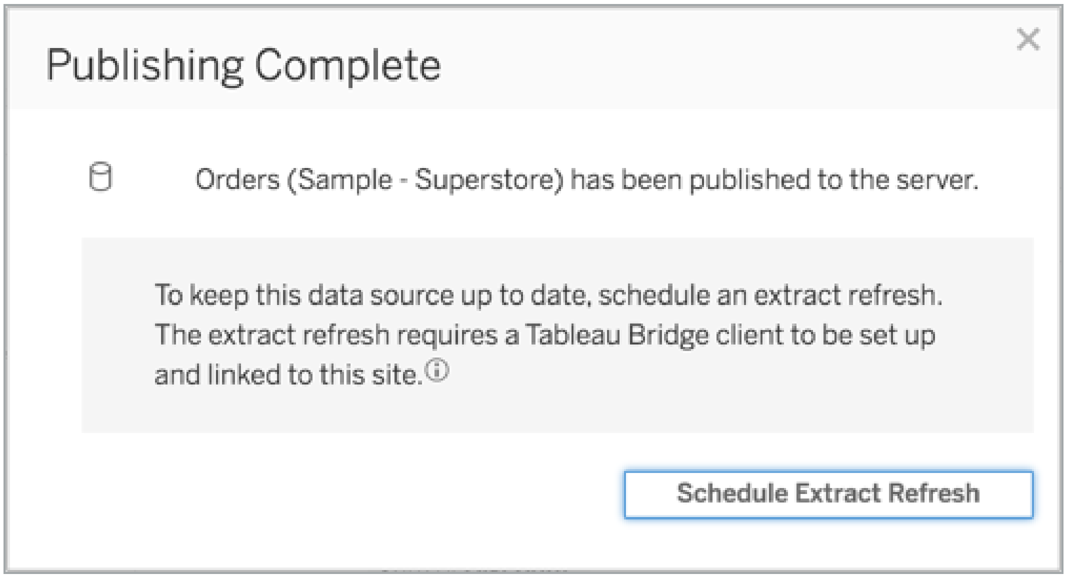
Note: Scheduled extracts of published data sources do not support multiple pools. Multiple pools may be necessary when you have a connection in a single data source to data sources that are located in two or more network locations.

1. In Tableau Desktop, create your data source.
2. Select **Server** > **Publish Data Source** to begin the publishing process. If you haven't already signed in to Tableau Cloud, you will be prompted to.
3. In the Publish Data Source to Tableau Cloud dialog box, configure the various options for your data source, and then click the **Publish** button. This opens a browser window to

Tableau Cloud.

Note: Depending on the data that the data source is connected to or how you've configured the data source, the dialog will default to publishing an extract or will give you the option to publish an extract. If you are provided options, select the option to publish an extract.

4. In the Publishing Complete dialog box, click the **Schedule Extract Refresh** button.

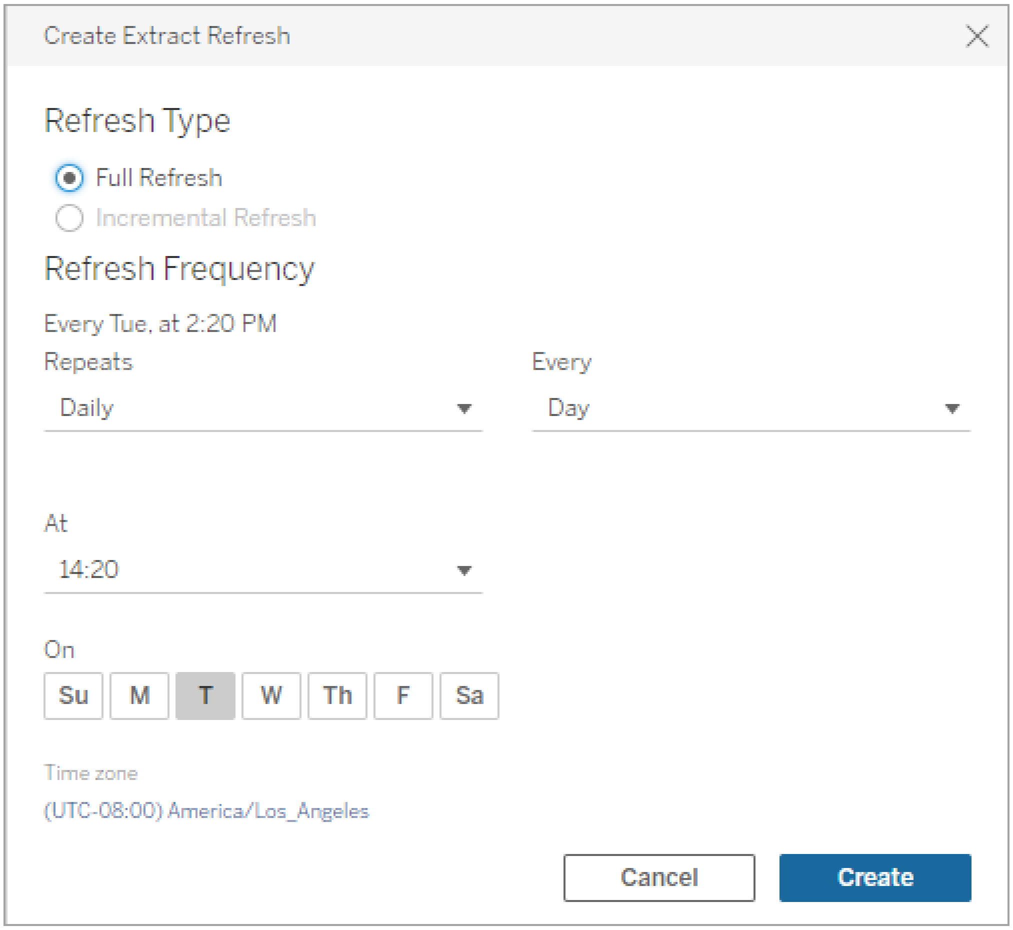


Publishing Complete

Orders (Sample - Superstore) has been published to the server.

To keep this data source up to date, schedule an extract refresh. The extract refresh requires a Tableau Bridge client to be set up and linked to this site.

5. In the Create Extract Refresh dialog box, configure a schedule for the refresh. For more information about how to configure the schedule, see Schedule Refreshes on Tableau Cloud.



Create Extract Refresh

Refresh Type

● Full Refresh

○ Incremental Refresh

Refresh Frequency

Every Tue, at 2:20 PM

Repeats: Daily

Every: Day

At: 14:20

On: Su M **T** W Th F Sa

Time zone

(UTC-08:00) America/Los_Angeles

6. Click the **Create** button.

Add or update an existing schedule

For whatever reason you are unable to schedule a refresh during the data source publishing process, you can add a new or update a schedule anytime after.

1. Sign in to Tableau Cloud and navigate to your data source.
2. From the data source page, click the **Extract Refreshes** tab.
3. Do one of the following:

   a. To set up a new schedule, click the **New Extract Refresh** button and configure a schedule for your refresh.

   b. To update an existing schedule, select the check box next to the schedule, click the Actions menu, and then select **Change Frequency** to reconfigure the schedule for the refresh.

4. Click the **Create** button.

Change refresh connection type

By default, Tableau Cloud uses Bridge when a published data source has at least one public cloud and one on-premise connection.

For more information about how to edit the connection type, see Change the connection type of a refresh to use Tableau Cloud.

Alternative: Manage Bridge legacy schedules

Optionally, you can use the Bridge legacy schedule to keep your data fresh.

Notes:

- **Important:** Support for Bridge legacy schedules will be removed in version 2025.2. To ensure a smooth transition, we recommend you use Bridge refresh schedules. For more information, see Migrate from Bridge legacy to Bridge refresh schedules.
- Bridge refresh schedules have greater flexibility, support more data source types and offer much simpler administration of Tableau Bridge.
- Bridge legacy schedules can only complete successfully if you embed your database credentials in the connection through the Bridge client. For more information, see Embed or update database credentials.
- When you use a Bridge legacy schedule, the time that shows on the client and the time that shows on Tableau Cloud correspond to the time zone of the machine from which the client is running.

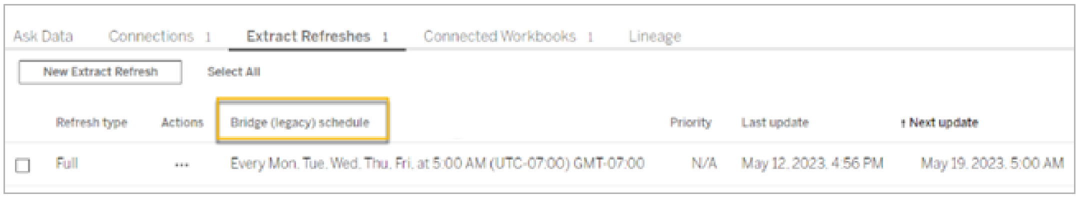
Migrate from Bridge legacy to Bridge refresh schedules

Refresh schedules for file-based data sources that were created before Bridge 2021.4.3 use Bridge legacy schedules by default. You can migrate Bridge legacy schedules to use Bridge refresh schedules to keep your data fresh. Bridge refresh schedules run on Bridge clients managed by your site admin and take advantage of pools of available clients to perform the refreshes.

1. Ensure that you have a named pool with at least one client assigned to it. Pools are used to distribute (or load balance) data freshness tasks among the available clients. Pools also give you the ability to dedicate clients to keeping specific data fresh and centrally maintaining security.

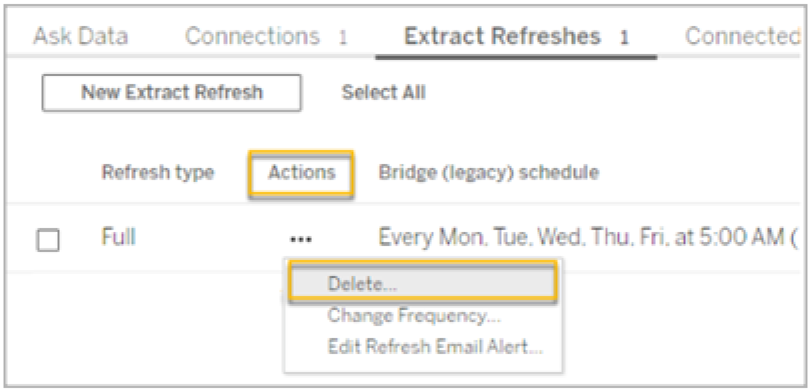
2. In that pool, provide the domains of the private network locations that you want to make accessible to Bridge on behalf of Tableau Cloud. For more information, see Configure Pooling.

3. Validate that the client is configured to run in Service mode and not Application mode. (More information: Linux | Windows).
4. In the legacy schedule, go to the published data source and click the **Extract Refreshes** tab to display the **Bridge (legacy) schedule**.



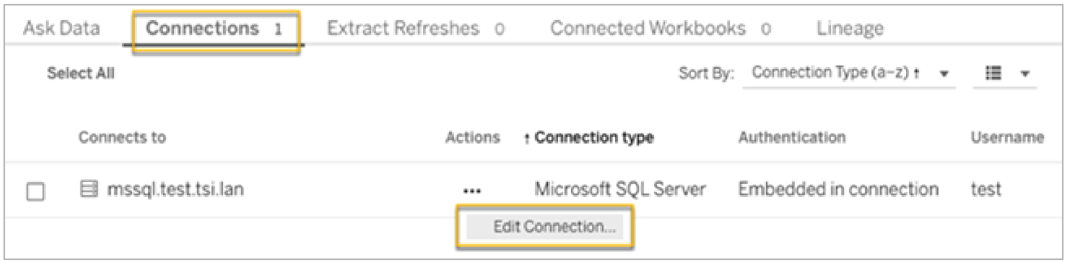
	Refresh type	Actions	Bridge (legacy) schedule	Priority	Last update	↕ Next update
☐	Full	...	Every Mon, Tue, Wed, Thu, Fri, at 5:00 AM (UTC-07:00) GMT-07:00	N/A	May 12, 2023, 4:56 PM	May 19, 2023, 5:00 AM

5. Use the action menu to delete all legacy schedules.


Ask Data
Connections 1
Extract Refreshes 1
Connected
New Extract Refresh
Select All
Delete...
Change Frequency...
Edit Refresh Email Alert...

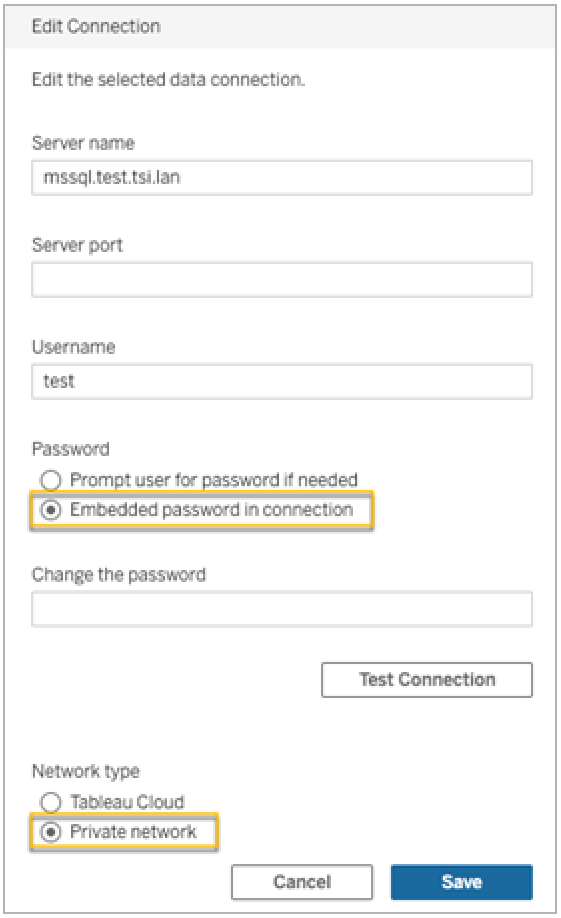
	Refresh type	Actions	Bridge (legacy) schedule
☐	Full	•••	Every Mon, Tue, Wed, Thu, Fri, at 5:00 AM (

6. On the **Connections** tab, click **Edit Connection**, and then enter the user name and password for the connection.


Ask Data
Connections 1
Extract Refreshes 0
Connected Workbooks 0
Lineage
Select All
Sort By:
Connection Type (a–z) ↑
Edit Connection...

	Connects to	Actions	↑ Connection type	Authentication	Username
☐	mssql.test.tsi.lan	•••	Microsoft SQL Server	Embedded in connection	test

7. For all Published Data Sources, **Embedded password in connection** and **Private network** must be selected.



Edit Connection

Edit the selected data connection.

Server name

mssql.test.tsi.lan

Server port

Username

test

Password

○ Prompt user for password if needed

● Embedded password in connection

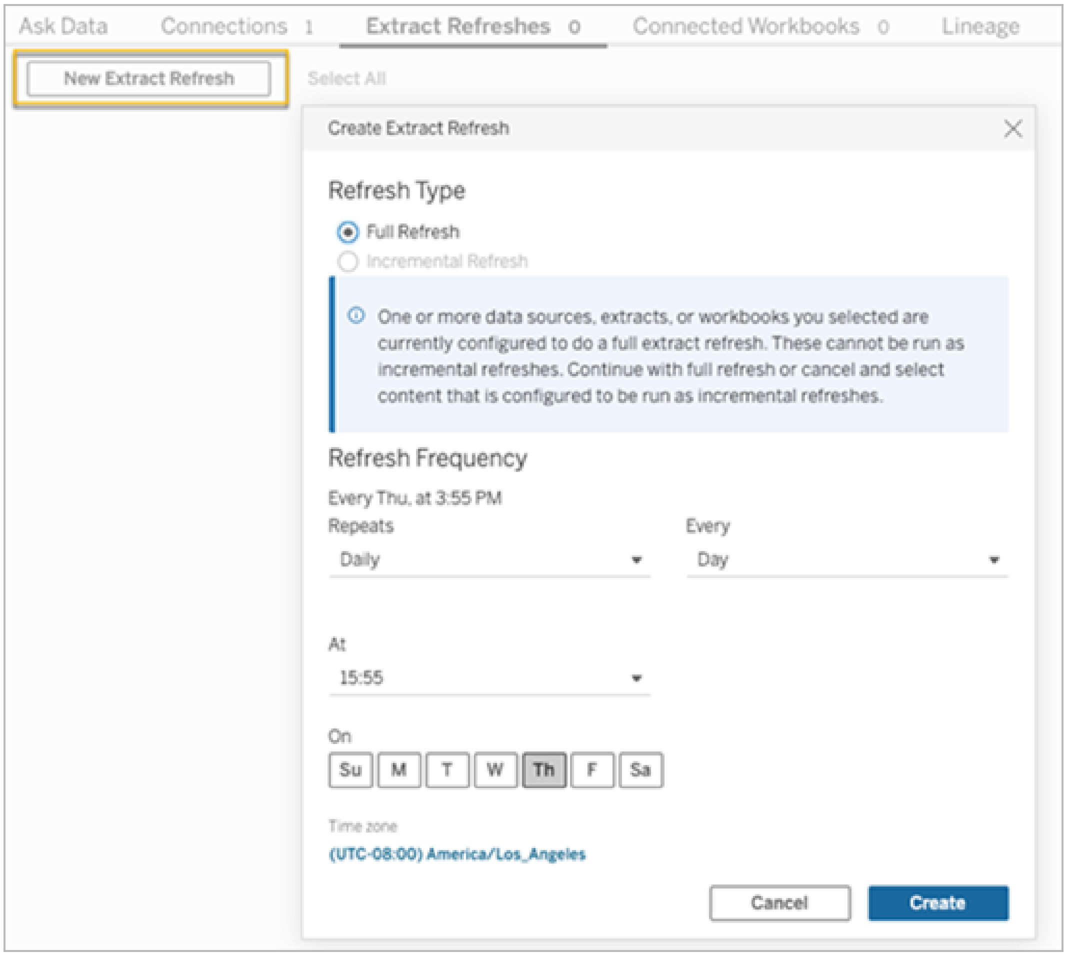
Change the password

Network type

○ Tableau Cloud

● Private network

8. On the **Extract Refreshes** tab, click **New Extract Refresh** to schedule a refresh for the named pool.


Ask Data
Connections 1
Extract Refreshes 0
Connected Workbooks 0
Lineage
New Extract Refresh
Select All
Create Extract Refresh
Cancel
Create

Refresh Type

● Full Refresh

○ Incremental Refresh

One or more data sources, extracts, or workbooks you selected are currently configured to do a full extract refresh. These cannot be run as incremental refreshes. Continue with full refresh or cancel and select content that is configured to be run as incremental refreshes.

Refresh Frequency

Every Thu, at 3:55 PM

Repeats: Daily

Every: Day

At: 15:55

On: Su M T W **Th** F Sa

Time zone: (UTC-08:00) America/Los_Angeles

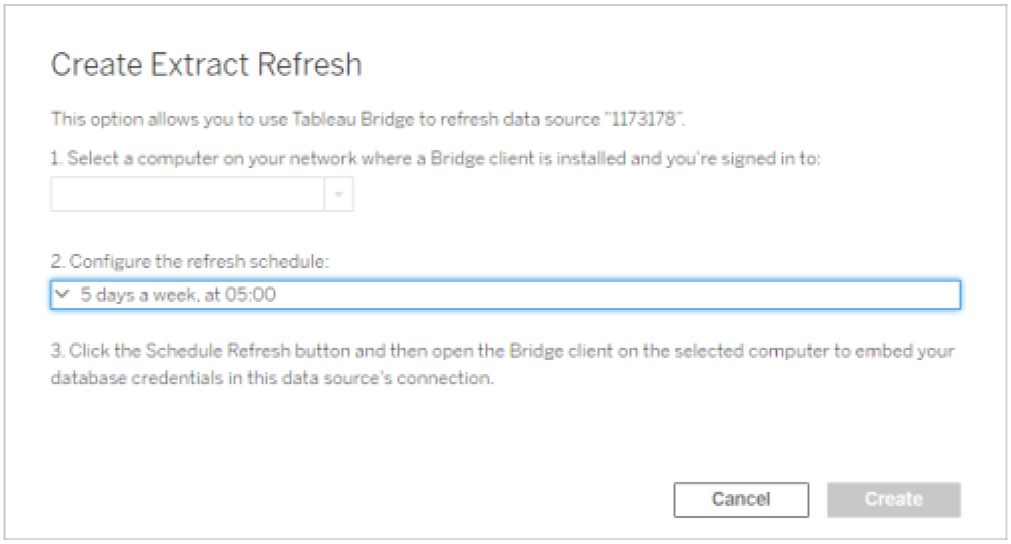
9. Click **Create** to add the replacement scheduled refresh. The new schedule is listed as **Schedule** rather than **Bridge legacy schedule.**
10. Continue this process for any Bridge legacy schedules that you have running on your site. You can find a list of all current Bridge legacy schedules by signing into the Bridge Client on the client’s machine. All active Bridge legacy schedules will be displayed on the client.

Set up a Bridge legacy schedule

Important: Support for Bridge legacy schedules will be removed in version 2025.2. To ensure a smooth transition, we recommend you use Bridge refresh schedules. For more information, see Migrate from Bridge legacy to Bridge refresh schedules.

Just like with Bridge refresh schedules workflow, in most cases, you will set up a Bridge legacy schedule as you publish your data source from Tableau Desktop.

1. In Tableau Desktop, create your data source.
2. Select **Server** > **Publish Data Source** to begin the publishing process. If you haven't already signed in to Tableau Cloud, you will be prompted.
3. In the Publish Data Source to Tableau Cloud dialog box, configure the various options for your data source, and then click the **Publish** button. This opens a browser window to Tableau Cloud.
4. In the Publishing Complete dialog box, click the **Schedule Extract Refresh** button. The **Create Extract Refresh** dialog box, where you configure the Bridge legacy schedule, displays.
5. In the Create Extract Refresh dialog box, follow each step to configure the schedule.



Create Extract Refresh

This option allows you to use Tableau Bridge to refresh data source "1173178".

1. Select a computer on your network where a Bridge client is installed and you're signed in to:

2. Configure the refresh schedule:

5 days a week, at 05:00

3. Click the Schedule Refresh button and then open the Bridge client on the selected computer to embed your database credentials in this data source's connection.

Notes:

- **To refresh during a specific time period on selected days:** Select **Hourly**, specify the time range during the day using the **From** and **To** drop-down lists, and then select the days of the week.

To optimize performance on the server, refresh tasks are distributed within a range of up to five minutes of the time of day you specify. For example, if you set an hourly schedule, the occurrence set to run at 1:00 AM could run any time between 1:00 and 1:05 AM.

- **Full or incremental refresh:** If available, you specify whether you want a full or incremental refresh. By default, Tableau Cloud runs a full refresh. Incremental refresh is available only if you configured the data source for an incremental refresh in Tableau Desktop before publishing. For information, see Refreshing Extracts in the Tableau Help.

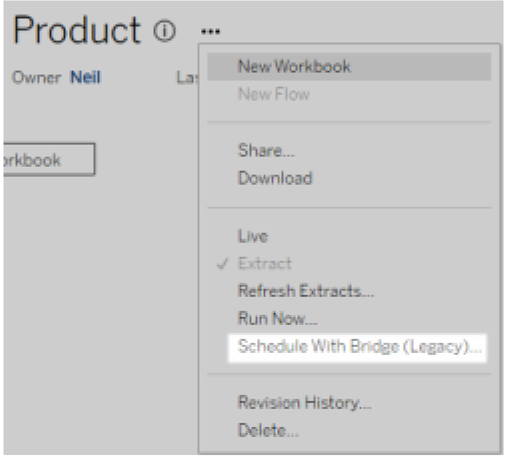
6. Click the **Create** button.

Add a new or update an existing Bridge legacy schedule

Important: Support for Bridge legacy schedules will be removed in version 2025.2. To ensure a smooth transition, we recommend you use Bridge refresh schedules. For more information, see Migrate from Bridge legacy to Bridge refresh schedules.

If you're unable to schedule a refresh during the data source publishing process, you can add a new or update a Bridge legacy schedule anytime after. New (for sites that have been migrated)

1. Sign in to Tableau Cloud and navigate to your data source.
2. From the data source page, click the **Extract Refreshes** tab.
3. Do one of the following:
   a. To set up a new Bridge legacy schedule, in the data source's actions menu, select **Schedule with Bridge legacy**, configure the schedule, and then click the **Schedule Refresh** button.


Product ⓘ ···
Owner Neil
La
rkbook
New Workbook
New Flow
Share...
Download
Live
✓ Extract
Refresh Extracts...
Run Now...
Schedule With Bridge (Legacy)...
Revision History...
Delete...

b. To update an existing Bridge legacy schedule, select the check box next to the existing schedule, click the data source's actions menu, and then select **Change Schedule**. In this workflow, you can't change the client that performs the refresh. If you need to change the client that performs the refresh, see Change the client that performs the Bridge legacy schedule. When finished, click the **Change Schedule** button.

Other Bridge legacy schedule management tasks

Add a new or update an existing schedule from the client

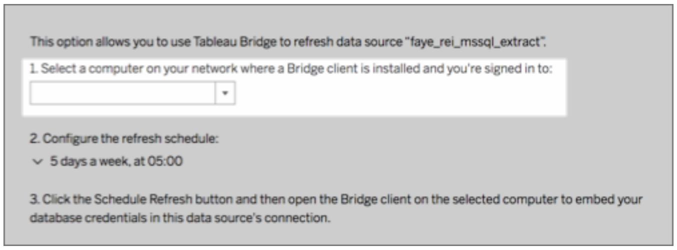
If you, not your site admin, are managing the "named" clients, you can add a new or update an existing Bridge legacy schedule directly from the Bridge client.

1. Open the Windows system tray and click the Bridge icon to open the client.
2. Hover over the data source and click the **Schedule** icon. This opens a browser window to the data source page in Tableau Cloud.
3. Repeat steps 2-3 from the above Add a new or update an existing Bridge legacy schedule section to set up the schedule.

Add a new computer (client) to perform a scheduled refresh

As part of the scheduling process, in the scheduling dialog, you must specify a machine. The machine you specify is the Bridge client that performs the refresh.

The Bridge legacy schedule displays the clients that you signed into.



This option allows you to use Tableau Bridge to refresh data source "faye_rei_mssql_extract".

1. Select a computer on your network where a Bridge client is installed and you're signed in to:

2. Configure the refresh schedule:

5 days a week, at 05:00

3. Click the Schedule Refresh button and then open the Bridge client on the selected computer to embed your database credentials in this data source's connection.

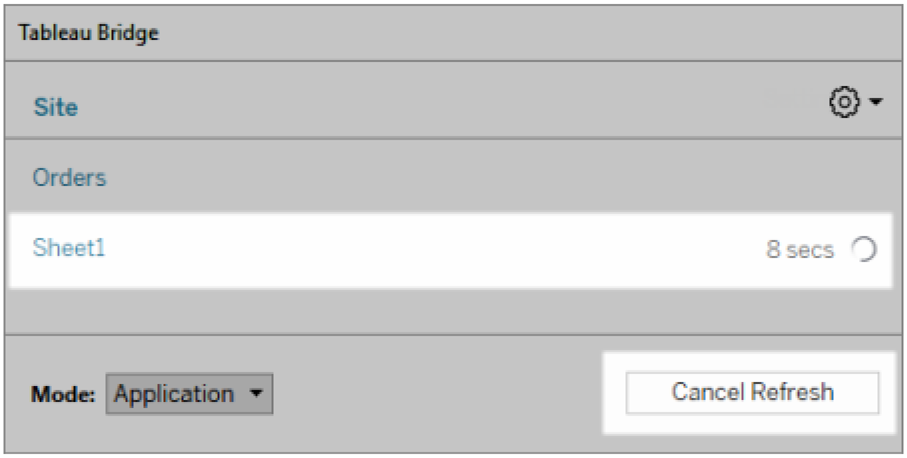
If the client you want to select is not available from the drop-down list, it can be one of a few reasons:

- You're not signed in to the client.
- The client is not properly registered or connected to the site. Go to and open the client and make sure that it has a green or "Connected" status.
- Your site admin manages all clients in your organization. When using Bridge legacy schedules, the data source owner and the user signed into the client must be the same. If your site admin is signed into the client, he or she must reassign ownership of the data source to him or herself in order to schedule a refresh.

Cancel an in-progress refresh

In some cases, you might need to cancel an in-progress refresh. You can cancel a refresh for a data source that uses the Bridge legacy schedule only.

1. Open the Windows system tray and click the Bridge icon to open the client.
2. Click the **Cancel Refresh** button. This action will cancel the in-progress refresh.



Note: A client can perform one Bridge legacy refresh at a time. If you need to run more than one Bridge legacy refresh at the same time, discuss with your site admin about setting up additional clients on different machines to perform the extract refreshes.

Change the client that performs the Bridge legacy schedule

If you're working with a Bridge legacy schedule and want to change the location or machine that performs the refresh, you must set up a new refresh schedule. You can only schedule a refresh using a client that you are signed in to.

To set up a new Bridge legacy schedule, see Set up a Bridge legacy schedule. When you're done setting up a new refresh schedule, make sure that you delete the previous schedule identical to the new schedule.

Important: If the data source requires database credentials to access the underlying data, you must go back to the client and edit the connection information to re-embed the database credentials. You can use the **Test Connection** option in the client to check whether the data source can access the underlying data.

Remove a client from a site

After you change the client that performs the Bridge legacy schedule, consider permanently removing the client from the site if it's no longer being used for any other data freshness tasks.

1. Sign in to Tableau Cloud.
2. In the upper-right corner of the browser, click your profile image or initials, and select **My Account Settings**.
3. Under Connected clients, click **Delete** next to the client you want to remove from the site.

Verify a previous or upcoming refresh

You can check when a previous refresh took place or find out when the next refresh will occur.

1. Sign in to Tableau Cloud and navigate to your data source.
2. From the data source page, click the **Extract Refreshes** tab.
3. Next to the schedule, review **Last update** and **Next** update columns.

Delete a refresh schedule

1. Sign in to Tableau Cloud and navigate to the data source whose refresh schedule you want to delete.
2. On the data source page, click the **Extract Refreshes** tab.
3. Select the check box next to the schedule you want to delete and select **Actions** > **Delete**.

Connect to Private Cloud Data

This topic describes how a data source owner can publish a data source that connects to cloud data, such as Amazon Redshift and Snowflake, that can only be accessed from a private network.

Data sources that connect to private cloud data rely on Tableau Bridge to keep data fresh. In most cases, Tableau Cloud will automatically detect that Bridge is required as part of the publishing process. However, in some cases, you might need to manually configure your connection to ensure that Bridge is used.

No additional steps are required to use Bridge when publishing virtual connections that connect to cloud data.

The tasks described in this topic assume Bridge has already been set up and is being maintained by your site admin.

Bridge supports keeping data fresh for data sources embedded in workbooks. See Using Embedded Data Sources.

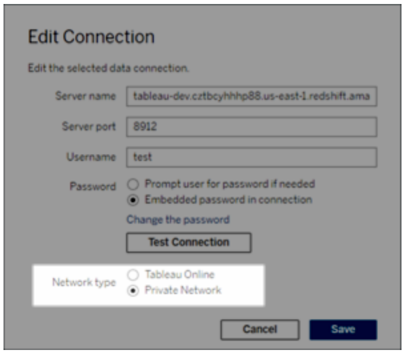
Limitations

Bridge doesn't support live connections for some private cloud-based data sources. These include Google Drive, Box, OneDrive, Dropbox, and Azure Data Lake Storage Gen2. Use extract connections to keep data fresh. Use Bridge client version 20224.23.0209.1653 or higher when connecting to these private cloud-based data sources. After upgrading the client, republish your data sources.

Set up schedules for private cloud-based data sources

Use the following procedure to ensure that Bridge schedules are used to keep extracts of your private cloud-based data sources up to date.

1. Follow steps 1-7 in the Publish a Data Source topic in the Tableau User Help.
2. If not already signed in to Tableau Cloud, sign in and navigate to your data source.
3. From the data source page, click the **Connections** tab and select the check box next to the connection.
4. From the Actions drop-down menu next to the connection, select **Edit Connection**.
5. In the dialog box next to Network type, select the **Private Network** radio button and click **Save**.



Edit Connection

Edit the selected data connection.

Server name: tableau-dev.cztbcyhhhp88.us-east-1.redshift.ama

Server port: 8912

Username: test

Password: ○ Prompt user for password if needed ● Embedded password in connection

Network type: ○ Tableau Online ● Private Network

About switching network types

Changing the network type does not change the network type used by existing schedules for the data source.

If you change the network type for a data source that has an existing schedule associated with it, you must create a new schedule. This also means, if you created a refresh schedule prior to changing the network type, you must delete it before using the **Run Now** option. For more information about deleting a refresh schedule, see Delete a refresh schedule.

You can proceed to the next step so that a previous Bridge refresh schedule is automatically deleted when you create a new Bridge-dependent refresh schedule.

6. Follow one of the steps below depending on the schedule you need to configure:

   - For a Bridge refresh schedule, follow the steps described here: Add or update an existing schedule.

   - For a Bridge legacy schedule, follow the steps described here: Add a new or update an existing Bridge legacy schedule.

   Note: If you had previously set up a Tableau Cloud refresh schedule, it will be deleted automatically when you save the Bridge-dependent schedule.

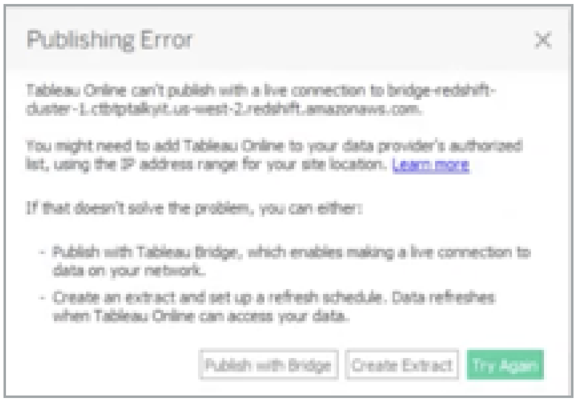
7. Click the **Schedule Refresh** button.

Publish private cloud-based data sources that use live connections

Use the following procedure to ensure that Bridge live queries are used to keep private cloud-based data sources up to data.

Bridge doesn't support refreshing live connections with pools for some private cloud-based data sources. For more information, see Limitations

1. In Tableau Desktop, create your data source.
2. Select **Server** > **Publish Data Source** to begin the publishing process. If you haven't already signed in to Tableau Cloud, you will be prompted to.
3. In the Publish Data Source to Tableau Cloud dialog box, configure the various options for your data source and ensure you do the following:
   - Under Authentication, click **Edit** and select **Embedded password**.
   - Depending on the data that the data source is connected to or how you've configured the data source, the dialog can default to publishing a live connection or give you the option to publish a live connection or extract. If you are provided with options, select **Maintain a live connection**.
4. Click the **Publish** button. This opens a dialog box.
5. In the dialog box, click the **Publish with Bridge** button. This opens a browser window to Tableau Cloud.



Publishing Error

Tableau Online can't publish with a live connection to bridge-redshift-cluster-1.ctbtptalkyit.us-west-2.redshift.amazonaws.com.

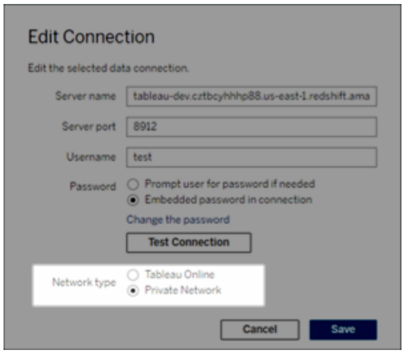
You might need to add Tableau Online to your data provider's authorized list, using the IP address range for your site location. Learn more

If that doesn't solve the problem, you can either:

- Publish with Tableau Bridge, which enables making a live connection to data on your network.
- Create an extract and set up a refresh schedule. Data refreshes when Tableau Online can access your data.

6. In the Publishing Complete dialog box, click the **Done** button.

7. From the data source page, click the **Connections** tab and select the check box next to the connection.
8. In the dialog box next to Network type, if not selected automatically, select the **Private Network** radio button and click **Save**.



Edit Connection

Edit the selected data connection.

Server name: tableau-dev.cztbcyhhhp88.us-east-1.redshift.ama

Server port: 8912

Username: test

Password: ○ Prompt user for password if needed ● Embedded password in connection

Network type: ○ Tableau Online ● Private Network

Publish OAuth enabled private cloud-based data sources

Tableau Bridge supports OAuth when connecting to private data that uses OAuth and public data that uses OAuth when it’s joined to private data. For most data sources, live connections and extracted data are supported. For a list of OAuth-supported Bridge connectors see Authentication.

Note: For Azure data sources, the data source must be published through Tableau Cloud instead of Tableau Desktop when using OAuth as the authentication type.

Both saved credentials or managed keychain connectors are supported by OAuth. The type of functionality is dependent on the connector that you use.

1. In Tableau Desktop, connect to your data housed in a private cloud database.
2. Depending on the connector, you may be prompted to choose the authentication type. If you are provided with options, select **Sign in using OAuth**.
3. The **Data Source** page opens so that you can prepare the data for analysis and begin building your view.
4. Choose whether to publish as a live connection or an extract. Some data sources, such as Salesforce, don’t support live connections.

5. For extracts, click the **Sheet** tab to create and save the extract.
6. Select **Server** > **Publish Data Source** to begin the publishing process. If you haven't already signed in to Tableau Cloud, you will be prompted to.
7. Under **Authentication**, click select the authentication type. The options displayed are dependent on the data source. In most cases, Saved Credentials are recommended. For more information, see Refresh Data Using Saved Credentials.
   - If you have saved credentials data source in My Account Settings, select **Embed** <*data source name*>.
   - For extracted data, choose whether to allow refresh access. When you allow refresh access for extracts, you are prompted to set up a schedule. To schedule for a refresh, you must use embedded credentials.
8. When Bridge is required, your connection will be detected as Private during the publish operation. To change your network connection status, click the **Actions** menu, and select **Edit** Connection.

Configure Pools

This topic describes how site admins can configure and manage pooling for Bridge clients. Pooling allows clients across the site to load balance data freshness tasks for data sources or virtual connections that connect to private network data.

The purpose of a pool is to distribute (or load balance) data freshness tasks among the available clients in a pool whose access is scoped to a domain within your private network. Pools map to domains, giving you the ability to dedicate pools to keeping specific data fresh and maintaining security by restricting access to protected domains in your private network.

Although the client in the pool that performs the data freshness task is chosen at random, if for whatever reason a client can no longer perform the task, the task is automatically rerouted to another available client in the pool to handle the task. There is no additional intervention required from you or your users to support or manage the pool of clients.

Pooling is optimized for keeping data sources or virtual connections that connect to data on one or more private networks fresh. Pooling support does not extend to data sources that use Bridge (legacy) schedules.

In general, pooling is optimized for the following situations:

- **Bridge is used as a critical service.** If your organization requires that live query and scheduled refresh support must be available even if a client becomes unavailable.
- **Client is at capacity.** If your existing site traffic exceeds the current capacity of the client.
- **Tableau Cloud-managed schedules for file-based data sources.** Beginning with Bridge client version 2021.4.3, Bridge pools enable Bridge refresh schedules for file-based data sources.
- **Keeping data fresh on multiple private networks.**
- **Virtual connections.** (Requires Data Management) Bridge is required to refresh data in virtual connections that connect to private network data. For more information about virtual connections, see About Virtual Connections and Data Policies.

Before configuring the pool

Before you can configure a client pool for your site, review the following:

- Clients must be installed and running. For more information about software and hardware, see Plan Your Bridge Deployment.
- Clients are configured to run as a service. For more information, see Application versus Service mode.
- The user authenticated into a client is a Tableau Cloud site admin. For more information about deploying Bridge, see Plan Your Bridge Deployment.
- To keep virtual connections fresh, ensure all clients in the pool are running Bridge 2021.4 (or later).
- To load balance file-based data sources, ensure the following:
  - All clients in the pool are running Bridge 2021.4.3 (or later).
  - References to file data must use the full UNC path that includes the server name or hostname. For more information, see About the Bridge Client.
  - File-based data sources are extract only.

Note about user roles

Only site admins, or users with either the Site Administrator or Site Administrator Creator role, can configure and maintain pooled clients. Regardless of the type of user authenticated into the client, only site admins can add new pools, add clients to a pool, remove clients from a pool, and monitor clients in a pool.

Note about refresh jobs

The Jobs page can show you the completed, in progress, pending, canceled, and suspended all Bridge refresh jobs that use Bridge refresh schedules. This includes refreshes for file-based and non-file based data sources. For more information, see About Bridge Refresh jobs. For more information about various ways you can monitor Bridge activity, see Monitor data freshness tasks.

Step 1: Ensure clients can connect to the site

In order for Bridge to work with your site, you must allow clients to authenticate to the site.

1. Sign in to Tableau Cloud using your site admin credentials and go to the **Settings** page.
2. Click the Authentication tab and validate that the **Let clients automatically connect to this Tableau Cloud site** check box under the Connected Clients heading is selected. For more information about this check box, see Access Sites from Connected Clients.

   Note: If enabled, the connected clients option must be enabled to support multi-factor authentication with Tableau authentication. If connected clients are disabled for your site, Bridge can only support Tableau username and password authentication.

Step 2: Configure a pool

Pools, which require Bridge 2021.4 (or later) clients, help route live query and extract refresh jobs to the appropriate private network. Use pools to access data distributed across multiple private networks, enable extract refreshes for file-based data sources, and to support data freshness tasks for virtual connections.

1. On the Bridge tab, under Pooling, click the **Add New Pool** button.
2. In the dialog box, enter a new pool name in the Pool text box and click **Save**.

After you have at least one pool configured, as part of the publishing process, Tableau Cloud associates certain data sources or virtual connections with Bridge and client pools automatically.

Step 3: Specify a domain for a pool

Each new pool requires a domain to be specified through the **Private Network Allowlist**. This information is required to enable Bridge access to data in the private network on behalf of Tableau Cloud.

The total number of domains on the allowlist and pools in your organization may not exceed 100.

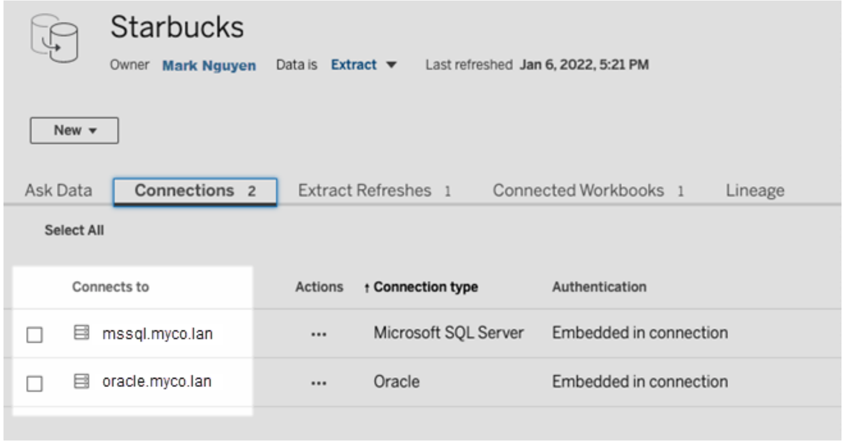
Using the private network allowlist, you must specify the domains of the private network where you want to enable client access. These domains should correspond to private network locations of databases and file shares that you want to make accessible to Bridge on behalf of Tableau Cloud.

Domain names

The domain names that you specify in the allowlist are the server names used in the data source connection or virtual connection. In some cases, you can find the server name listed in the **Connections** tab of the data source page in Tableau Cloud.

> **Note**: When accessing workbooks which connect to published data sources, do not use *.tableau.com in the Private Network Allowlist. The domain *.online.tableau.com is used for proxy filtering for outbound connections. See Optional forward proxy filtering.

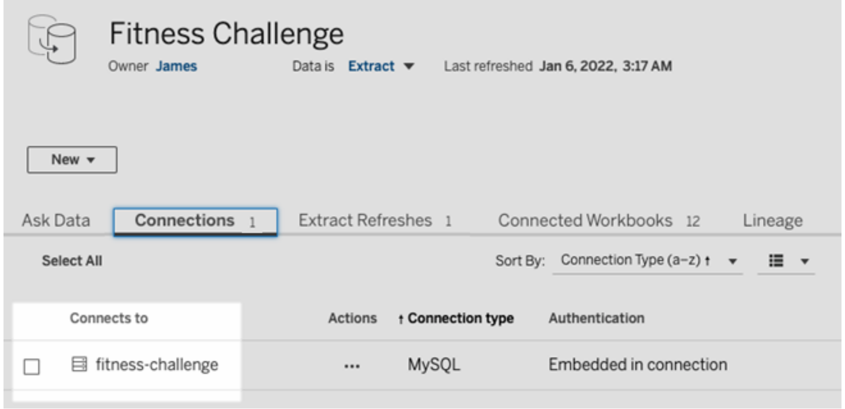
For example, to keep data sources like “Starbucks” up to date, you might specify “mssql.myco.lan” and “oracle.myco.lan” or “*.myco.lan” in the allowlist.



Starbucks
Owner Mark Nguyen
Data is Extract
Last refreshed Jan 6, 2022, 5:21 PM
New
Ask Data
Connections 2
Extract Refreshes 1
Connected Workbooks 1
Lineage
Select All

☐	Connects to	Actions	↑ Connection type	Authentication
☐	mssql.myco.lan	...	Microsoft SQL Server	Embedded in connection
☐	oracle.myco.lan	...	Oracle	Embedded in connection

To keep data sources like "Fitness Challenge" up to date, specify "fitness-challenge" in the allowlist.



Fitness Challenge
Owner James
Data is Extract
Last refreshed Jan 6, 2022, 3:17 AM
New
Ask Data
Connections 1
Extract Refreshes 1
Connected Workbooks 12
Lineage
Select All
Sort By: Connection Type (a–z) ↑

☐	Connects to	Actions	↑ Connection type	Authentication
☐	fitness-challenge	...	MySQL	Embedded in connection

In other cases, the **Connections** tab might not list the server name. When the server name is not listed, consider working with the content owner to identify where the data is hosted and specify the server name in the allowlist when you have that information. As a temporary alternative, you can skip to Step 4: Add clients to a pool to assign clients to use the **Default Pool** instead.

IP addresses

Instead of domain names, you can specify IPv4 addresses in the allowlist. We recommend you specify IPv4 addresses in the allowlist if IPv4 addresses are used in the data source connections or virtual connections. Consider working with your content owners to get this information. If you don’t have that information, as a temporary alternative, you can skip to Step 4: Add clients to a pool to assign clients to use the Default Pool instead.

Notes:

- For security purposes, the allowlist is empty by default to prevent Tableau access. This ensures that site admins specify what data can be sent to Tableau Cloud using Bridge.
- You can use Fiddler with Tableau Desktop to capture the URI that is used when connecting to a data source. For more information, see Fiddler.
- You can assign one or more domains to a pool.
- If your site was set up to use pooling prior to Tableau 2021.4, the **Default Pool** remains for backward compatibility purposes but can't be configured to access a specific private network. To reduce the scope of access of this pool and to enable more advanced scheduling capabilities, we recommend you create new pools and map them to specific domains.

To map a domain to a pool, do the following:

1. While on the Bridge tab, under the Private Network Allowlist, click the **Add New Domain** button.
2. In the **Domain** text box, enter the URI of the domain using the information described in Allowlist registry rules.
3. Under Domain permissions, ensure the **Allow** radio button is selected.
4. Under **Pool**, select the pool whose scope of access should be limited to the URI you specified in step 2.
5. Repeat steps 1-4 for each additional domain.
6. When finished, click **Save**.

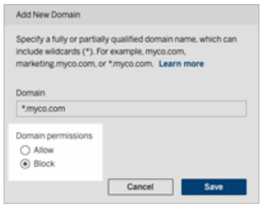
Allowlist registry rules

Use the following rules when specifying the domains that you want to enable Bridge access to. This allows Bridge, on behalf of Tableau Cloud, to access the data on your private network to perform data freshness tasks. A domain enables Bridge to connect to both databases and file data hosted in that domain.

Notes:

- The total number of pools + domains in the allowlist registry may not exceed 100. If you exceed 100 of these combined objects, you will be unable to add new pools.
- Domains are *not* verified when added to the allowlist, when data sources or virtual connections are published, or when refresh schedules are configured.
- Duplication due to the same domain being added to the allowlist as both the domain name and its IP address are not verified. In this scenario, if one pool maps to the domain name and another pool maps to the IP address, the format specified in the data source connection or virtual connection determines which pool keeps the data fresh.
- Domains must be accessible by Bridge. This means, all clients in the pool must have access to the specified domain.
- If no domains are specified, Bridge is unable to run data freshness tasks for data sources or virtual connections configured for Bridge refresh schedules. **Note:** Data sources configured for Bridge legacy schedules will continue to run in the same way.

Scenario	Description	Example
Exact domain name	Can either be a FQDN or PQDN. Port numbers are not allowed.	myco.com marketing.myco.com oracle.myco.com
Range of domain names	Use an optional leading wildcard (*) to include all subdomains. The * must be followed directly by a period (.).	*.myco.com
Exact IPv4 address	Use an IPv4 literal (abbreviations are not allowed). IPv6 addresses are not allowed.	255.255.0.1 192.168.0.0
Range of IPv4 addresses	Use a subnet mask to include a range of IPv4 addresses.	255.255.0.1/16
Block domains	(Named pools only) Block Bridge connectivity to hosts in this domain.	When adding or editing a domain in the private network allowlist, select the **Block** radio

		button option.  Add New Domain Specify a fully or partially qualified domain name, which can include wildcards (*). For example, myco.com, marketing.myco.com, or *.myco.com. Learn more Domain: *.myco.com Domain permissions ○ Allow ● Block Cancel Save

Allowlist registry examples

Example 1 - database data

Suppose you want Bridge to do the following:

- Perform data freshness tasks for data located in **data.lan** and **sqlserver.myco.lan**.
- *Prevent* data freshness tasks for data located in **oracle.myco.lan**.

To enable Bridge to support these scenarios, you can map the domains to two pools (A and B) and block the third domain.

If you specify...	and map to pool...	...data is refreshed in locations
*.lan	Pool A	data.lan
sqlserver.myco.lan	Pool B	sqlserver.myco.lan
*.myco.lan **Note:** Although this domain range blocks data freshness tasks on oracle.myco.lan, a blocked domain range can unblock a specific domain within it if the domain is explicitly allowed, such as sqlserver.myco.lan.	(Blocked)	-

Example 2 - file data

Suppose you have file data, C:\Shared\employees.csv, located on **fileserv.myco.lan**. To enable Bridge access to this data, map the domain of the machine to a pool. You can specify *one* of the following domains to a pool:

- Option #1: *.lan
- Option #2: *.myco.lan
- Option #3: fileserv.myco.lan

Note: The host machine must allow network access to the "Shared" folder.

Step 4: Add clients to a pool

Follow the procedure below to assign clients not already assigned to a pool.

Note: To support data freshness tasks for all data, ensure clients in the pool are running Bridge 2021.4 (or later).

1. On the Bridge tab in the **Unassigned Clients** table, navigate to the client you want to assign to a pool and click **Assign**.
2. In the **Pool** drop-down menu, select the pool you want to associate with the client.
3. Repeat step 2 for each unassigned client you want to assign to a pool.

Troubleshoot pooling

Bridge Refresh jobs fail with one of the errors listed below.

The following errors can be seen on the Jobs page and the Background Tasks for Non Extracts admin view.

- **"errorID=NO_POOLED_AGENTS_ASSIGNED"**

  This issue is specific to default pools and can occur for one of two reasons:

  - When the server address or IP address of a data source does not match a domain specified in the **Private Network Allowlist**. This causes refresh jobs to be sent to the Default Pool where there are no assigned clients.

    To resolve this issue, make sure 1) the allowlist contains the domains (server addresses or IP addresses) used by the data sources, and 2) at least one pool is associated with those domains (sever addresses or IP addresses). For more information, see Step 3: Specify a domain for a pool.

  - When there are no clients in the default pool. To resolve this issue, add at least one Bridge 2020.2 (or later) client to the default pool. For more information, see Step 4: Add clients to a pool.

- **"errorID=NO_POOLED_AGENTS_ASSIGNED_NAMED_POOL"**

  This issue can occur when there are no clients in the named pool. To resolve this issue, add at least one Bridge 2021.4 (or later) client to the named pool. For more information, see Step 4: Add clients to a pool.

- **"errorID=NO_AGENT_IN_POOL_SUPPORTS_REMOTE_EXTRACT_REFRESH"**

  This issue can occur when a refresh job tries to run without at least one Bridge 2020.2 (or later) client in the pool. To resolve this issue, add at least one Bridge 2020.2 (or later) client to the pool. For more information, see Step 3: Specify a domain for a pool.

- **"errorID=NO_POOLED_AGENTS_CONNECTED"**

  This issue can occur when none of the clients in the pool are available to run data freshness tasks. For more information, see the Configure Pools section above.

- **"errorID=REMOTE_EXTRACT_REFRESH_ALL_AGENTS_BUSY"** or **"errorMessage: Maximum concurrency reached"** in the client

  These issues can occur if the number of refresh jobs running at a given time exceeds the capacity of your client pool. To help resolve this issue, you can do the following:

  - Add additional clients to the pool. For more information, see Step 4: Add clients to a pool.
  - Increase the size of the **connectionPool** setting on each client. For more information, see Change the Bridge Client Settings.

- **"errorID= AGENTS_IN_POOL_REQUIRE_UPGRADE"**

Beginning with Tableau 2021.4, this issue can occur when the clients in the pool need to be upgraded to Bridge 2021.4 (or later) in order to run data freshness tasks. For more information about upgrading clients, see Install Bridge.

Bridge clients are being signed out

This issue can happen if you deploy a large number of clients under the same Windows services account. When there are more than 10 clients running under one Windows services account, account security measures can cause clients to be logged out. For more information, see Windows services account.

Other potential pooling issues

When trying to diagnose issues related to pooling, consider reviewing the following log files for a client on the Bridge client machine: *tabbridgeclijob_<process_id>*, *jprotocolserver_<process_id>*, *stdout_jprotocolserver_<process_id>*. For more information, see Change the Bridge Client Settings.

Adding a new pool results in error, An internal system error occurred

This error may occur if the total number of pools in your organization combined with the number of domains in the allowlist registry exceeds 100.

Manage Pools

There are a few ways you can manage your pooled Bridge clients.

Monitor data freshness tasks

You can monitor client activity using a combination of the Jobs page and built-in admin views.

Live queries

To monitor live query activity, you can use the Traffic to Bridge Connected Data Sources admin view.

Refresh jobs

To monitor refresh jobs, you can use the following resources:

- **Jobs** page: The Jobs page can show you the completed, in progress, pending, canceled, and suspended Bridge refresh jobs that use Bridge refresh schedules. For more information, see About Bridge Refresh jobs.
- **Background Tasks for Non Extracts** admin view: After filtering on **Refresh Extracts Via Bridge**, this admin view shows Bridge refresh jobs that use refresh schedules. For more information, see Background Tasks for Non Extracts.
- **Bridge Extracts** admin view: This admin view shows Bridge refresh jobs that use both Bridge refresh schedules and Bridge legacy schedules. For more information about this view, see Bridge Extracts.
- **Create a data source or view using client logs:** Using JSON log files generated by a client, create your own data sources and views to monitor refresh jobs. For more information, see the Refresh jobs by client section below.

Multiple connection scenarios

For Bridge extract refresh connections that contain embedded data sources, you can connect to more than one Bridge client, therefore allowing data from multiple sources to be combined and accessed as if it were a single source. This behavior differs from published data sources.

Multiple published data source connections must be assigned to one Bridge client. Pool mappings that have conflicting connections are not supported.

Scenario 1

Data source 1: Embedded data source for Snowflake that has direct connection to a data source through Tableau Cloud.

Data source 2: Published data source for Snowflake that has a connection to union on-premises databases.

Pool mapping

- For the embedded data sources, don’t add the Snowflake to the **Private Network Allowlist**. Edit connection type from the **Connections** tab and set the network type as **Tableau Cloud**.

> **Note**: You don’t need to use Bridge if the data source can access Tableau Cloud directly.

- For the Snowflake published data sources that have union connections to on-premise databases, add the connection to the **Private Network Allowlist**, edit the connection type from the **Connections** tab, and set the network type as **Private Network**.

Scenario 2: ***Not Supported***

- Published data source with two connections: Connection one is assigned to *pool1* and connection two is assigned to *pool2*.

Refresh jobs by client

As an alternative to monitoring refresh jobs using the admin views listed above, consider creating your own data sources and views to monitor refreshes performed by a Bridge client. You can do this by using Tableau Desktop to connect to a client’s JSON log files on the machine where the client is running.

Note: A client's JSON log files do not capture refreshes for virtual connections.

The JSON log files are comprised of objects, “k” and “v”. The “k” objects capture refresh jobs and “v” objects capture refresh details. The refreshes and their details include:

- Schedule type - Bridge refresh or Bridge legacy
- Data source type and name
- Refresh start and end time, duration, time to upload and publish
- Errors

Step 1: Before you begin

If you want to build a view from the data of one log file, you can skip to **Step 2**.

If the data for a client is in multiple log files, you'll need to union the files. You can create a script to union the log files locally or use Tableau Desktop to perform the union as described in the procedure below.

Notes:

- The procedure described below assumes you are running Tableau Desktop on the same machine as the client.
- If you are working with multiple log files from different clients in a pool, in addition to unioning multiple logs files for a client, you can join the log files from multiple clients to monitor refreshes in a pool.
- Connecting to JSON files directly from Tableau Cloud web authoring is currently not supported. For more information, see Creators: Connect to data on the web.

Step 2: Connect to JSON logs

To build a data source and view, connect to a client's log files using Tableau Desktop.

1. Start Tableau Desktop and under Connect, select **JSON file**. Do the following:
    a. In the Select Schema Levels dialog box, select the top level schema to include “k” object details and optionally, select the "v"-level schema to include "v" object details, and then click **OK**.
    b. Navigate to the log file you want to connect to (for example, C:\Users\jsmith\Documents\My Tableau Bridge Repository\Logs), select it, and then click **Open**.
2. (Optional) On the data source page, right-click the log files and click **Convert to Union** to set up a union. Do the following:
    a. Select **Wildcard (automatic)** tab.
    b. Next to **Search In**, verify the path shows the client's Log folder.
    c. Under Matching pattern, enter **ExtractRefreshMetrics_*** and click **OK**.
3. Select the sheet tab to start your analysis and build your view.
4. When finished, publish the data source and view to Tableau Cloud separately. To ensure that your data source is kept up to date, you can set up a Bridge (legacy) schedule for the data source after publishing.

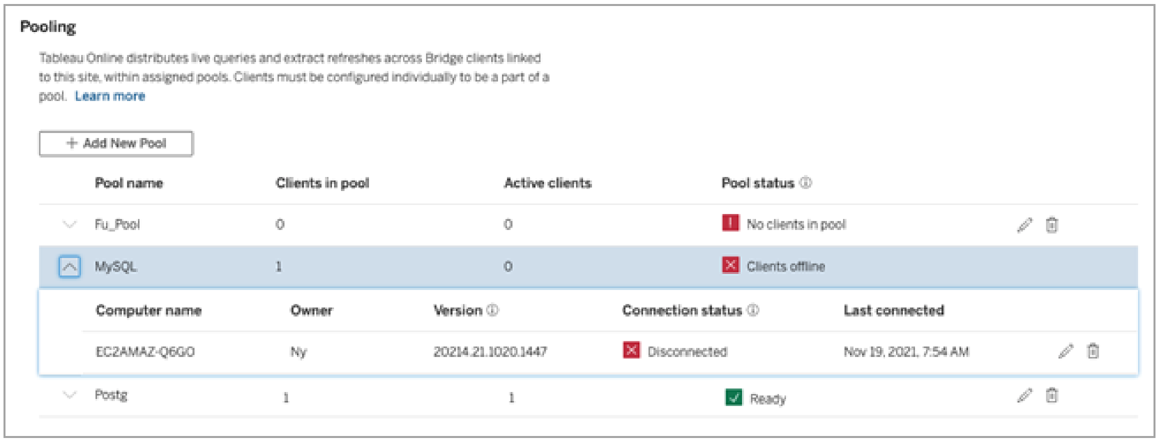
Be aware that the data sources and views you create can change without warning because new log files can be generated and old log files can be deleted after certain log-specific limits are met. For more information about these limits and how to adjust them, see Change the Bridge Client Settings.

Manage pools and clients

Under the Pooling section, you can see up to five tables of pooling and client related information in your Bridge deployment.

About pools

The first table consists of clients registered to the site organized by the pools they are assigned to.



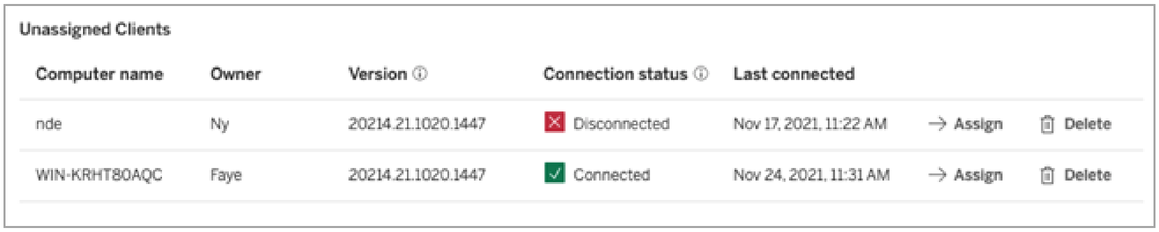
Pooling

Tableau Online distributes live queries and extract refreshes across Bridge clients linked to this site, within assigned pools. Clients must be configured individually to be a part of a pool. Learn more

Pool name	Clients in pool	Active clients	Pool status ⓘ
Fu_Pool	0	0	! No clients in pool
MySQL	1	0	☒ Clients offline
Postg	1	1	✓ Ready

Computer name	Owner	Version ⓘ	Connection status ⓘ	Last connected
EC2AMAZ-Q6GO	Ny	20214.21.1020.1447	☒ Disconnected	Nov 19, 2021, 7:54 AM

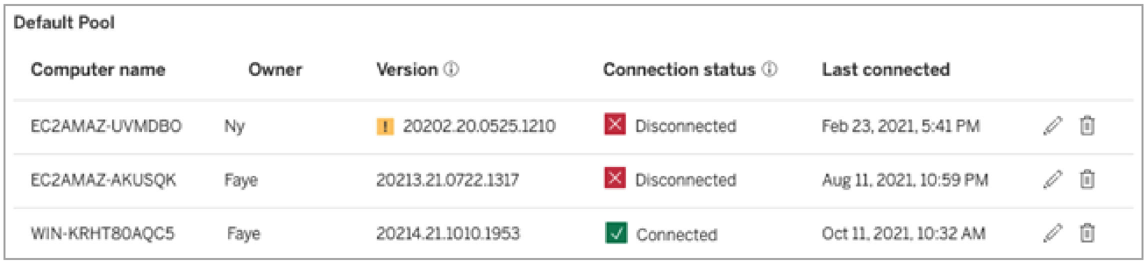
The second table, **Unassigned Clients**, shows clients not assigned to a pool. In most cases, these clients need to be assigned to a pool before they can load balance live query and extract refresh jobs. In other cases, clients in this table might be dedicated to refreshing data sources using Bridge (legacy) schedules.



Unassigned Clients

Computer name	Owner	Version ⓘ	Connection status ⓘ	Last connected		
nde	Ny	20214.21.1020.1447	☒ Disconnected	Nov 17, 2021, 11:22 AM	→ Assign	Delete
WIN-KRHT80AQC	Faye	20214.21.1020.1447	✓ Connected	Nov 24, 2021, 11:31 AM	→ Assign	Delete

The third table, **Default Pool**, shows clients in the default pool. Clients configured to use pooling prior to Bridge 2021.4 are included in this pool by default. Because the default pool's domain can't be configured to access a specific private network, we recommend you reduce its scope of access by creating new pools and mapping them to specific domains.



Default Pool

Computer name	Owner	Version ⓘ	Connection status ⓘ	Last connected
EC2AMAZ-UVMDBO	Ny	! 20202.20.0525.1210	☒ Disconnected	Feb 23, 2021, 5:41 PM
EC2AMAZ-AKUSQK	Faye	20213.21.0722.1317	☒ Disconnected	Aug 11, 2021, 10:59 PM
WIN-KRHT80AQC5	Faye	20214.21.1010.1953	☑ Connected	Oct 11, 2021, 10:32 AM

The clients you see in the first three tables can tell you the following information:

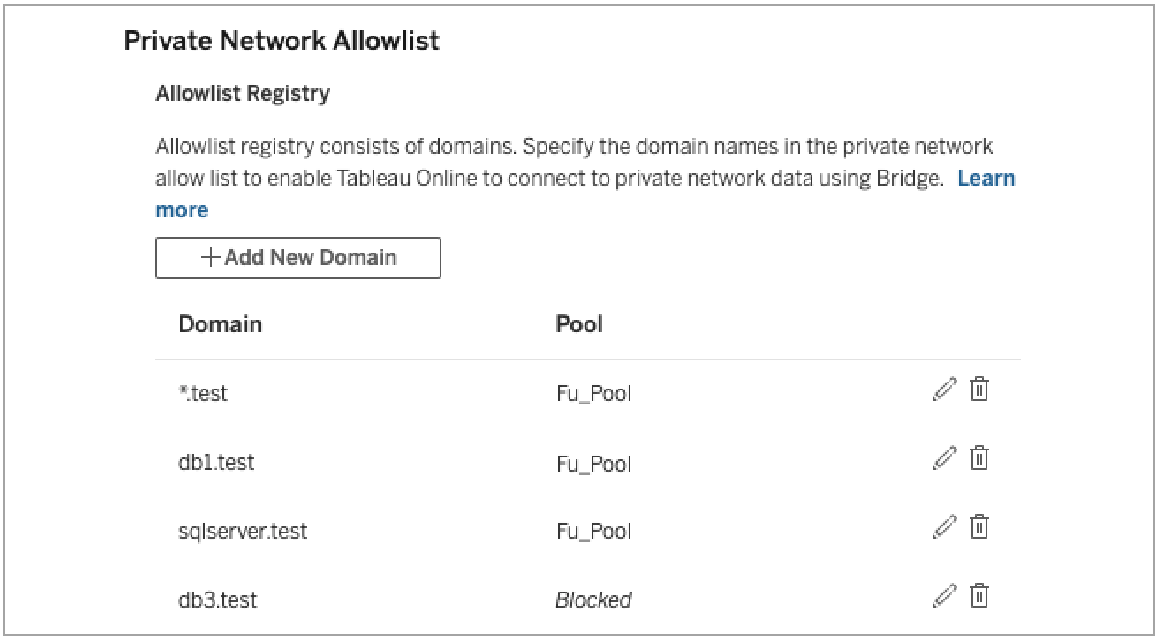
- Client name, also known as the computer name, is the name of the machine the client is installed on and running from.
- Owner name, which in most cases is a site admin. This is the user who is authenticated (signed in) to Tableau Cloud from the client.
- Pool status, applies to the first table only, can indicate 1) whether there are assigned clients in the pool, 2) clients are connected and available to handle data freshness tasks, or 3) pool is offline because all clients int he pool are disconnected.
- Client version:
    - A warning icon (!) displays in this column when the client is not running the latest version of Bridge. Although not required, we strongly recommend upgrading to take advantage of the latest security and feature updates. To download the latest version of Bridge, go to the Downloads page on the Tableau website.

      Note: The warning icon shows only when there is a newer client available for download. The warning icon is not an indication that there are issues with the client or related Bridge data sources or virtual connections.
- Connection status—for more information see the Client connection status, below.

- Last connected—shows the day and time Tableau Cloud was last able to reach the client.

About Private Network Allowlist

The fourth table, **Allowlist Registry**, contains a list of domains that pools are scoped to.



Private Network Allowlist

Allowlist Registry

Allowlist registry consists of domains. Specify the domain names in the private network allow list to enable Tableau Online to connect to private network data using Bridge. Learn more

Domain	Pool
*.test	Fu_Pool
db1.test	Fu_Pool
sqlserver.test	Fu_Pool
db3.test	*Blocked*

The fifth table, **Allowlist Requests**, shows pending domains that users have requested to connect to when trying to create virtual connections. These domain requests should be addressed as soon as possible to unblock users from their virtual connection workflows.

Client connection status

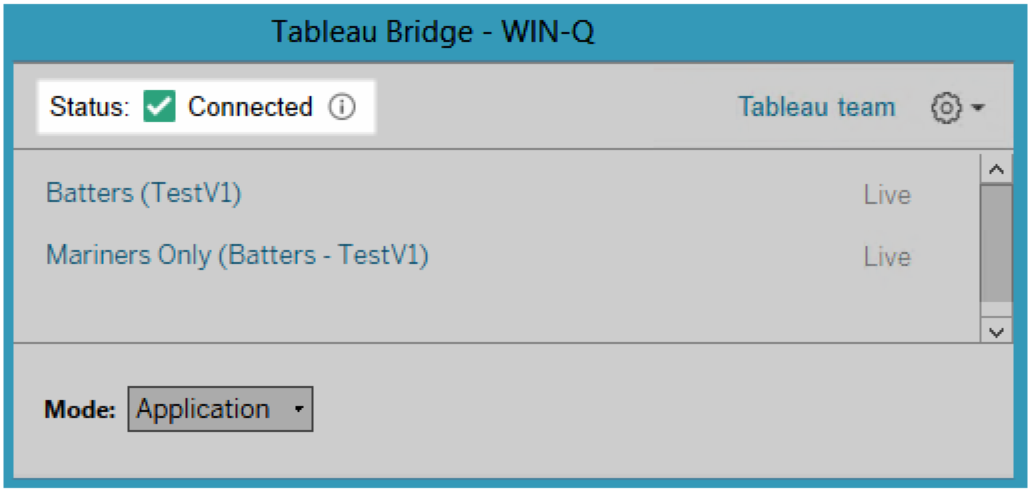
Where clients are listed, the colored squares and status labels indicate the *availability* of the client to support data freshness tasks.

- Green or "Connected": A green or **Connected** state indicates that the client is connected and *available* to support live queries and extract refreshes.

- Red or "Disconnected": A red or **Disconnected** state can indicate one of a few conditions that have temporarily put the client in a disconnected state. The most common scenario is if the client is not running or was unable to establish communication with Tableau Cloud after being launched. You can hover over the status to see a tooltip that describes the condition.

Notes: When the client is in a disconnected state, live queries might be disrupted. In cases like this, views that depend on data sources or virtual connections with live queries might not properly display until the issue is resolved.

The states described above reflect and correspond to the status you see in the client.



Status: ✓ Connected

Batters (TestV1)	Live
Mariners Only (Batters - TestV1)	Live

Mode: Application

About the Bridge Client

This topic describes the Bridge client and requirements for running and using it. In most cases, the site admin is responsible for installing and managing the client.

Note: Support for single use refresh tokens (sometimes called one-time use refresh tokens, rolling refresh tokens, or refresh token rotation) for OAuth connections to Tableau Cloud was added with the 2025.2 (Summer 2025) release. Single use refresh tokens are not yet supported in Tableau Bridge or Tableau Server. Support for these tokens in Tableau Bridge and Tableau Server is planned in a future release.

Client overview for Linux and Windows

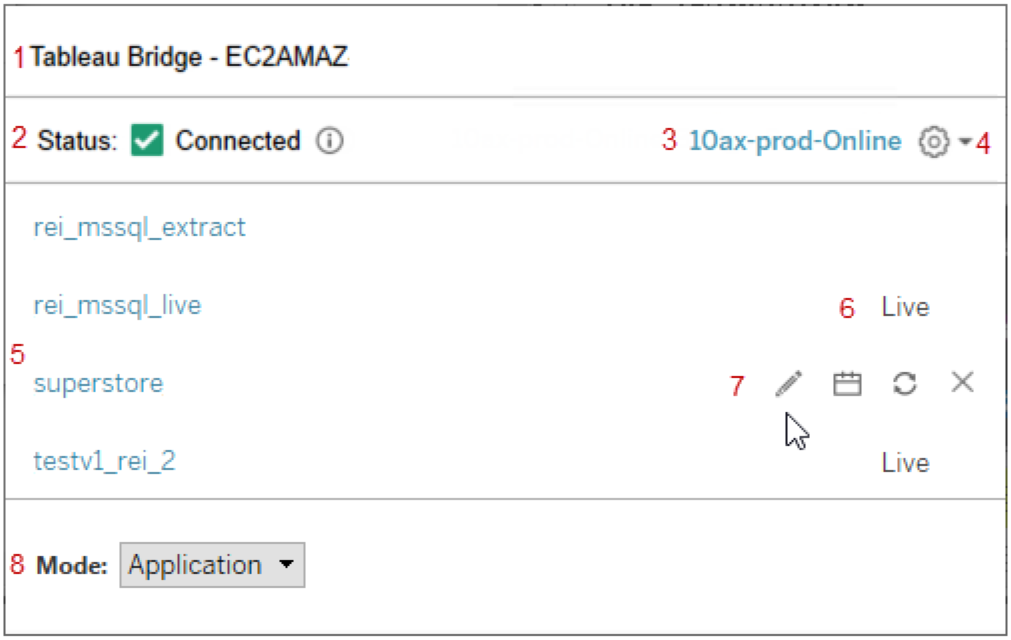
- The Bridge client is required to enable connectivity between Tableau Cloud and private network data.
- The connected client option must be enabled for the site to allow Tableau Bridge clients to run unattended and, if enabled, support multi-factor authentication with Tableau authentication.
- Client sessions are managed by refresh tokens which are generated after a successful sign-in to Tableau Cloud from the Bridge client. If the refresh token has not been used in 14 days, then it expires. After the refresh token has expired, a new sign-in to Tableau Cloud is required. If a refresh token is being used regularly, their expiration period depends on when a site was activated. Refresh tokens generated on sites activated in June 2023 (Tableau 2023.2) or later expire after 180 days. Refresh tokens generated on all other sites expire after one year.
- Only one client can be installed on a machine.
- The appropriate database drivers must be installed on the machine where the client is running.
- For extract connections, the user signed in to Tableau Cloud from the client must have a **Creator**, **Explorer (Can Publish)**, or one of the two types of site admin role: **Site Administrator Creator** or **Site Administrator Explorer**. If the user is not a site admin, he or she must be the content owner.
- For live connections, the user signed in to Tableau Cloud from the client must have one of the two types of site admin roles: **Site Administrator Creator** or **Site Administrator Explorer**.
- To maintain live connections, the databases that the Tableau content connect to *can't* be accessible from the public internet.

About the Linux Bridge Client

You can deploy the Tableau Bridge client within a container on Linux. To use Bridge on Linux you must create a customized Docker image, install the RPM package, and then run Bridge from inside the container image. See Install Bridge for Linux for Containers.

About the Windows Bridge Client

When the client is running, it's accessible from the Windows system tray on the machine where it is installed.


1 Tableau Bridge - EC2AMAZ
2 Status: ✓ Connected
3 10ax-prod-Online
4
rei_mssql_extract
rei_mssql_live
6 Live
5
superstore
7
testv1_rei_2
Live
8 Mode: Application

The client is comprised of the following parts:

1. **Client name**, which is also the name of the machine where the client is installed.
2. **Connection status** indicates whether the client is connected to Tableau Cloud.
3. **Site**: The Tableau Cloud site that the client is registered to.
4. **Settings menu**, which contains options to disable error reports and unlink the client from a site.
5. **Data sources**: By default, this area displays a list of live queries that are being load balanced (or pooled) by clients across the site. This list can also contain data sources that have been assigned to this specific client using Bridge (legacy) schedules.

   Note: This list does not show data sources or virtual connections that are refreshed with the Bridge refresh schedules. To see data sources or virtual connections refreshed with Bridge refresh schedules, go to the Jobs page and filter on **Bridge Refreshes**.

6. **Pooling status**: This shows whether the data source is part of the client pool.
    - Live: A Live status indicates the data source has a live connection and is part of the pool of clients. **Note:** Virtual connections with live connections do not show in this list.
    - Blank: A blank status indicates the client is not part of the pool. This is because the data source is using Bridge (legacy) schedules.
7. **Legacy options**: These options display on hover to edit or view connection information, go to the schedule, and run a manual refresh on hover for data sources that use Bridge (legacy) schedules.
8. **Client mode** indicates if the client is running as a Windows application or service. For more information, see the section below.

Windows Requirements for extract connections

- To refresh extracts, the client can run as a Windows service or as an application.
- If the client is set to run as an application, it completes refreshes only when the machine is powered on, and the Windows user is logged on and running Bridge.

  If the machine is turned off, if the user logs off of Windows, or if the user exits the client, updates for the data sources or virtual connections running on that client (either through the pool or manually) will not be able to reach Tableau Cloud, and the data sources or virtual connections won't get refreshed until the user signs in again. During this time, the content owner will receive refresh failure notification emails from Tableau Cloud. For more information, see Stop Keeping Data Fresh Through Bridge.
- To ensure refreshes of file-based data sources complete without any issues, a client that has been set up to run as a service must reference the full UNC path of the source file and not the mapped drive path. For example, use "\\filesrv\Data\file.csv" instead of "C:\Data\file.csv".

  For a client that has been set up to run as an application, we strongly recommend that the client also references the full UNC path. For more information, see Change the file path for a data source.

Windows Requirements for live connections

- To run live queries, the client can run as a Windows service or as a Windows application.
- Each Tableau Cloud site can have multiple clients that maintain live connections. Those clients can also be used to refresh extracts.
- If the client is set up to run as an application, live queries can only occur when the computer is on and the Windows user is logged on and running Bridge.

  If the computer is turned off, if the user logs off of Windows, or if the user exits the client, updates to the data sources or virtual connections will not be able to reach Tableau Cloud, and the content can't be kept up to date.

Application versus Service mode

A client can operate in one of two modes: Application or Service.

The mode the client can run depends on the Windows user account it's running under, the Tableau Cloud site settings that the client is registered to, and general data freshness needs.

- **Application:** When the client is set to run in Application mode, it runs as a Windows *application*.

  In this mode, the client can facilitate live queries and scheduled refreshes for content that connects to private network data while the dedicated user is logged on to Windows. If the dedicated user logs off Windows, the client cannot maintain live queries and refresh extracts on a schedule.

- **Service:** When the client is set to run in Service mode, it runs as a Windows *service*.

  In this mode, the client runs continuously even if the user is logged out of Windows. The Windows user account must be a member of the local Administrators group to run the client in service mode. This mode is recommended for pooled clients that load balance live queries and scheduled refreshes. Service mode is the default mode.

Mode guidelines

	Extract connection with scheduled refresh	**Live connection**
Application mode	• Quickly set up and validate that the client is keeping content up to date. • Have more control over when the client is performing data freshness tasks. • Doesn't require the user to be a local admin on the machine. • Requires the user to be logged on to Windows.	
Service mode	• Set up the client once — if the machine has to restart, the client reconnects to Tableau Cloud automatically. • Requires the Windows user account to be a member of the local Administrators group on the machine. In addition, to refresh file-based data sources, the account must have domain access to the network shared drive where the file data is hosted. • Doesn't require the user to be logged on to Windows.	
	Recommended for load balancing refreshes. For more information, see Configure Pools.	Recommended for load balancing live queries. For more information, see Configure Pools.

Windows Client requirements

In order to run and use the client, a certain set of requirements must be met as well as some additional requirements that are unique to the data freshness task.

Core requirements

- Microsoft Windows 10 or later, 64-bit
- Windows Server 2016 or later

- Tableau recommends installing the Bridge client on a dedicated computer behind your firewall.
- The computer on which the client is running must be on the same Windows domain and have access to the underlying database specified in the data source or virtual connection.
- Both the computer and the Windows user account must have access to the underlying data specified in the data source or virtual connection.
- Tableau Cloud's *connected clients* option must remain enabled to allow the client to run unattended and, if enabled, support multi-factor authentication with Tableau authentication. For more information about the connected clients option, see Connected client requirement for Tableau Bridge.

For more information, see Pooling capacity.

Additional requirements for Service mode

- To run the client in **Service** mode, the Windows user account running Bridge must be a member of the local Administrators group on the machine. The user doesn't need to be logged on to Windows, but the machine must be powered on with Windows running.
- When using the client in **Service** mode and connecting to file data hosted on a network shared drive, it's required that the account have domain access to the network shared drive.

Repair a client running in Service mode

Occasionally something causes content connections to stop functioning normally. When this happens, an alert appears, and it usually provides information that direct you toward the cause of the problem. However, if Tableau Cloud cannot provide troubleshooting information in the alert, and if you run Tableau Bridge as a service, you can use the **Repair** command to try to reset connections.

To help repair a client in Service mode, in the Windows system tray, right-click the Bridge icon and select **Repair**. This stops and restarts the service, which can be enough to resolve the issue.

Temporary files

The Bridge temporary files are located in the `C:\Users\<username>\AppData\Local\Temp` folder.

Temporary files are periodically removed when connected to Tableau Cloud or after you close the client.

- After a refresh, the `TEMP_*` files are removed.
- The `hyper_` files are deleted after the Bridge client is closed.
- The TableauTemp folder isn't removed due to system requirements.

The `cleanUpTempDirOnStartUp` client setting determines whether to remove the temp files when the Bridge client starts. When set to false, the temp files are not removed.

Change the Bridge Client Settings

There are several Bridge client settings that the site admin can configure to change how a client runs.

Windows Client

For Windows clients, the default location of the Configuration file is `C:\Users\jsmith\Documents\My Tableau Bridge Repository\Configuration\TabBridgeClientConfiguration.txt`. The client must be restarted for any changes made to the configuration file to take effect.

Bridge for Linux for Containers

The `TabBridgeClientConfiguration.txt` file is generated with default configurations the first time you run the Bridge client.

To make changes to the configuration settings, edit the `TabBridgeClientConfiguration.txt` file, and create a new Docker container with the updated file. For more information about how to create and update a container, see Containerize an application.

Bridge legacy schedules

In some cases, a data source owner might be responsible for some of the tasks described in this topic if they maintain their own client to run Bridge legacy schedules.

Bridge client settings

serviceConnectionSettings

Configuration: `serviceConnectionSettings`

Options:

`serviceUrl`	Tableau site URL. *Not configurable*.
`proxyServer`	Proxy Server and port. *Configurable*

Example

The client must be restarted for any changes made to the configuration file to take effect.

```
"serviceConnectionSettings" : {
       "serviceUrl" : "https://online.tableau.com",
       "proxyServer" : {
       "serverName" : "http://localhost",
       "serverPort" : 8888
       }
```

connection

Configuration: `connection`

Options:

`connectTimeout`	The Bridge client wait time when trying to connect to Tableau Cloud. Default value: 1 minute *Configurable.*
`operationTimeout`	The Bridge client wait time for each server (such as VizPortal) API call after successfully connecting to Tableau Cloud. Default value: 15 minutes *Configurable*.
`maxAttemptsToRedirectHttpRequests`	An API call to a server can be redirected from POD to POD. This number specifies the maximum number of redirects per server API call. Default value: 20 *Configurable*.

Example

```
"connection" : {
       "connectTimeout" : "00:01:00",
       "operationTimeout" : "00:15:00",
       "maxAttemptsToRedirectHttpRequests" : 20
       }
```

connectionPool

Configuration: `connectionPool`

Options:

`size`	Applies to Bridge refresh schedules. The number of refresh tokens generated at the time of login. The Bridge client uses refresh tokens when a connection to Tableau Cloud is needed. Refresh jobs are processed simultaneously and each job needs a token. Default value: 10 Minimum value: 1 Maximum value: 93 *Configurable*.

Example

By default, each client in a pool can load balance up to 10 refresh jobs at one time. If the number of refresh jobs running at a given time exceeds the capacity of your client pool or you have the hardware resources to support it, consider increasing each client's capacity.

On windows, changing the `size` value requires unlinking the client. Unlinking removes the association between the site and the client. This means for data sources that are refreshed using Bridge legacy schedules, unlinking the client removes associations to those data sources, its schedules, and any connection information from the client. As part of modifying the size of the Bridge pool, we recommend you click the Bridge icon in the Windows System tray and note the data sources listed to aid the rescheduling process.

```
"connection" : {
       "connectTimeout" : "00:01:00",
       "operationTimeout" : "00:15:00",
       "maxAttemptsToRedirectHttpRequests" : 20
       },
"connectionPool" : {
        "size" : 10
}
```

dataSourceRefreshSettings

Configuration: `dataSourceRefreshSettings`

Options:

`shutdownTimeoutInSeconds`	*Not configurable*.
`downloadDataSourcesInterval`	The time interval for the temporary downloading the names of live data sources and extract data sources that are assigned to the client for Bridge legacy schedules. Default value: 30 minutes. *Configurable*.
`checkRefreshDataSourcesInterval`	The time interval for the Bridge client to check data sources assigned to the client to establish if a refresh is needed for Bridge legacy schedules. Default value: 5 seconds *Configurable*.
`extractRefreshTimeout`	Enforces a time limit for refreshes performed by the client. The timeout limit is the longest allowable time for a single extract to complete a refresh before it's canceled by the client. If an extract refresh is canceled as a result of reaching the timeout limit, you will see a message in the client and an email alert will be sent to the data source owner.

	Default value: 24 hours. For virtual connections, the default extract refresh timeout limit is 2 hours and is controlled on by Tableau Cloud The time limit can’t be controlled by the Bridge client. *Configurable*.
`maxRemoteJobConcurrency`	Applies to Bridge refresh schedules. Maximum number of remote refresh jobs allowed by the client. The value for this configuration must be the same or less than connectionPool. Adjust the maximum value to your machine's capabilities such as CPU and RAM. Requires a restart of the client. Default value: 10 Minimum: 1 Maximum: The value for `connectionPool` *Configurable*.
`JSONLogForExtractRefresh`	When set to true, the client generates an additional log file in JSON format. The log captures the metrics of extract refreshes, for both Bridge legacy and Remote refreshes, with one line per extract. The format of the JSON log file is readable by Tableau Desktop and can be used as a data source to create live vizzes. For more information, see JSON File.

	An example of the log file is: `ExtractRefreshMetrics_<timestamp>.json` Changing the value of this configuration option requires a restart of the Bridge client. The `loggerSettings` configuration options apply to the JSON log file. Default value: false *Configurable*.
`dataSources`	Applies to Bridge legacy schedule refresh jobs. Not user editable. Provides a list of mapped local file locations for file-based data sources. *Not configurable*

Example

To govern the misuse of extracts or refreshes, you can enforce a time limit using `extractRefreshTimeout`, also known as a timeout limit, for refreshes performed by a client. The timeout limit is the longest allowable time for a single extract to complete a refresh before it's canceled by the client.

Note: For extracts of virtual connections, the default for `extractRefreshTimeout` is 2 hours and can’t be controlled by the Bridge client. As an alternative, you can modify the virtual connection to refresh within the default 2 hour window or switch to a published data source.

By default, the timeout limit for a client is set to 24 hours. You can change the timeout limit for a client through the Bridge configuration file. If an extract refresh is canceled as a result of reaching the timeout limit, you will see a message in the client and an email alert will be sent to the data source owner.

The client must be restarted for any changes made to the configuration file to take effect.

```
"dataSourceRefreshSettings" : {
       "shutdownTimeoutInSeconds" : "00:00:30",
       "downloadDataSourcesInterval" : "00:30:00",
       "checkRefreshDataSourcesInterval" : "00:00:05",
       "extractRefreshTimeout" : "24:00:00",
       "maxRemoteJobConcurrency" : 10,
       "JSONLogForExtractRefresh" : false,
       "dataSources" : [
       ]
}
```

loggerSettings

Configuration: `loggerSettings`

Options:

`maxLogFileSizeInMB`	Maximum size of the log files in MB. When a log file exceeds the size limit, a new log file is created. Default value: 25 MB. *Configurable*.
`maxBackupLogFileCount`	Maximum number of allowed Bridge log files. When the number of log files exceed the limit, the oldest log file is deleted. Default is 40. *Configurable*.
`remoteRequestLogFileLifeSpan`	For each Bridge Refresh job that is sent to the

client, a new set of log files is created:

`tabbridgeclijob_<process_id, and if the data source is JDBC-based: fjprotocolserver_<process_id>, and stdout_jprotocolserver_<process_id>.`

By default, the maximum amount of time the log files remain in the Logs folder before being deleted is 8 hours if the number of log files exceeds `maxBackupLogFileCount`. Otherwise, these log files remain indefinitely while the number of log files is less than or equal to `maxBackupLogFileCount`.

`<process_id>` represents the Windows process ID.

Default value: 8 hours

Configurable.

Example

The client creates logs of activities as part of its normal operation. You can use these logs to monitor refreshes, troubleshoot issues with Bridge, or if Tableau Support requests logs from you to help resolve an issue.

You can manage the size of Bridge log files or increase the time log files remain before being deleted in the TabBridgeClientConfiguration.txt file.

Note: Log files named tabprotosrv* vary from other Bridge log files. The maximum size is 1 MB and the maximum number of allowed log files is 8,192. These values are also not configurable.

```
"loggerSettings" : {
        "maxLogFileSizeInMB" : 25,
        "maxBackupLogFileCount" : 40,
        "remoteRequestLogFileLifeSpan" : "00:00:00"
}
```

dataSyncRestartInterval

Configuration: `dataSyncRestartInterval`

Sets the restart interval of the Data Sync.

Configurable.

internetConnectionMonitorInterval

Configuration: `internetConnectionMonitorInterval`

Interval for Bridge to ping the internet to determine if there is a valid connection.

Default value: 30 seconds

Configurable.

secureStorageMonitorInterval

Configuration: `secureStorageMonitorInterval`

Interval for Bridge to determine secure storage.

Not Configurable.

cleanUpTempDirOnStartUp

Configuration: `cleanUpTempDirOnStartUp`

Determines whether to remove the temp files when the Bridge client starts.

Default value: true

Configurable.

JSONLogForLiveQuery

Configuration: `JSONLogForLiveQuery`

When set to true, the client generates an additional log file in JSON format. The log captures the metrics of live query request, with one line per extract

The format of the JSON log file is readable by Tableau Desktop and can be used as a data source to create live vizzes. For more information, see JSON File.

Changing the value of this configuration option requires a restart of the Bridge client.

Default value: true

Configurable.

Example

```
"dataSyncRestartInterval" : "24:00:00",
"internetConnectionMonitorInterval" : "00:00:30",
"secureStorageMonitorInterval" : "00:00:30",
"cleanUpTempDirOnStartUp" : true,,
"JSONLogForLiveQuery" : true
}
```

Default configuration file

To copy the default configuration file, click the **Copy to clipboard** icon in the upper right corner.

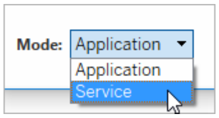
```
{
        "serviceConnectionSettings" : {
                "serviceUrl" : "https://online.tableau.com/",
                "connection" : {
                        "connectTimeout" : "00:01:00",
                        "operationTimeout" : "00:15:00",
                        "maxAttemptsToRedirectHttpRequests" : 20
                },
                "connectionPool" : {
                        "size" : 10
                }
        },
        "dataSourceRefreshSettings" : {
                "shutdownTimeoutInSeconds" : "00:00:30",
                "downloadDataSourcesInterval" : "00:30:00",
                "checkRefreshDataSourcesInterval" : "00:00:05",
                "extractRefreshTimeout" : "24:00:00",
                "maxRemoteJobConcurrency" : 10,
                "JSONLogForExtractRefresh" : false,
                "dataSources" : [
                ]
        },
        "loggerSettings" : {
        "maxLogFileSizeInMB" : 25,
                "maxBackupLogFileCount" : 40,
                "remoteRequestLogFileLifeSpan" : "08:00:00"
        },
        "dataSyncRestartInterval" : "24:00:00",
        "internetConnectionMonitorInterval" : "00:00:30",
        "secureStorageMonitorInterval" : "00:00:30",
        "cleanUpTempDirOnStartUp" : true,
        "JSONLogForLiveQuery" : true
}
```

Change the Windows Client Service

In order for a client to be included in a pool, the client should run as a Windows service (**Service** mode). By default, a client is set to run as a Windows service so that it can load balance live queries and refreshes in the background without requiring a dedicated user to be logged in to the machine. For a client to run as a Windows service, the Windows user account that runs the client must be a member of the local Administrator group on the machine.

Note: If you're a data source owner and managing the client yourself, your client will not be included in the pool. However, if you want the Bridge (legacy) schedule to run in the background even when you're not logged on to your machine, your client must be running as a Windows service (**Service** mode).

1. Open the Windows system tray and click the Bridge icon to open the client.
2. From the Mode drop-down menu, select **Service**. A sign-in windows displays.



1. Enter your local admin credentials.

   In your list of Windows services, Bridge appears as **Tableau Bridge service**. You can see this in the Windows Services console or on the **Services** tab in the Task Manager.

Restarting the Windows Client

The way you restart the client depends on whether the client is running in Application or Service mode.

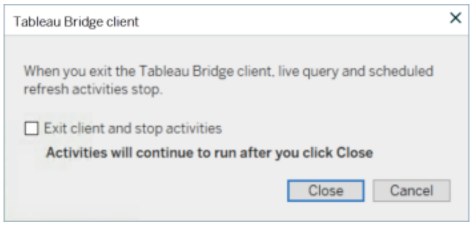
- For Application mode: from the client menu, select **Exit**.
- For Service mode: from the Mode drop-down menu, select Application; from the client menu, select **Exit**. In the dialog box, select the **Exit client and stop activities** check box and click **Close**.
- 

  Tableau Bridge client

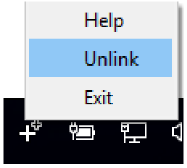
  When you exit the Tableau Bridge client, live query and scheduled refresh activities stop.

  ☐ Exit client and stop activities

  Activities will continue to run after you click Close

Unlinking the Windows Client

Right-click the Bridge icon in the Windows System tray and select **Unlink**.



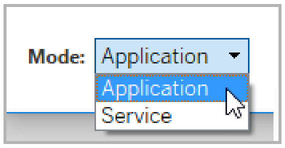
For more information about the Unlink option, see Stop Keeping Data Fresh Through Bridge.

Stop running Bridge as a Windows service

To stop the client from running as a service, change its mode.

1. Open the Windows system tray and click the Bridge icon to open the client.

2. From the Mode drop-down menu, select **Application**.



Mode: Application

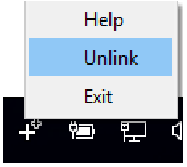
When the client is running in Application mode, live queries and scheduled refreshes can only run when the user is logged in to the Windows user account on the machine where the client is running from.

Switch the site a Client is associated with

When you want to use a client to keep content published to a different Tableau Cloud site fresh, you can unlink the existing client and authenticate to the new site from the client.

1. Open the Windows system tray and click the Bridge icon to open the client.

2. From the drop-down menu, select **Unlink**.



Unlink removes the list of data sources that use Bridge (legacy) schedules, schedules, and connection information from the client.

3. Open the Windows system tray and click the Bridge icon to open the client.
4. When prompted, sign in to the new site with your site admin credentials.
5. Do one or both of the following to configure the client:
   - If this client refreshes data sources associated with a specific client, ask data source owners to reconfigure their data sources and refresh schedules.
   - If you want this client to facilitate live connections or extract connections that use Online schedules, ensure that the new client is part of the pool. For more information, see Configure Pools

When you unlink a client, you might also need to remove the Bridge (legacy) schedules for the data sources that the client was refreshing. The other data sources continue to have data freshness tasks performed by other registered clients in the pool.

For more information, see Stop Keeping Data Fresh Through Bridge.

Stop Keeping Data Fresh Through Bridge

You can stop refreshing data through Tableau Bridge when running Bridge schedules.

If you stop using Bridge, views that depend on data sources that rely on Bridge will no longer display data and produce blank pages instead.

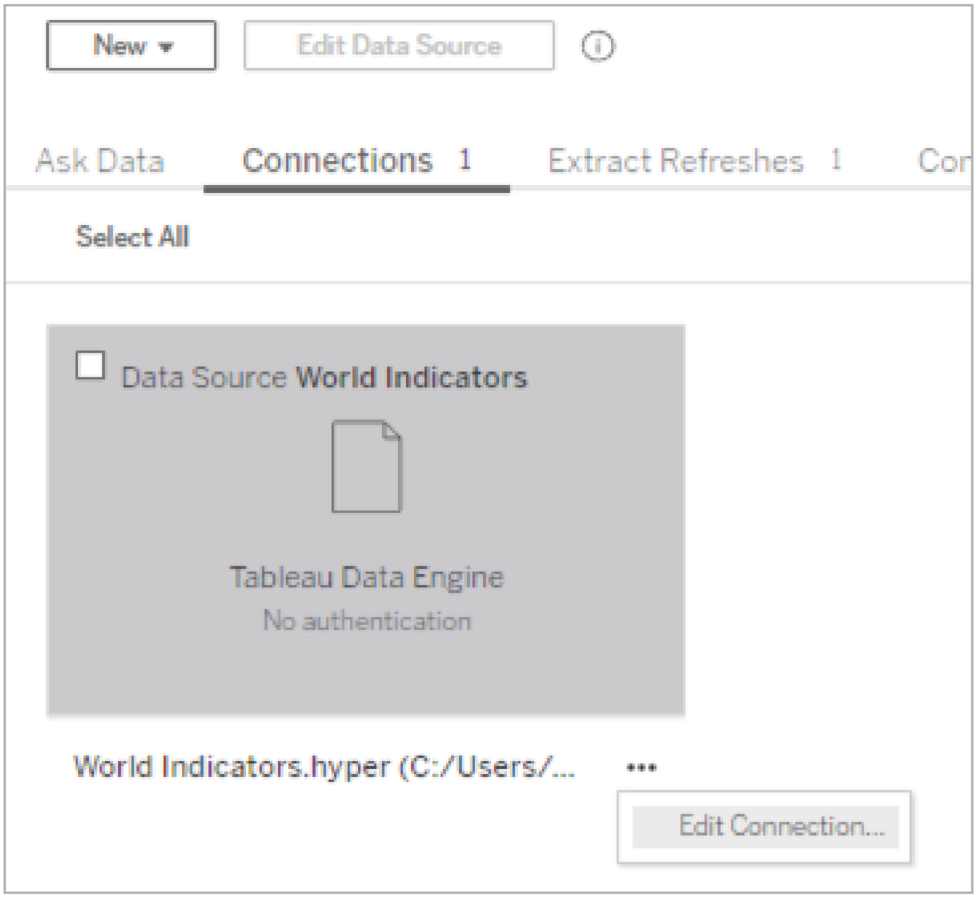
Bridge legacy schedules do not support refreshes for virtual connections.

Change the connection type of a refresh to use Tableau Cloud

By default, Tableau Cloud uses Bridge when a published data source has multiple data connections. Multiple data connection types are data sources that have at least one public cloud connection and one on-premise connection. You can edit the connection type of extract refreshes for Bridge refresh schedules to use Tableau Cloud instead of Bridge.

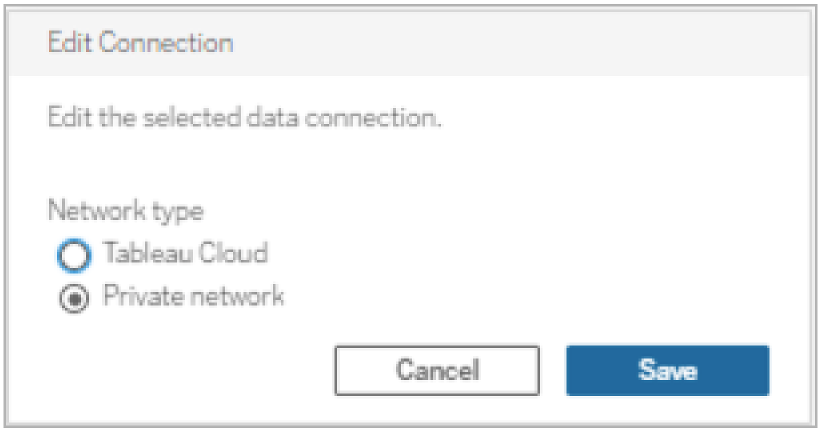
To change the connection type:

1. From the Connections tab of the data source, click **Edit Connection**.


New ▾
Edit Data Source
Ask Data
Connections 1
Extract Refreshes 1
Cor
Select All
☐ Data Source World Indicators
Tableau Data Engine
No authentication
World Indicators.hyper (C:/Users/...
•••
Edit Connection...

2. To stop using Bridge for the network connection type, choose **Tableau Cloud**. To use Bridge for the connection type, choose **Private Network**.

> **Note**: You must change all data connections related to the data source to the same connection type.


Edit Connection
Edit the selected data connection.
Network type
○ Tableau Cloud
● Private network
Cancel
Save

Stop Refreshing Data Through the Windows Client

This topic describes the ways a data source owner can stop refreshing data through Tableau Bridge Windows client when running Bridge schedules.

Remove a data source

One way you can stop a client from refreshing a data source that uses the Bridge (Legacy) schedule by removing the data source from the client.

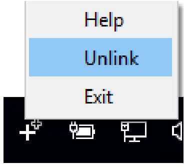
1. Open the Windows system tray and click the Bridge icon to open the client.
2. Hover over the data source name and click the Remove icon next to the data source name.

Stop using Bridge temporarily or permanently

- To stop using a client and temporarily suspend updates to data sources performed by the client, open the client from the system tray, and on the settings menu in the upper-right, select **Exit**.

  When you exit, the data sources and connection settings remain intact.

- To stop a client and permanently remove the data sources the client links to Tableau Cloud, right-click the Bridge icon in the system tray, and select **Unlink**.

  Unlinking a client also removes all connection information from the client, including stored database credentials and Tableau Cloud account credentials.

Effects of exit and unlink

If you exit the client and the next refresh occurs while the client is temporarily stopped, the data source owner will see an alert in Tableau Cloud and be sent an email notification.

If you unlink a client, we recommend you delete the Bridge (legacy) schedules the client runs. For more information, see Delete the Bridge (legacy) schedule after unlinking a client, below.

Delete the Bridge (legacy) schedule after unlinking a client

When you unlink the client, you should also delete the Bridge (legacy) refresh schedules that the client runs. If a schedule is not deleted, the refresh will attempt to run as scheduled. In cases like this, you might receive refresh failure notifications.

1. Sign in to Tableau Cloud and navigate to the data source.
2. On the data source page, click the **Extract Refreshes** tab.
3. Select the check box next to the schedule and select **Actions** > **Delete**.

Permanently remove a client from a site

You can permanently remove a client from a site, which will make the client no longer visible when setting up a Bridge (legacy) schedule.

1. Sign in to Tableau Cloud and navigate to your Account Settings page.
2. Under Connected Clients, click **Delete** next to the client you want to permanently remove from the site.

Manage Email Alerts for Bridge

A scheduled refresh can fail for a variety of reasons. As a data source owner, it's important to be aware of these refresh failures so that you can troubleshoot any issues and minimize gaps in data freshness.

If enabled by your site admin, you will receive email alerts about refresh failures for all of the data sources that you own. When refreshes for your data sources are facilitated by Bridge refresh or Bridge legacy schedules, the type of alerts you receive, when you receive the alerts, and the alerts that you can configure will differ from Tableau Cloud alerts.

Note: When using an extract refresh through Bridge, the Extract Failure Notification option available from each configured refresh’s option menu will not work. While you can choose in the menu to receive notifications as a non-admin (assuming the right privileges are configured), the notifications will not be sent. This issue will be fixed in a future release.

Note: This topic applies to Bridge data sources only. Email alerts about virtual connections from Bridge are not currently supported.

Differences with Bridge email alerts

- Timeout refresh failure emails are sent when the timeout limit is exceeded. Unlike refreshes that run directly on Tableau Cloud, Bridge refreshes timeout after 24 hours (default). However, a timeout limit for refreshes can be increased (or decreased) through each Bridge client by a site admin. For more information, see Change the Bridge Client Settings.

- In addition to refresh failure emails, data source owners will receive email warnings for the following two scenarios:
    - **Bridge client is not running:** When an upcoming scheduled refresh can't start because the client linked to the data source is not running.
    - **Incomplete refresh:** When a scheduled refresh hasn't completed after a specified amount of time.
- Data source owners and site admins will receive email failure alerts for the following Backgrounder process runs:
    - **Bridge pool at capacity:** When extract refreshes can’t run because the pool is at capacity.
    - **No clients in Bridge pool:** When extract refreshes can’t run because there are no clients in the pool.
    - **Refresh job failure:** When a refresh job fails for reasons other than no clients in the named pool or when the pool is at capacity. This is a catch all for Backgrounder refresh jobs that fail to be sent to the Bridge client.

    > **Note**: There isn’t a daily limit to the number of failure emails you can receive for Backgrounder failure alerts.

- For a particular data source, Tableau Cloud sends email about the first five consecutive refresh-related failures (i.e., refresh failures, alerts because the client is not running, or alerts because the refresh hasn't completed yet) on the first day. If the data source continues to have refresh issues after the first day, Tableau Cloud sends one email per day.

- A data source owner can receive up to 10 emails, one email per data source with active and consecutive refresh issues, in one day. The time period of *one day* is 24 hours starting at the time of the first refresh issue.

- Data refresh-initiated Subscription emails are not supported for views or workbooks that rely on Bridge extract data sources to keep data fresh. For more information, see Missing subscription emails.

Configure pooling

Extract refreshes can fail because of issues with the Bridge pool and load balancing. Site admins can configure and manage pooling for Bridge clients by adding a new pool or modifying the pooling capacity. For more information, see Configure Pools and Manage the size of the Bridge pool.

Configure incomplete refresh email alerts for legacy schedules

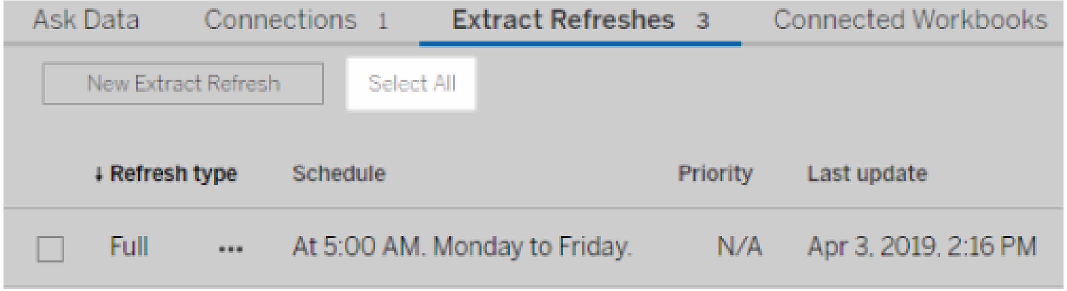
For data sources that use Bridge (legacy) schedules, by default, a refresh email alert is sent 24 hours after the scheduled start time for a data source with an incomplete refresh. If a scheduled refresh completes within 24 hours of its scheduled start time, you will not see an email alert.

In some cases, you might want to be notified sooner than 24 hours. If a refresh is configured to use Bridge (legacy) schedule, you can configure the email alert to send after an amount of time that better aligns with the duration of a particular refresh.

1. Sign in to Tableau Cloud and navigate to your data source.

2. From the data source page, click the **Extract Refreshes** tab, and then click the **Select All** button.

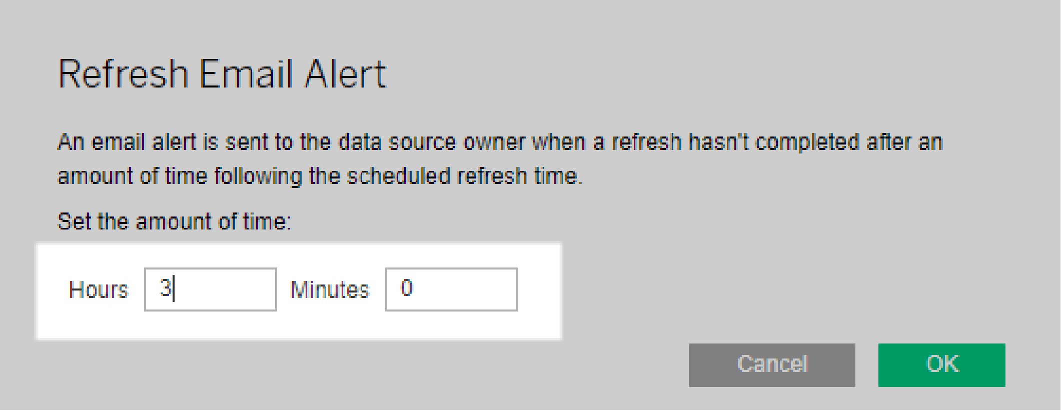
   The email alert factors all the schedules for a data source when determining when to send the email alert even if you select only one schedule.



	↓ Refresh type		Schedule	Priority	Last update
☐	Full	•••	At 5:00 AM, Monday to Friday.	N/A	Apr 3, 2019, 2:16 PM

3. From the Actions menu, select **Edit Refresh Email Alert**.

4. In the Refresh Email Alert dialog box, specify the hours and minutes following a scheduled refresh time that the alert should be sent, and click **OK**.


Refresh Email Alert

An email alert is sent to the data source owner when a refresh hasn't completed after an amount of time following the scheduled refresh time.

Set the amount of time:

Hours 3 Minutes 0

Considerations when managing alerts

- **Bridge (legacy) schedules only:** You can configure email alerts only for refreshes that are configured for Bridge (legacy) schedules.
- **One email alert per data source:** You can configure one refresh email alert for a data source. If a data source has multiple refresh schedules, the email alert is sent based on the next scheduled time across all schedules. Review the following two scenarios that demonstrate how the email alert timing works.

  Scenario 1

Suppose you have an extract data source with one scheduled refresh set to run daily at 5 AM. For the purposes of this example, the refresh usually takes 30 minutes for Bridge to complete at that time of day.

If you specify 3 hours for the email alert, you will be sent an email at around 8 AM if the refresh hasn’t completed by that time.

Scenario 2:

Suppose you have the same data source from Scenario 1, with same time specified for the email alert against the following three schedules:

- Schedule 1 - runs daily at 5 AM
- Schedule 2 - runs twice a week, Tuesday and Thursday, at 1 PM
- Schedule 3 - runs once a week, on Saturday, at 12 AM

For the purposes of this example, though it can take as few as 30 minutes for Bridge to complete the refresh at 5 AM, during business hours, the refresh can take up to 3 hours to complete.

Like the first scenario, if the refresh for schedule 1 hasn’t completed by 8 AM, you will be sent an email. Regardless of the refresh for "schedule 1" being completed or not, you will be sent an email at around 4 PM on Tuesday if the refresh for "schedule 2" hasn’t completed. Similarly, regardless of what happened on Tuesday, if the refresh for "schedule 2" hasn’t completed by 4 PM on Thursday, you will be sent an email. Finally, if the refresh for "schedule 3" hasn’t completed by 3 AM, you will be sent an email.

- **Email alert time is based on the expected start time of the scheduled refresh:** The time you specify for the refresh email alert is the amount of time *after* the scheduled start time of the refresh. If you see email alerts too frequently or never at all, consider increasing the time to decrease email alert frequency or decrease the time to increase email alert frequency.

  The default is 24 hours.

- **Legacy schedule email alert can't be turned off:** Though email alerts can't be turned off, you can increase the time for an email alert so that the scheduled refresh completes before the email alert can be sent.
- **Refresh failure emails must be enabled:** In addition to refresh failure emails being enabled for the site (by the site admin), as the data source owner, you must also have refresh failure emails enabled for your account.

Stop receiving email alerts when a client is not running

By default, Tableau Cloud is configured to notify data source owners when scheduled refreshes can't start because the Bridge client linked to the data source is not running.

There are two primary reasons why you might be receiving this email:

- The computer where the client is running from is not on.
- An extract data source continues to be associated with a client that is no longer in use.

If any of these reasons apply to your situation, consider taking a few moments to: 1) make sure the machine where the client is installed on is on and the client itself is running and 2) if you're a site admin, delete unused clients from the site. If you're not a site admin, you can delete the data source from the client. For more information, see Scheduled refreshes appear to be running outside of schedule:.

Bridge Security

Tableau Bridge applies the following security designs:

- All communication is initiated from behind the private network firewall and therefore does not require you to manage additional exceptions.
- Data in transit, between Tableau Bridge and Tableau Cloud, is encrypted.
- Database credentials are stored on the computer using Windows credentials manager if the data source or virtual connection is set up to use Bridge legacy schedules. For refresh schedules, the credentials are passed on to the client that is selected to perform the refresh.

You can find more details about Bridge security in the sections below.

Transmission security

> **Note**: Tableau Bridge uses port 443 to make outbound internet requests to Tableau Cloud and port 80 for outbound requests for certificate validation.

Tableau Bridge initiates a secure, bidirectional communication to your Tableau Cloud environment using a WebSocket (wss://) connection. The WebSocket connection is persistent and coordinates the data upload between Bridge and Tableau Cloud. All users are authenticated and authorized before the connection is made, and all inputs are validated to be from trusted sources within Tableau Cloud.

Authentication

There are two primary authentication points for Bridge: Tableau Cloud and private network data.

If the client is unlinked or you upgrade to a new version, you don't need to re-login. In this scenario, Bridge uses the existing token that is saved locally in the Windows credentials store.

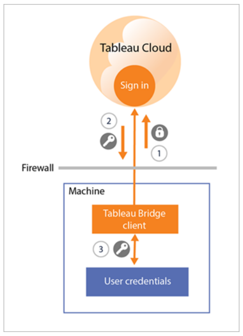
If the client is shut down, or the Exit option on the Windows task bar is used, you are required to re-login and provide credentials. This creates a new refresh token which is saved to the Windows credentials store.

You can check the tokens in the credentials manager and check the Generic credentials for *TABLEAU_CONNECTIONS_online.tableau.com*.

Tableau Cloud

To connect to Tableau Cloud, a users Tableau Cloud credentials are entered through the Bridge client.

After 1) the credentials are entered, 2) an authorization token is returned by Tableau Cloud. The 3) token is stored on the computer where the client is running using the credentials manager of the Windows operating system. Bridge uses the token to perform various tasks such as downloading the refresh schedule information for an extract.



Private network data

To access private network data, some data sources or virtual connections require authentication using database credentials. Depending on the connection type of the content, the client handles database credentials in one of the following ways:

- For **live connections and extract connections that use refresh schedules**, database credentials are sent at the time of the request and use a TLS 1.2 connection.
- For **extract connections that use Bridge legacy schedules**, if the data source requires database credentials, these credentials must be entered in the client directly. The database credentials are stored on the computer using the credentials manager of the Windows operating system. The client sends the database credentials to the database, which is also behind the private network firewall, at the scheduled refresh time.

The client supports domain-based security (Active Directory) and user name/password credentials to access private network data.

Changes to private network firewall

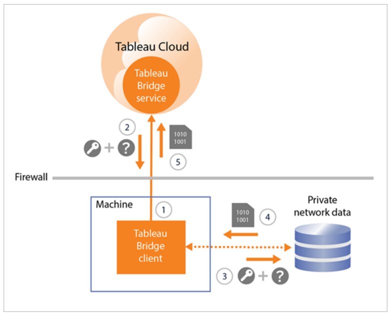
The Bridge client requires *no* changes to the private network firewall. The client achieves this by making only outbound connections to Tableau Cloud. To allow outbound connections, the client uses the following protocols depending on the connection type used by the content:

- For **live connections and extract connections that use refresh schedules**, secure WebSockets (wss://).
- For **extract connections that use Bridge legacy schedules**, HTTP Secure (https://).

Access to private network data

Connections to private network data are initiated by the Bridge client on behalf of Tableau Cloud. The process by which the connection is initiated depends on the content type and connection type.

- For **data sources with live connections or virtual connections**, the client 1) establishes a persistent connection to a Tableau Bridge service, which is the part of the client that resides on Tableau Cloud, using secure WebSockets (wss://). The client then waits for a response from Tableau Cloud before 2) initiating a live query to the private network data. The client 3) passes the query to the private network data, then 4) returns the private network data using 5) the same persistent connection.



- For **data sources with extract connections that use refresh schedules**, the client 1) establishes a persistent connection to a Tableau Bridge service, which is the part of the client that resides on Tableau Cloud, using secure WebSockets (wss://). The client then waits for a request from Tableau Cloud for new refresh schedules. When the client receives the requests, 2) the client contacts Tableau Cloud using a secure connection (https://) for the data source (.tds) files. 3/4) Then the client connects to the private network data using the embedded credentials that are included in the job request. The client 5) creates an extract of the data and then 6) republishes the extract to Tableau

Cloud using the Tableau Bridge service. Steps 2-6 can be occurring in parallel to allow multiple refresh requests to happen.

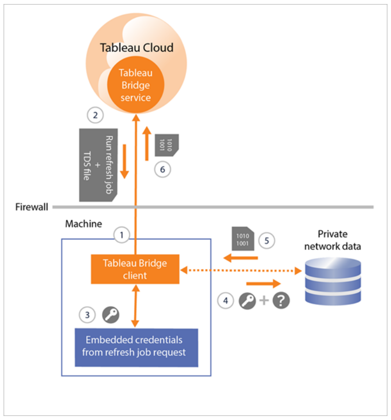


Tableau Cloud
Tableau Bridge service
2
Run refresh job + TDS file
1010 1001
6
Firewall
Machine
1
1010 1001
5
Private network data
Tableau Bridge client
4
+
3
Embedded credentials from refresh job request

- For **data sources with extract connections that use Bridge legacy schedules**, the client 1) contacts Tableau Cloud using a secure connection (https://) for new refresh schedules and data source (.tds) files. If 2) this information is available, at the scheduled time, 3/4) the client connects to the private network data using the stored credentials. The client 5) creates an extract of the data and then 6) republishes the extract to Tableau Cloud using a Tableau Bridge service. The Tableau Bridge service is a part of the client that resides on Tableau Cloud.

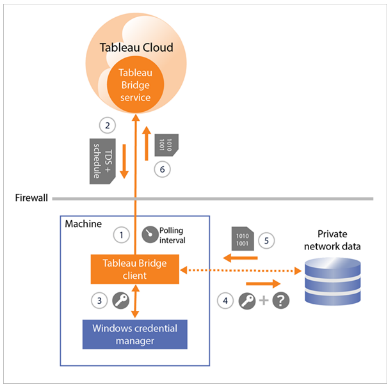


Tableau Cloud
Tableau Bridge service
2
TDS + schedule
1010 1001
6
Firewall
Machine
1
Polling interval
1010 1001
5
Private network data
Tableau Bridge client
4
+
3
Windows credential manager

Forward proxy filtering

To ensure that your data is transmitted to Tableau Cloud only, we recommend implementing domain-based filtering on outbound connections (forward proxy filtering) from the Bridge client. After the initial outbound connection, communication is bidirectional.

Tableau Bridge doesn't support pass-through or manual proxy authentication.

The following list contains the partially qualified domain names that Bridge uses for outbound connections:

- ***.online.tableau.com**
- ***.compute-1.amazonaws.com**, Amazon VPC's public DNS hostname, which takes the form ec2-<public-ipv4-address>.compute-1.amazonaws.com, for the us-east-1 region
- ***.compute.amazonaws.com**, Amazon VPC's public DNS hostname, which takes the form ec2-<public-ipv4-address>.compute.amazonaws.com, for all other regions (outside of us-east-1)
- (Optional) ***.salesforce.com**, **id.tableau.com**, and **identity.idp.tableau.com** if multi-factor authentication (MFA) with Tableau authentication (**Tableau with MFA**) is enabled for your site and your environment is using proxies that prevent clients from accessing other necessary services
- (Optional) **crash-artifacts-747369.s3.amazonaws.com**, used for receiving crash dump reports
- (Optional) **s3-us-west-2-w.amazonaws.com**, used for receiving crash dump reports
- (Optional) **s3-w-a.us-west-2.amazonaws.com**, used for receiving crash dump reports
- (Optional) **bam.nr-data.net**, used for New Relic's web analytic platforms
- (Optional) **js-agent.newrelic.com**, sends performance data to New Relic

Troubleshoot Private Network Issues

Different parts of the Tableau Bridge workflow require coordination with Tableau Desktop and Tableau Cloud. Depending on the task you're trying to complete, the underlying data that you're working with, and the data source's connection (live or extract), and on the symptoms you're seeing, some troubleshooting steps might require you to work in one or both of these respective products in addition to the client itself.

The issues and the steps to help resolve these issue might apply to data source owners or site admins.

Understanding common issues after upgrade

After upgrading to Bridge, you might notice some changes to your Bridge-specific workflows.

Can't configure 15 minute or 30 minute refreshes

Bridge refresh schedules only run as frequently as every 60 minutes. However, you can have multiple refresh schedules on the same data source. To enable a refresh to occur more frequently, set up four refresh schedules on the same data source. Then have all four schedules start at 15 minute increments and repeat hourly. This will result in refreshes that begin every 15 minutes.

Note: When using Bridge legacy schedules, the data source owner must be the same user that is signed into the client that is designated to refresh the data source. Depending on how client management is administered in your organization, your site admin might need to take ownership of your data source.

Can't find the "Refresh this extract on" or "Select where to run refreshes" button

Beginning with Bridge 2020.2, Bridge schedules are better integrated with Tableau Cloud schedules and can be accessed and set up directly in the same location as Tableau Cloud schedules. For more information about Bridge schedules, see Set Up a Private Network Refresh Schedule.

Can't find the Run Now option

The **Run Now** option in Tableau Cloud is not available on individual data source pages for data sources that use Bridge legacy schedules. In most cases, a manual refresh of a data source that uses a Bridge legacy schedule can only be performed from the client that the data source is linked to.

Can't refresh data sources that use Relationships

Bridge 2019.4 (or earlier) does not support data sources created with Relationships in Tableau 2020.2 (or later). To keep your private network data fresh, make sure you're running the latest version of the client. To get the latest client, see the Downloads page.

Some data sources are not listed or missing from the client

Data sources that use Bridge refresh schedules or whose schedules have been migrated to use Bridge refresh schedules are not visible from the client. As a site admin, you can monitor data sources with Bridge refresh schedules using the Jobs page. For more information, see About Bridge Refresh jobs.

Data sources that use live queries and Bridge legacy schedules (which includes schedules created with Bridge 2020.1 and earlier) continue to display in the client.

Locating Bridge

If you can't find the Bridge client or the option to use Bridge, try one or more of the suggestions below.

Can't find the Bridge installer

To download the client, go to the Downloads page on the Tableau website and click the download button. For more information about the Bridge installer and the installation process, see Install Bridge topic in the Tableau Cloud Help.

Can't find Bridge on my machine

After installing the client on your machine, you can do one of the following tasks to open the client:

- Double-click the Bridge shortcut (✣) on your desktop.
- From your desktop, in the Windows system tray, click the Bridge icon (✚).
- Using Windows file explorer, search **Tableau Bridge** to locate the client.
- If Tableau Desktop is installed on the same machine as the client, open Tableau Desktop and select **Server** > **Start Tableau Bridge Client**.

Note: This task opens the correct client if you're using Tableau Desktop 2018.2 and later. If you're using Tableau Desktop 2018.1 and earlier, using the **Start Tableau Bridge Client** option will cause an older version of the client to open.

Can't find the Bridge option in the publishing dialog

The reason you might not see Bridge option in the publishing dialog depends on what you are publishing to Tableau Cloud: a data source or a workbook.

If you're publishing a data source:

- The data source is file-based. Therefore, the option to use Bridge displays *after* you have successful published the data source to Tableau Cloud.

  After you successfully publish the data source, you see the Publishing Complete dialog, which allows you to schedule refreshes for your file-based data source using Bridge while on Tableau Cloud. For more information about scheduling refreshes using Bridge while on Tableau Cloud, see Set Up a Private Network Refresh Schedule.

- The data source connects to data that Tableau Cloud can reach directly.

  If Tableau Cloud can reach the data directly, you don't need to use Bridge to keep the data fresh. For a list of connectors that Tableau can use to reach the data directly, see Allow Live Connections to Data Hosted on a Cloud Platform.

- The data source connects to data that is not supported by Bridge.

  For a list of connectors that Bridge can support, see Connection types.

Resolving installation issues

Using macOS or Linux

Bridge is not supported on macOS (operating system). To use Bridge, you must use a Windows or Linux computer. For more information about other system requirements, see Connectivity with Bridge.

Local admin on the machine

The Windows user account you're logged in to must be a member of the local Administrators group. For more information about minimum installation requirements, see Before installing Bridge. For more information on system requirements, see About the Bridge Client.

Resolving sign-in issues

Working with multiple Tableau Cloud sites or Bridge is signed in to the incorrect site

Make sure you're entering the correct user name and password for the Tableau Cloud site that the client is associated with. If you suspect that an incorrect user name and password is saved for a site or that the client is singed in to the incorrect site, use the **Unlink** option in the client to remove its association with the site and to clear the password.

Identifying causes for scheduled refresh issues

There are several symptoms that can indicate that scheduled refreshes are not performing as expected. Symptoms might include, but not limited to, the following:

- As the site admin or data source owner, you see an alert on Tableau Cloud that a scheduled refresh could not complete.
- As the site admin or data source owner, you receive an email notification from Tableau indicating that a Bridge refresh could not complete.
- As a data source owner, you receive an email notification from Tableau indicating that a Bridge refresh could not start on schedule because the Bridge client is not running.
- You see an alert in the client next to the data source whose refresh could not complete.
- Outdated data in the view.

If any of the above symptoms apply to your situation, follow the procedure below. If the procedure doesn't resolve your issue, then try one or more of the tasks below the procedure to help identify the cause of the refresh issue.

1. Open the client, click the data source, and then click the **Details** button to review the error message.

2. If the error message doesn't provide enough information to resolve the refresh issue, go to the Tableau Knowledge Base and search for the refresh issue.

Important: If you see the "There was a problem and the data engine could not start properly" error message and you're running client version 2018.2-2018.3, Tableau strongly recommends upgrading to version 2019.1 or later. For more information, see Error "There was problem and the data engine could not start properly" article in the Tableau Knowledge Base.

If the Tableau Knowledge Base doesn't address your specific issue, then try one or more of the following tasks:

- **Validate authentication information in the client:** If a data source requires authentication, ensure that the correct database credentials are being reference by the client, even if the database credentials are already referenced in Tableau Cloud. For information about embedding database credentials in the client, see Embed or update database credentials.
- **Upgrade the client:** Upgrade to the latest version of the client. You can get the latest version of the client from the Downloads page on the Tableau website. For more information about installation, see Install Bridge.
  Note: Because of an issue that’s preventing Bridge 2018.2-2018.3 from performing extract refreshes, Tableau strongly recommends that you upgrade to Bridge 2019.1 or later.
- **Make sure that the client is running:** Log onto the machine where client is installed and make sure the client is running. After you verify the client is running, you can run a manual refresh of the data source or wait until the next scheduled refresh.

- **Confirm file-based data source uses UNC path:** If you're working with a file-based data source using Bridge legacy schedules, ensure that the client references the UNC path. For more information, see Change the file path for a data source.

- **Confirm whether Application mode or Service mode requirements are met:** If the client is set up to run in **Application** mode, you must be logged onto the machine where the client is running in order for scheduled refreshes to complete. If your client is set up to run in **Service** mode, you don't have to be logged on to the machine where the client is running. However, the machine must be on.

- **Confirm that all connections in the data source are supported by Bridge:**

If refreshing a multi-connection data source (that is, a data source that uses a cross-database join), make sure all connections in the data source are supported by Bridge. If one or more connections are not supported, Bridge is unable to refresh the data source until the unsupported connection is removed. For a list of supported connectors, see Connection types. To remove a connection from a data source, you must edit the data source in Tableau Desktop. For more information, see Editing a Published Data Source in the Tableau knowledge base.

- **Manually refresh the data source:** Manually refreshing the data source can help determine whether the issue is caused by the client or by a different part of the Bridge workflow, such as publishing from Desktop or the data source itself.
  - **From the client** - To determine if the issue is isolated to the specific scheduled refresh or all scheduled refreshes managed by the client, do a manual refresh of the published data source from the client.
    1. Open the client.
    2. Hover over the data source whose schedule refresh is not working, and click the Run Now icon (↻) to manually start a refresh.

    If the manual refresh is successful, you have a temporary workaround for the refresh issue. If the refresh is unsuccessful, review the error in the client to help resolve the issue.
  - **From Tableau Desktop** - To determine whether or not the issue is a client issue or an issue with the published data source, you can do a manual refresh of the data source from Tableau Desktop.
    1. Open Tableau Desktop.
    2. In the Connect pane, click **Tableau Server** and connect to the published data source that is not refreshing.
    3. From the Data menu, select the data source and then select **Tableau Data Server** > **Refresh from Source**.

  If the refresh from source is successful, you have temporary workaround for the refresh issue. If the refresh is unsuccessful with the same error that shows in the client, contact Tableau Technical Support on the Tableau website.

  - **From Tableau Desktop, create a local copy of the data source** - To determine that the issue is not with the publishing process or with Tableau Cloud in general, first create a local copy and then manually refresh the published data source.

    1. Open Tableau Desktop.
    2. In the Connect pane, click **Tableau Server** and connect to the published data source that is not refreshing.
    3. From the Data menu, select the data source and then select **Create Local Copy**.
    4. From the Data menu, select the local copy of the data source and then select **Refresh**.

    If refreshing from a local copy of the data source is successful, you have a temporary workaround for the refresh issue. The issue is likely with the publishing process.

- **Refresh the data source using the Tableau Extract Command-Line Utility:** Refreshing the data source using the Tableau Extract Command-Line Utility is another method for isolating whether the issue is specific to the client or with the data source or other part of the Bridge workflow. This method can also provide an automated or temporary way of refreshing the extract. For more information about setting up and using the Tableau Extract Command-Line utility, see Automate Extract Refresh Tasks from the Command Line.

  If the refresh is successful through the command line utility, you have a temporary workaround for the refresh issue. If the refresh is unsuccessful, contact Tableau Technical Support on the Tableau website.

- **Scheduled refreshes appear to be running outside of schedule:**

After Tableau Cloud's upgrade to 2019.2, a data source owner might receive multiple email notifications when an upcoming scheduled refresh can't start because the client is not running. Because a data source owner can receive up to five consecutive email notifications per day for up to ten data sources that they own, it might appear the scheduled refreshes are running outside of their scheduled times. As a data source owner, you might be receiving the notifications for the following reasons:

- **The machine where the client is running from is not on.** To stop notifications in this scenario, make sure the machine where the client is installed on is on and the client itself is running before the upcoming scheduled refresh is to occur. Alternatively, if the extract data source doesn't need to be refreshed regularly, consider removing the schedule and manually refreshing it from the client when needed. For more information about removing a schedule, see Stop Keeping Data Fresh Through Bridge.
- **Extract data sources continue to be associated with a client that is no longer in use.** To stop notifications in this scenario, as a site admin, you can delete the client from the site. For more information, see Stop Keeping Data Fresh Through Bridge.
  If you're not a site admin, consider the following:
    - If the extract data source doesn't need to be refreshed, you can remove the data source from the client. For more information, see Stop Keeping Data Fresh Through Bridge.
    - If the extract data source needs to be refreshed, albeit infrequently, you can change the client associated with that extract data source (and its schedule). For more information, see Change the Bridge Client Settings.

Refreshes stop responding for data sources that use JDBC-based connections

Note: Bridge provides limited support for data sources that use JDBC drivers to connect to unsupported databases. For more information, see Connectivity with Bridge.

Refreshes for extract data sources whose connections rely on JDBC-based drivers can fail with timeout errors or the refreshes themselves stop responding, or hangs, because of CPU or RAM spikes. In most cases, these refresh issues can occur when there are several concurrent refreshes of data sources that use JDBC-based connections being handled by a client on a machine that does not have sufficient hardware to support the resource-intensive JDBC-based connections. To help resolve this type of issue, review the following suggestions:

- **If you’re a site admin managing the clients in your organization**, review the log files, *jprotocolserver_<process_id>* and *stdout_jprotocolserver_<process_id>*, in the Logs folder in the My Tableau Bridge repository. Then, consider doing one of the following:
  - Reduce the number of concurrent refreshes allowed by the client. For more information, see Change the Bridge Client Settings.
  - Consider increasing CPU cores and RAM on the machine running the Bridge client to better handle the resource intensive JDBC-based connections.
- **If you’re the data source owner**, update the data sources to use a Tableau built-in connector instead. For more information, see Supported Connectors in the Tableau User Help.

Refresh issues after changing network type to Private Network

After updating the network type associated with a data source, from **Tableau Cloud** to **Private Network** or **Private Network** to **Tableau Cloud**, existing schedules associated with the data source must be recreated. For more information, see About switching network types.

Refresh issues when a published data source has multiple data connections

After publishing a file-based online data source to Tableau Cloud, the extract refresh can fail when the published data source has multiple data connections. By default, Tableau Cloud uses Bridge when a published data source has multiple data connections. You can edit the connection type of extract refreshes for Bridge refresh schedules to use Tableau Cloud instead of Bridge. For more information, see Change the connection type of a refresh to use Tableau Cloud.

Refresh issues on file-based data published from Tableau Desktop on a Mac

When using 1) Tableau Desktop on a Mac, 2) publishing a file-based data source from a Windows network file share, and then 3) configuring a Bridge refresh schedule, the refreshes will fail. If this file-based data source is business critical resource for your organization, consider configuring a Bridge legacy schedule instead. For more information, see Set up a Bridge legacy schedule.

Identifying causes for live query issues

Issues around live queries are typically due to the option not being enabled or that Bridge doesn't support the data source type.

No "Live" data sources listed in the client

A few things need to happen in order for "Live" data sources to display in the client. First, the site admin has to enable pooling for the site. Second, the site admin must also add at least one client to the pool. Finally, the data source must be published with a live connection. All three factors need to happen in order for "Live" data sources to display in the client.

The option to publish with a live connection or the "Maintain connection to a live data source" option during publishing is missing

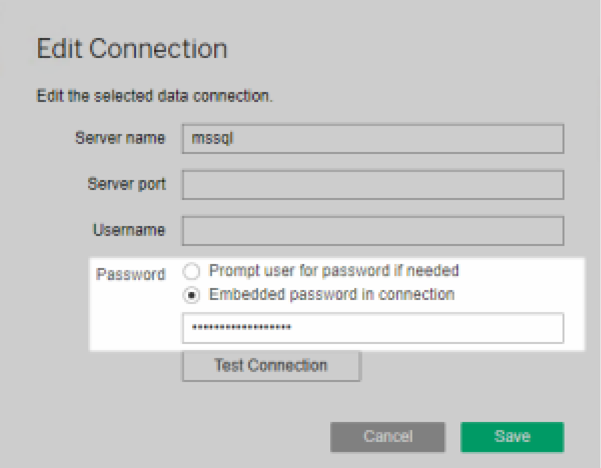
The option to use Bridge to support live queries for an private network data source must be enabled by your Tableau Cloud site admin through pooling. If the option is not available to you during publishing, consider contacting your site admin to enable the option. If you're a site admin, see Configure Pools.

You're prompted for database credentials

If the data source requires authentication by the database, the credentials must be embedded in the data source at the time of publishing. If the credentials are not embedded in the data source at the time of publishing, the credentials can be added to the published data source on Tableau Cloud.

1. Sign in to Tableau Cloud and navigate to the data source.
2. From the data source page, on the Connections tab, select the check box next to the connection.
3. From the Actions menu, click **Edit Connections**.
4. Select the **Embedded password in connection** and enter the necessary database cre-

dentials.



Edit Connection

Edit the selected data connection.

Server name: mssql

Server port:

Username:

Password: ○ Prompt user for password if needed ● Embedded password in connection

••••••••••••••••••

You're working with a file-based or statistical file-based data source

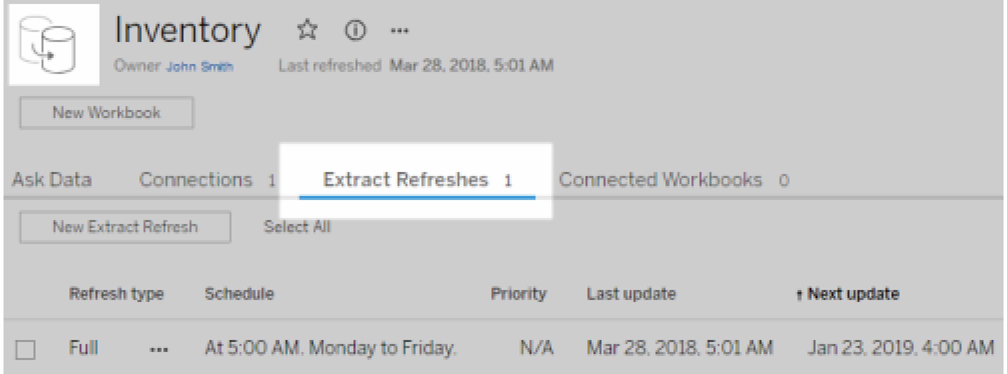
Bridge doesn't support data sources with live connections to file-based and statistical file-based data sources. To keep data fresh for these types of data sources, you can publish extracts and set up a refresh schedule for each data source instead. For a list of connectors that Bridge supports, see Connection types. For more information about setting up refresh schedule, see Set Up a Private Network Refresh Schedule.

Data source doesn't display as "Live" in the client:

If the data source doesn't show as "Live" in the client, the data source was likely published as an extract. To validate that the data source was published as an extract, follow the steps below.

1. Sign in to Tableau Cloud and navigate to the data source.
2. On the data source page, check whether the data source has an "Extract Refreshes" tab or an extract icon (). If the data source shows the tab then it was published as

an extract.



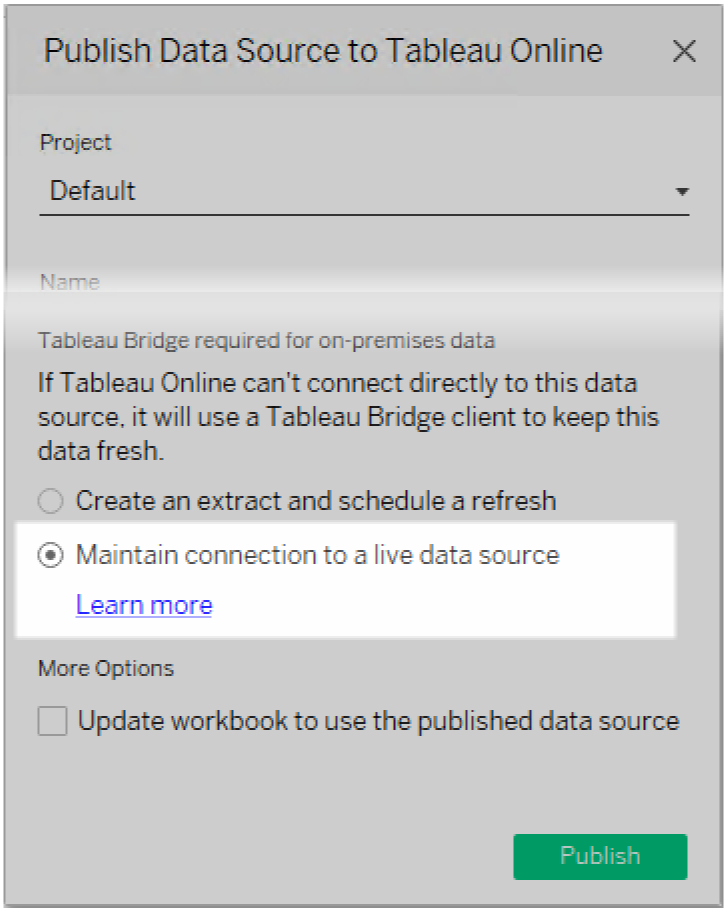
Inventory

Owner John Smith Last refreshed Mar 28, 2018, 5:01 AM

	Refresh type		Schedule	Priority	Last update	Next update
☐	Full	•••	At 5:00 AM, Monday to Friday.	N/A	Mar 28, 2018, 5:01 AM	Jan 23, 2019, 4:00 AM

New Workbook
Ask Data
Connections 1
Extract Refreshes 1
Connected Workbooks 0
New Extract Refresh
Select All

To resolve the issue, republish the data source from Tableau Desktop, ensuring that you select the **Maintain connection to a live data source** option. This option tells Bridge to maintain a live connection to your data.



Publish Data Source to Tableau Online

Project: Default

Name

Tableau Bridge required for on-premises data

If Tableau Online can't connect directly to this data source, it will use a Tableau Bridge client to keep this data fresh.

○ Create an extract and schedule a refresh

● Maintain connection to a live data source

Learn more

More Options

☐ Update workbook to use the published data source

Client is running Application mode

If you're using Bridge 2018.2 and later, after the site admin has enabled pooling, live queries are supported in both Application and Service modes. However, if the client is running Application mode, you must be logged on to keep data fresh.

If you're using Bridge 2018.1 and earlier, even if live queries are enabled by the site admin, Bridge can't support live queries in Application mode. The client must be running in Service mode to support live queries.

For more information about running the client in Application mode or Service mode, see Application versus Service mode.

Understanding other common issues

Delay before list of data sources populate in client

There is a short delay, usually several seconds, populating the list of data sources in the client. This is expected behavior. The client is contacting Tableau Cloud to get the list of data sources before it can display that information.

"No linked data found" in the client

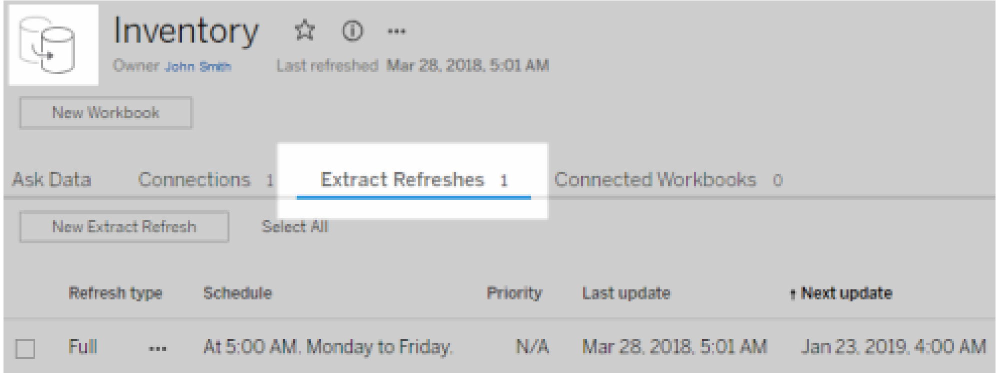
If the client shows a green indicator and "Connected" status, but also shows a "No linked data found," review the suggestions below based on the type of data source you're expecting to see.

If you're expecting to see an extract data source that uses a Bridge legacy schedule listed in the client, try the following:

- Validate that the extract refresh schedule is assigned to the correct client. For more information, see Change the Bridge Client Settings.

If you're expecting to see a data source with a live connection or an extract data source that uses Bridge refresh schedules, try one or more of the following:

- Validate that the data source was published with a live connection.
  1. Sign in to Tableau Cloud and navigate to the data source.
  2. From the data source page, check whether the data source has an "Extract Refreshes" tab or a extract icon ( ). If the data source shows the tab then it was published as an extract.



Inventory

Owner John Smith Last refreshed Mar 28, 2018, 5:01 AM

	Refresh type		Schedule	Priority	Last update	↑ Next update
☐	Full	•••	At 5:00 AM, Monday to Friday.	N/A	Mar 28, 2018, 5:01 AM	Jan 23, 2019, 4:00 AM

- Make sure at least one client is part of the pool to facilitate data sources with live connections. To do this, contact your site admin. If you're the site admin, verify that you've enabled pooling for the site and client. For more information, see Configure Pools.

Red indicator and "Disconnected" status in the client

If the client shows a red indicator and "Disconnected" status, try the following tasks, in the order listed:

1. In the client menu, click **Repair**.
2. If step 1 doesn't resolve the issue, from the Mode drop-down menu, select **Application** and wait a few seconds. Switch back to **Service** and wait a few more seconds.
3. If step 2 doesn't resolve the issue, restart the machine. Make sure that there are no scheduled refreshes that are in progress.

In some cases, the client shows a red indicator and "Disconnected" status if the client is running on a machine that is "locked down." This means that the client is restricted to connecting to a minimum set of domains. For a list of the minimum set of domains that the client needs to connect to in order to work, see Forward proxy filtering.

Missing subscription emails

Data refresh-initiated Subscriptions are not supported for views and workbooks that rely on Bridge to keep data fresh. This means you do not receive subscription emails when the following are true: 1) subscriptions are configured for **When Data Refreshes** and 2) the views or workbooks you're subscribing to rely on extract data sources that refresh using Bridge. To use subscriptions in this scenario, consider configuring your subscriptions to use **On Selected Schedule** instead. For more information, see Troubleshoot Subscriptions.

"Test Connection" button doesn't support Bridge connections

Test connection only supports data sources that connect to Tableau Cloud. As an alternative to testing your connection with this button, consider running a manual refresh to test the connection instead. For more information about running a manual refresh, see Start a Refresh Task Manually.

Understanding common errors

While using Bridge, you might see one of the following errors.

"An error occurred while communicating with Tableau Server: Tableau Bridge does not have a client configured for your site to handle live connections." or ***"Cannot connect to database"***

This is an error that you might see when connecting to a published data source whose data freshness is being facilitated through Bridge. To resolve these errors, try the following tasks in the order listed.

- Make sure the client is added to the pool. To do this, contact your site admin. If you're a site admin, verify that you've enabled pooling for the site and at least one client. For more information, see Configure Pools.
- Make sure the client shows a green indicator and "Connected status. If it shows a red or "Disconnected" status, see Red indicator and "Disconnected" status in the client.

"This data source requires a correct file path" or ***"Unable to refresh data source because of an unsupported operation"***

If you're working with a file-based or statistical file-based data source (that uses Bridge legacy schedules) you might see this error because the path referenced by the client is the mapped drive path instead of the UNC path. To resolve this issue, you must update the file location path in the client. For more information, see Change the file path for a data source.

While refreshing on Tableau Cloud, you might see the following error:

"Error: Failed to queue *n* tasks"

This error can occur if you've selected to use the **Run Now** option on multiple data sources and one or more data sources connect to file data. The Run Now option can only be used for data sources that use Bridge refresh schedules.

Virtual connections

While trying to create a virtual connection, you might see one of the following errors:

- **INVALID_ARGUMENT**:

  "*INVALID_ARGUMENT: Can't display the view because of Tableau Cloud site settings that affect the data source used by this view. Contact your site administrator to connect at least one Tableau Bridge client to the site.*"

  This error can occur when there are no Bridge 2021.4 clients in a pool to perform data freshness tasks for virtual connections that connect private network data. To resolve this error, contact your site admin to ensure that version 2021.4 clients are running and in a connected state, and the pool is mapped to the domain where the underlying data is located.

- **UNKNOWN**:

  "*UNKNOWN: There was an unknown connection error to the database. The error message below has additional information, but you might need to ask the database administrator to review the database logs.*"

This error can occur when the domain where the underlying data of the virtual connection is located does not map to a specific Bridge pool. To resolve this error, contact your site admin to ensure that the domain where the underlying data is located is mapped to a Bridge pool and at there is at least one Bridge 2021.4 client running, in a connected state, and is assigned to a pool.

Preparing and sending log files to Tableau Technical Support

If the troubleshooting steps in this article don't help isolate or solve the issue you're having with Bridge, you can contact Tableau for help. Before you contact Tableau for help, consider following the steps below to gather and send the necessary Bridge client log files that Tableau will needs to diagnose and help resolve the issue.

Prepare clean log files

1. On the machine, close the client:
   - If your client is running Application mode, from the client menu, select **Exit**.
   - If your client is running Service mode, change the client to Application mode, and then from the client menu, select **Exit**.
2. Go to and open the **My Tableau Bridge Repository** folder.

   The default location of the My Tableau Bridge Repository folder is C:\Users\jsmith\Documents\My Tableau Bridge Repository.
3. In the My Tableau Repository folder, rename the **Log** folder. For example, Logs_archive. By changing the name of this folder, the client will create a new "Logs" folder.
4. Open the Command Prompt as an admin.
5. Change to the Tableau Bridge bin folder. For example: C:\Program Files\Tableau\Tableau Bridge\bin.
6. Run the following command: `TabBridgeClient.exe -DLogLevel=Debug`

Note: The above command is case-sensitive. If the command is not typed exactly as written, the log files will not capture the issue at the level of detail that is necessary to help diagnose the issue.

After this step, the client opens automatically.

Reproduce the issue

After you prepare the client to create new log files, try to reproduce the issue you're having with Bridge. By reproducing the issue, the new log files can capture specific details about the issue. These details are essential for Tableau to have in order to isolate, diagnose, and resolve the problem.

Send log files

1. After the issue has been reproduced, right-click the Bridge icon in the Windows system tray and select **Exit** to stop Bridge. This step ensures that all errors are recorded in the log file.

2. Using Windows file explorer, go to and open the **My Tableau Bridge Repository** folder.

3. Right-click the **Logs** folder and select **Send to** > **Compressed (zipped) folder**.

4. Contact Tableau Technical Support on the Tableau website.

   Note: If the .zip file you created in step 2 is larger than 5 MB, see Sending Large Files in the Tableau Knowledge Base.

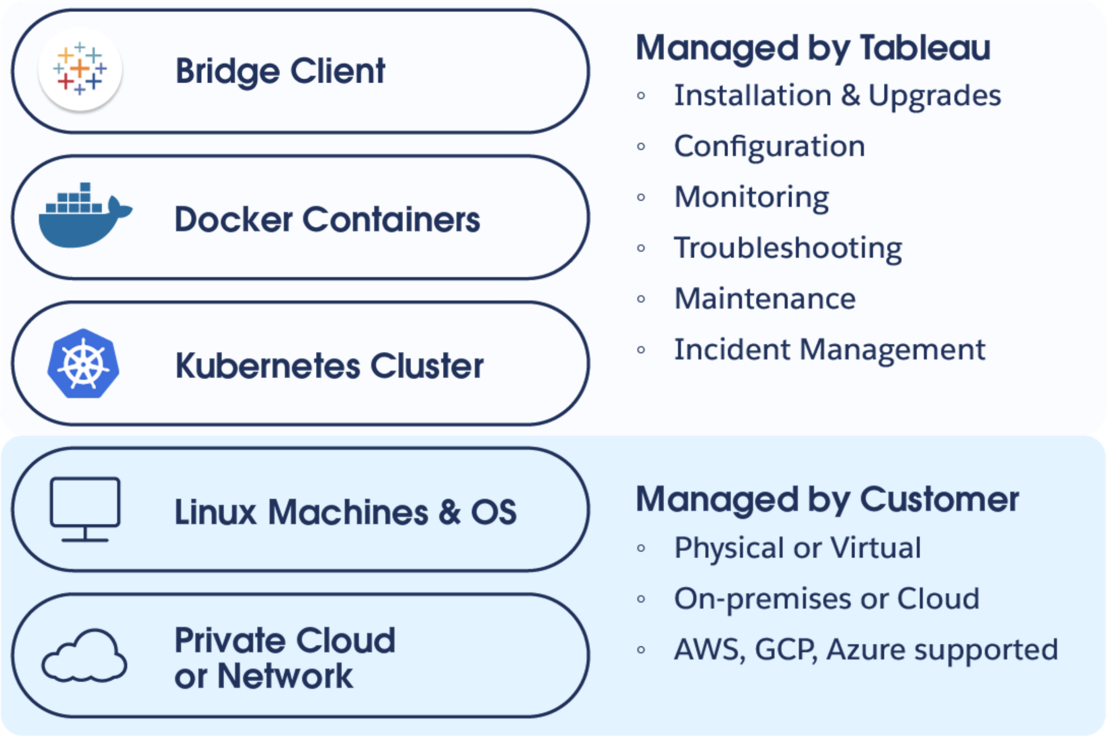
5. Locate and start Bridge. If the client was previously running in Service mode, ensure that **Service** is selected in the client.

Data Connect for Private Network Data

Data Connect is a paid subscription service available to Tableau Cloud Enterprise and Tableau+ customers. After you have purchased Data Connect, the site admin will be able to configure the service in the settings page of Tableau Cloud.

Tableau Bridge provides a way to access private network data that is behind a corporate firewall, or locked down inside a virtual private cloud. After a connection is established to Tableau Cloud, Bridge queries your local data as requests arrive and sends the private results back to Tableau Cloud.

Similar to Tableau Bridge, Data Connect provides access to private network data, but provides a remotely managed, monitored, and streamlined solution for connecting to your on-premise data.


Bridge Client
Docker Containers
Kubernetes Cluster
Linux Machines & OS
Private Cloud or Network
Managed by Tableau
Installation & Upgrades
Configuration
Monitoring
Troubleshooting
Maintenance
Incident Management
Managed by Customer
Physical or Virtual
On-premises or Cloud
AWS, GCP, Azure supported

Data Connect operates as a shared responsibility model. With this model, you supply the compute resources, which consist of a Data Connect Kubernetes cluster that is hosted in your environment and Tableau is responsible for managing the cluster. Tableau reduces the overhead of administration by remotely managing, monitoring, and maintaining the Kubernetes cluster. With the ability to perform remedial actions to enable continuous availability, Tableau eliminates the need to monitor traffic and connection status. In addition, to reduce latency and lower network congestion, Data Connect allows you to determine the data center, and edge locations and environments that best meet your requirements for performance.

About Data Connect

Data Connect allows Tableau Cloud users to access data sources on your private network or cloud service. Data Connect operates as a shared responsibility model. With this model, customers supply the physical or virtual compute resources, and Tableau hosts and manages the Data Connect Kubernetes cluster on those resources.

In your environment, the Data Connect Kubernetes cluster oversees a set of containers. The containers support the runtime environment that consists of one or more Bridge clients. The Bridge client is the program that runs tasks and enables secure communication across the firewall between your organization.

Data Connect services include:

- Cluster monitoring and troubleshooting: Tableau monitors the health and usage of the Bridge client. Telemetry data are collected to ensure resources are used in the most effective and efficient manner.
- Cluster maintenance: Upgrades are automatically deployed and the cluster operation and maintenance is owned and fully performed by Tableau. Data Connect automatically optimizes the deployment for your workload based on needs and available compute pool.
- Alert monitoring: Incident management is provided continuously to quickly resolve issues to limit business impact.

Connector support

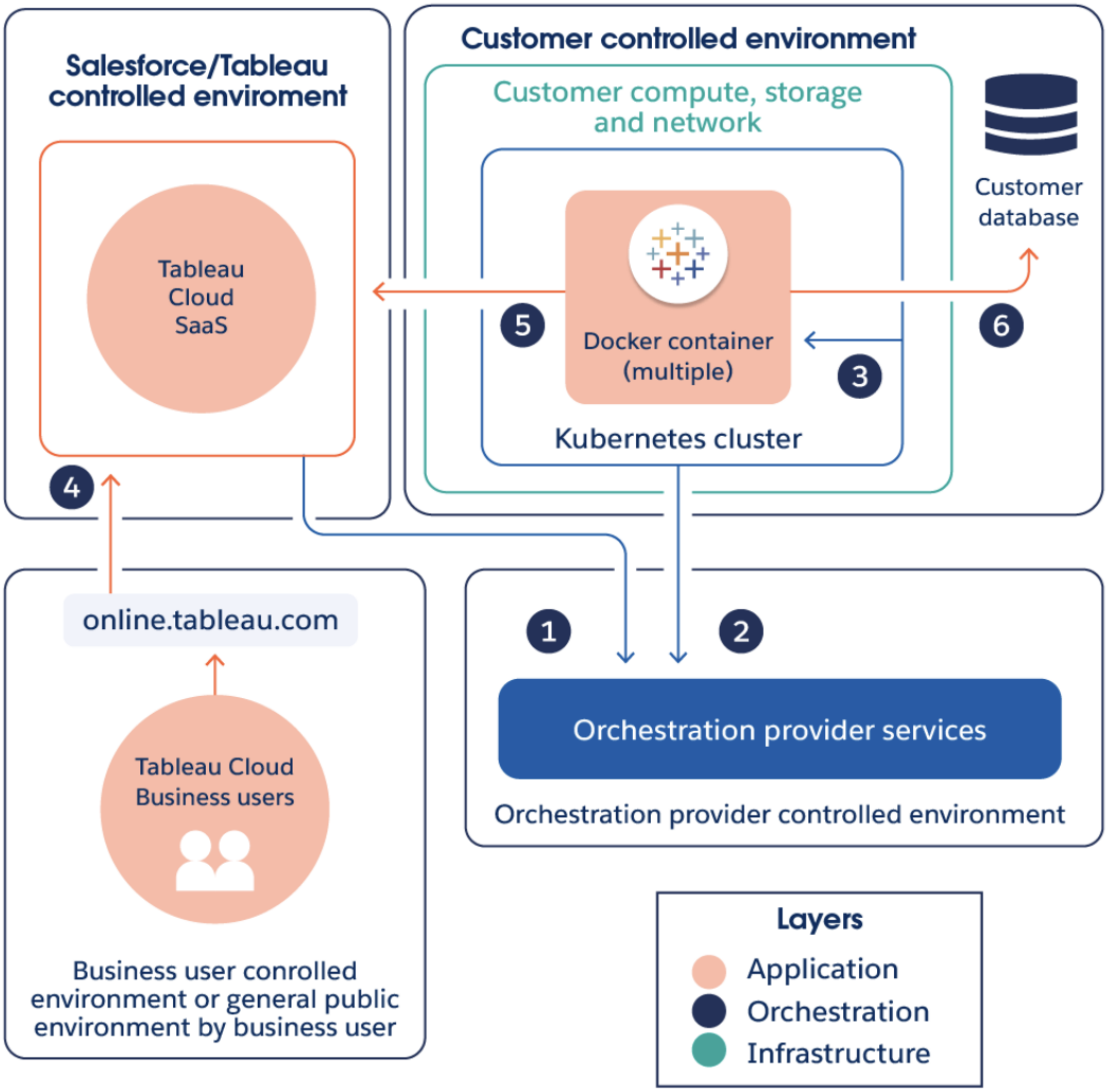
Data Connect supports the same Connectors that Tableau Bridge for Linux supports. For a full review of connectivity options please refer to Connectivity with Bridge.

Environment support

Data Connect currently supports on-premise and VCP environments: Amazon Web Services (AWS), Microsoft Azure, and Google Cloud Platform (GCP). Data Connect nodes are compatible with a single Tableau Cloud Site. Nodes must be installed in the same network as the data. Therefore customers should plan for at least three nodes per private network to maintain availability of the service. Data Connect nodes must be dedicated to Data Connect. You cannot deploy any other containers to the Tableau-owned cluster. And you cannot use an existing cluster for Data Connect.

Architecture

The Data Connect architecture consists of three main components and responsibility boundaries. While there's some overlap, Tableau is primarily responsible for the application and orchestration layers and customers are responsible for the infrastructure (compute, OS, networking, and storage) and where it’s located.


Salesforce/Tableau controlled enviroment
Tableau Cloud SaaS
Customer controlled environment
Customer compute, storage and network
Docker container (multiple)
Kubernetes cluster
Customer database
online.tableau.com
Tableau Cloud Business users
Business user conrolled environment or general public environment by business user
Orchestration provider services
Orchestration provider controlled environment
1
2
3
4
5
6
Layers
Application
Orchestration
Infrastructure

1. Tableau Cloud communicates with the Kubernetes orchestration service to deploy, monitor and manage the Kubernetes orchestration.

2. When you initialize Data Connect, a secure connection is established with the orchestration provider service over port 443.

3. After the service is configured, a Kubernetes cluster deploys a container(s) with Bridge client(s). These Bridge clients will be responsible for executing Tableau workloads.

4. Tableau Cloud users sign in to Tableau Cloud to interact with the Data Connect service.

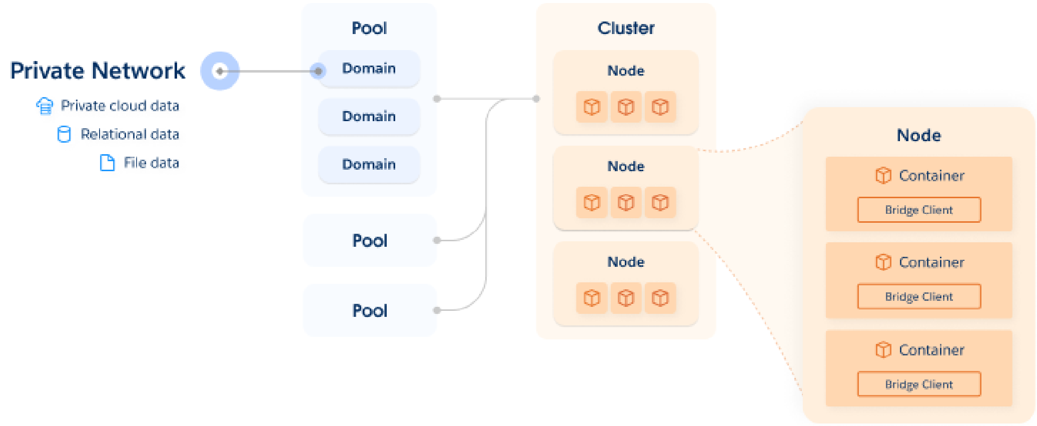
5. On setup, Bridge clients initialize a connection with Tableau Cloud using HTTPS. After successful connection, Bridge clients initiate a secure, bidirectional communication to your Tableau Cloud environment using a WebSocket (wss://) connection.

6. Queries initiated from Tableau Cloud are run against your database to support end user analysis.

Security

See Data Connect Security.

Data Connect components

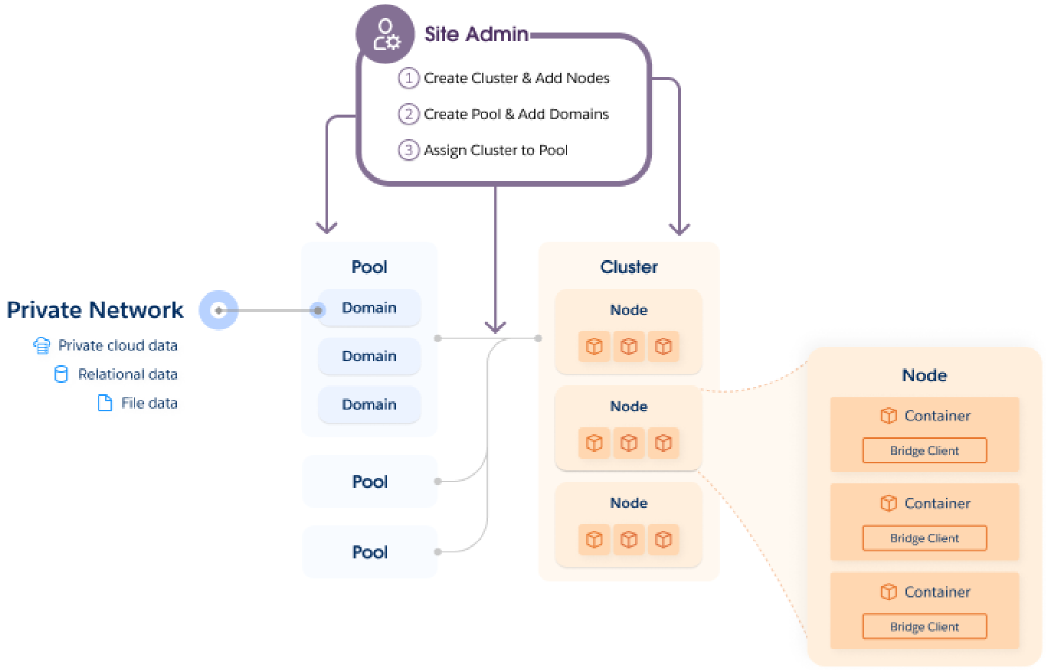

Private Network
Private cloud data
Relational data
File data
Pool
Domain
Domain
Domain
Pool
Pool
Cluster
Node
Node
Node
Node
Container
Bridge Client
Container
Bridge Client
Container
Bridge Client

The primary component of the Data Connect solution is a cluster. The cluster is a Kubernetes cluster that is made up of one or more nodes. Each Kubernetes node hosts at least one container, which in turn, hosts the Bridge client. The Bridge client performs live and extract queries.

A pool is a logical grouping of networking rules that specify which clusters should complete specific queries. In the context of deployment planning, a pool hosts a collection of endpoints (domains or IP addresses) for the purposes of load balancing. Domains include private cloud data, relational data, file data, etc.

To allow a cluster to access and refresh data sources, each pool is assigned to a cluster. To distribute load, you can add multiple pools to a cluster.

Deployment overview


Site Admin
1 Create Cluster & Add Nodes
2 Create Pool & Add Domains
3 Assign Cluster to Pool
Private Network
Private cloud data
Relational data
File data
Pool
Domain
Domain
Domain
Pool
Pool
Cluster
Node
Node
Node
Node
Container
Bridge Client
Container
Bridge Client
Container
Bridge Client

To get started, run a script on each of your Linux servers. This script configures a Tableau-managed Kubernetes cluster in your environment. The Kubernetes cluster is managed by Tableau.

After Kubernetes is configured, you deploy a Docker container to the cluster. Tableau will then deploy and remotely manage the Bridge client within the container. After this configuration with Tableau is established, you will then map connections to your private network data sources.

For more information about deploying Data Connect, download the whitepaper, Accessing Your Private Network Data with Tableau Cloud - Best Practices for Data Connect and Tableau Bridge.

Database connectivity

Queries are managed from the Bridge client in the cluster. Your data is transmitted directly from the Bridge client to Tableau Cloud. Data Connect doesn’t require external network access, firewall holes, or remote machine access.

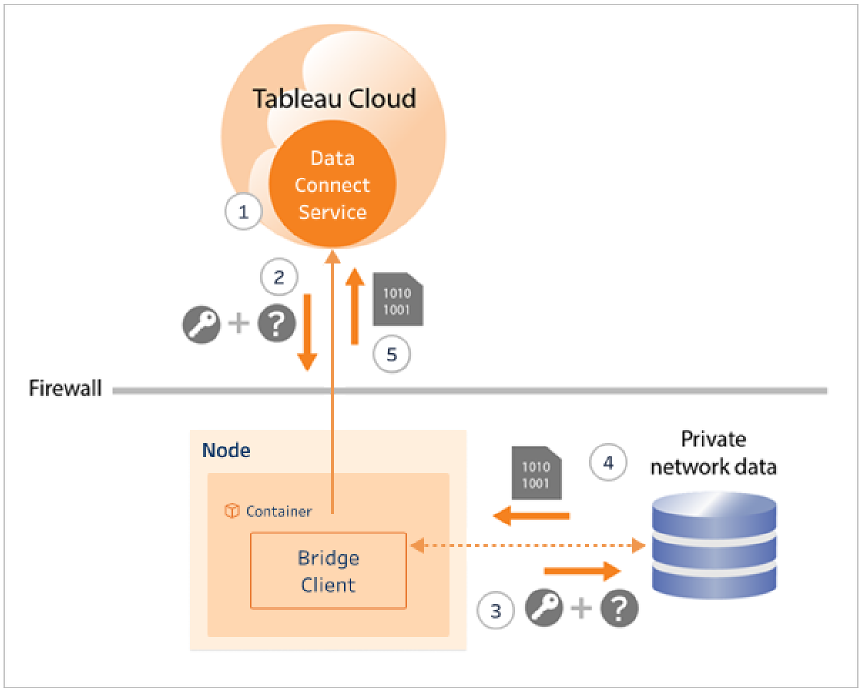


Tableau Cloud
Data Connect Service
1
2
1010 1001
5
Firewall
Node
Container
Bridge Client
1010 1001
4
Private network data
3

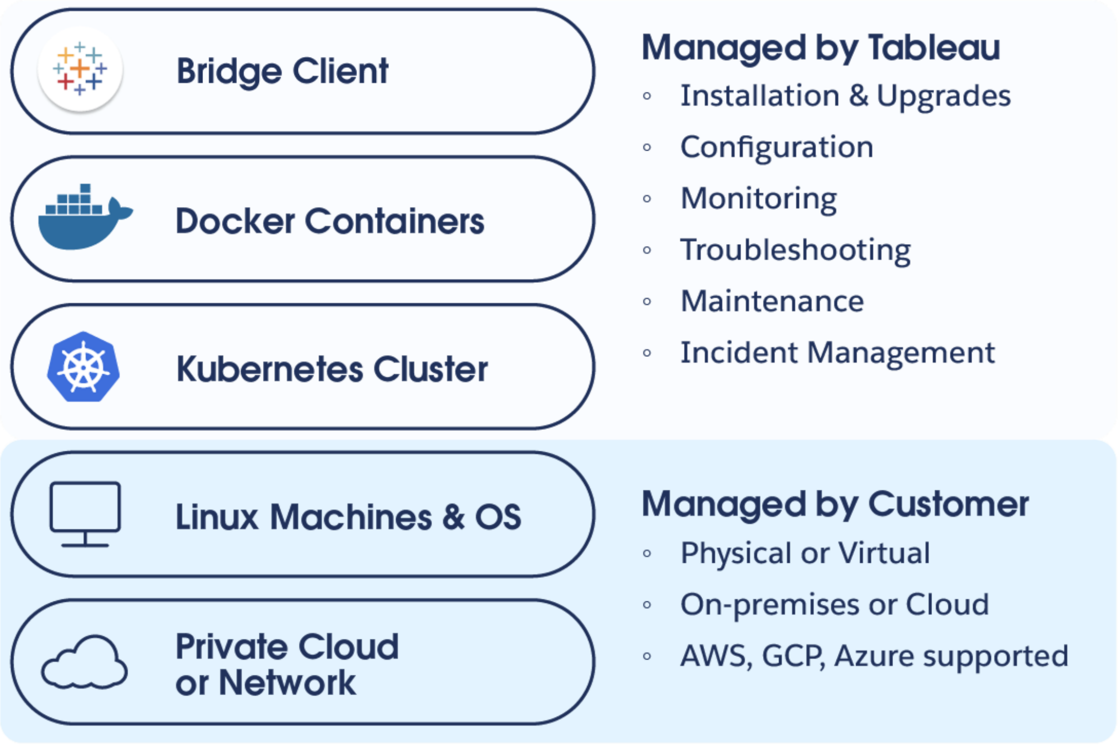
1. The Bridge client establishes a persistent connection to the Tableau Cloud Data Connect service using secure WebSockets (wss://). The client then waits for a request from Tableau Cloud.
2. - For data sources with live connections or virtual connections, Tableau Cloud initiates a query to the Bridge client.
   - For data sources with extract connection that use refresh schedules, the client receives the refresh schedule request and contacts Tableau Cloud using a secure connection (https://) for the data source (.tds) files.
3. The Bridge client connects to the private network data using the credentials included in the job request.

4. The database returns the results of the query.

5. The Bridge client receives the payload and returns it to the Data Connect service.

Data Connect Security

Data Connect operates as a shared responsibility model. With this model, you supply the physical or virtual compute resources, and Tableau hosts and manages the Data Connect Kubernetes cluster on those resources. Tableau reduces the overhead of administration by remotely managing, monitoring, and maintaining the Kubernetes cluster. With the ability to perform remedial actions to enable continuous availability, Tableau eliminates the need to monitor traffic and connection status. In addition, to reduce latency and lower network congestion, Data Connect allows you to determine the data center, edge locations and environments that best meet your requirements for performance. In this model, Tableau is responsible for operating the Data Connect service securely and you are responsible for managing the infrastructure and networking layers.


Bridge Client
Docker Containers
Kubernetes Cluster
Linux Machines & OS
Private Cloud or Network
Managed by Tableau
Installation & Upgrades
Configuration
Monitoring
Troubleshooting
Maintenance
Incident Management
Managed by Customer
Physical or Virtual
On-premises or Cloud
AWS, GCP, Azure supported

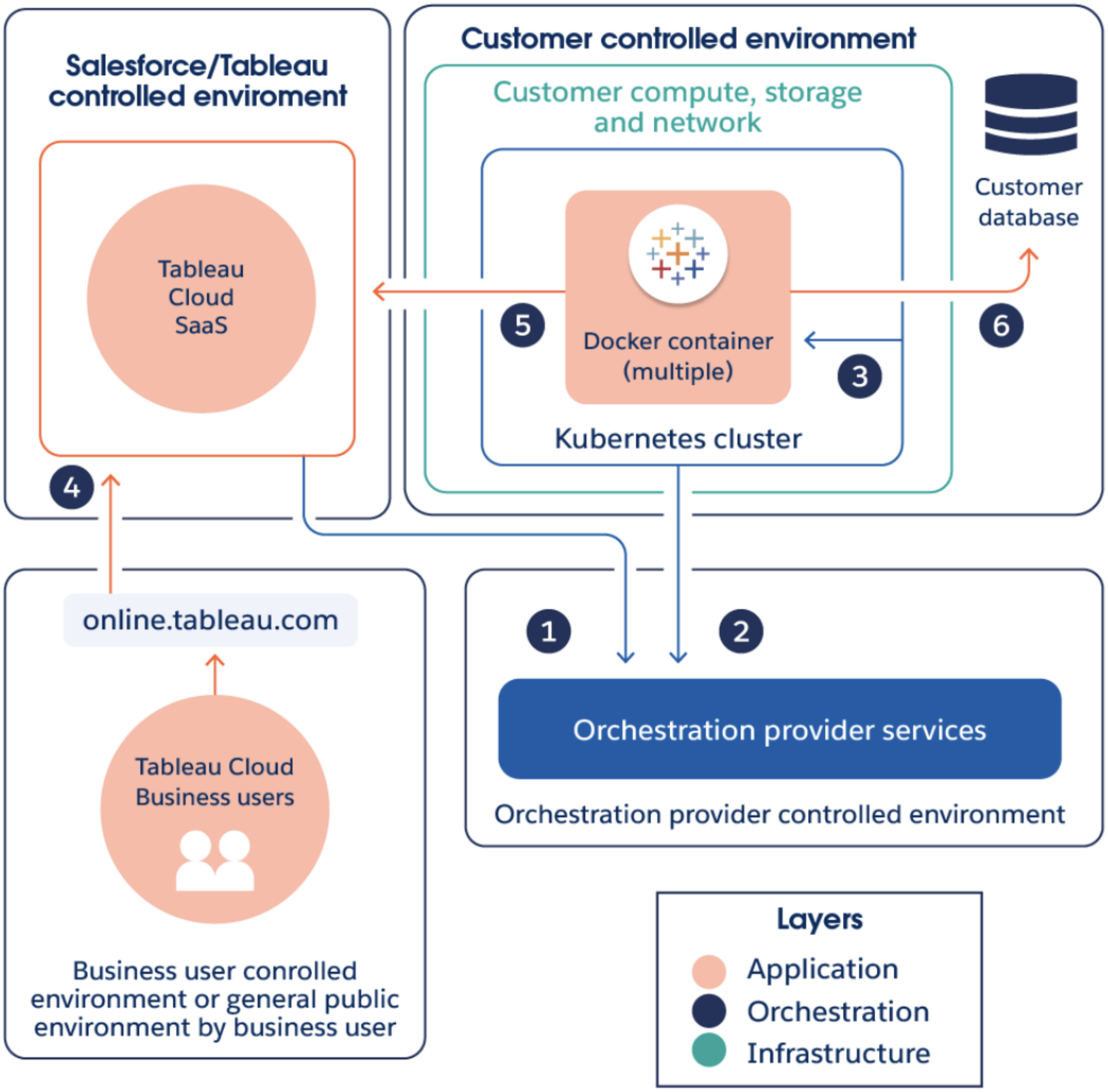
Security designs

Data Connect applies the following security designs:

- The Data Connect service is a control plane service and does not have access to your data. The underlying component for Data Connect service is Tableau Bridge.
- To facilitate secure data transfer, Data Connect uses Tableau Bridge which leverages secure web sockets to establish persistent connections with Tableau Cloud.
- The Data Connect service does not interact with database credentials or database access. Database credentials are securely stored on Tableau Cloud and are passed on to the Tableau Bridge client that is selected to perform the refresh.
- All communication is initiated from behind your firewall and therefore does not require any additional explicit inbound firewall rules to manage exceptions.

Among other operations, the Bridge client is responsible for accessing your data and establishing secure web socket connections with Tableau Cloud. See Bridge Security.

Architecture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6. Queries initiated from Tableau Cloud are run against your database to support end user analysis.

Security Layers

There are three layers to the Data Connect solution. The *application* that is installed in your infrastructure, the *orchestration* layer that is used to deploy and manage application(s) and the supporting network and hardware *infrastructure*.

- Application layer: Database authentication, sending data to Tableau Cloud, and networking considerations, see Bridge Security.

- Orchestration layer: See the section, Container orchestration, below.

- Infrastructure layer: In the Data Connect shared responsibility model, the security of the infrastructure itself will be your responsibility. Security details about how the Data Connect orchestration layer interacts with your infrastructure are covered in the sections below.

Service configuration

During the configuration of Data Connect, you will be responsible for configuring and initiating the service from within your network. This process provides the correct level of access and specifies which Data Access nodes to integrate with your Tableau Cloud site. For details describing service configuration for Data Connect, see Step 1: Set up your cluster.

On initialization of the Data Connect solution, the following takes place:

- Data Connect node health is validated.
- A secure connection is established with the orchestration provider service over port 443.
- Kubernetes operations software is downloaded and installed onto the computer. This software allows Tableau to remotely deploy and manage Data Connect.
- Data Connect node information is queried over the secure connection to maintain the health of the service.

Your data is never transferred over the orchestration connection.

Tableau Cloud communication

All communication from your infrastructure to Tableau Cloud is initiated from behind your firewall. You do not have to manage additional exceptions.

For more information about Data Connect communication and your infrastructure configurations, see Networking specifications.

Tableau Cloud authentication

Data Connect creates authentication tokens that are used to secure Tableau Bridge's connection to Tableau Cloud. These tokens are site-specific and are used by the pool of Bridge clients that they are associated with. The tokens are stored in Kubernetes Secrets on the cluster, which is managed by Data Connect. The Bridge clients that are deployed on that cluster access these tokens to log in to Tableau Cloud, but the tokens are not stored on the clients.

To keep the Data Connect service running smoothly, Site Administrators for all sites using Data Connect need to refresh the token for their Pool every 90 days in Tableau Cloud. If the tokens aren't refreshed, Bridge clients in that pool will not be able to authenticate to the Tableau Cloud site and the jobs using that pool will fail.

Database authentication

You can find more details about Authentication in Bridge Security.

In the context of database authentication, it's important to understand that Data Connect only supports Bridge refresh schedules and does not support Bridge legacy schedules.

Container orchestration

The orchestration layer is exclusively a control layer and does not have access to the data layer and therefore does not interact with customer data. The only aspect of Data Connect that interacts with the data layer is the application installed on your infrastructure. This application is the Bridge client.

Security FAQ

What code is provisioned onto containers?

In addition to software required for Kubernetes operations (kops), Tableau Bridge for Linux for Containers is deployed. You must provision database drivers when you create the base image.

How can I manage detected vulnerabilities on the software deployed by Data Connect?

You supply all of the software deployed by Data Connect through the base image. To change the software deployed, you supply a new base image. The image will then be deployed to all Data Connect nodes in that pool.

What level of computer access does Data Connect require?

Data Connect requires administrative level access to your infrastructure. This access allows Tableau to update and maintain the service.

Plan Your Data Connect Deployment

Data Connect is a paid subscription service available to Tableau Cloud Enterprise and Tableau+ customers. After you have purchased Data Connect, the site admin will be able to configure the service in the settings page of Tableau Cloud.

Infrastructure specifications

- **Compute**: A location for hosting Data Connect. This can be a bare-metal or VM, and can be located in a private network or in the cloud.
- **Operating System (OS)**: An up-to-date and patched installation of a supported Linux distribution.
- **Storage**: Allocated storage space to host the OS, Data Connect, and the extracts it creates when performing refreshes.
- **Network**: The compute must be able to connect to your data source and two locations on the public internet.

Node specifications

Number of nodes	Production workload minimum: three nodes per network Development/test workload minimum: one node per network
vCPU	Minimum: 8 vCPU Recommended: 16 vCPU or more
Memory	Minimum: 16 GB Recommended: 64 GB or more
Root volume	Minimum: 100 GB Recommended: 200 GB
Variable volume	Minimum: 100 GB Recommended: 200 GB
Storage (two disk) **Important**:	Root disk Minimum: 200 GB disk space Recommended: Greater than 300 GB Secondary disk

The secondary disk must be raw and unformatted.	Minimum: 200 GB Recommended: Greater than 500 GB
Permission	Root access to host

Linux Operating System

Supported distributions	RHEL-8 RHEL-9 Ubuntu-20.04 Ubuntu-22.04

Networking specifications

For more information about Data Connect component relationships, see Architecture.

Proxy filtering	See Optional forward proxy filtering.
Bi-directional communication with Tableau Cloud on port 443 (Application layer)	IP address range is unique for each Tableau Cloud pod. To determine your IP address range, see Authorize Access to Cloud Data Published to Tableau Cloud.
Outbound requests for certification validation on port 80 (Application layer)	
Outbound TLS client authentication on port 443 with mutual TLS authentication (Orchestration layer)	52.42.211.235 52.10.6.79 35.167.70.143
Outbound listing of Fully Qualified Domain Names (FQDN) (Orchestration layer)	tunnel.rafay-edge.net api.rafay.dev control.rafay.dev fluentd-aggr.rafay-edge.net influxdb01.core.rafay-edge.net debug.core.rafay-edge.net

	edge.core.rafay-edge.net registry.rafay-edge.net app.rafay.dev console.rafay.dev *.connector.kubeapi-proxy.rafay.dev *.user.kubeapi-proxy.rafay.dev event.core.rafay-edge.net repo.rafay-edge.net *.connector.cdrelay.rafay.dev *.user.cdrelay.rafay.dev *.connector.infrarelay.rafay.dev *.user.infrarelay.rafay.dev
Internal network	The cluster nodes will need the same network access to the data source as is required by Tableau Desktop.
Inbound network rules To enable communication between the nodes within your environment, configure network rules on the nodes for these ports.	Port ranges: • 53, TCP • 6443, TCP • 2379-2380, TCP • 10250, 10255, TCP • 10259, 10251, TCP • 10257, 10252, TCP • 30000-32767, TCP • 8285, 8472, UDP • 8500, TCP • 8600, UDP • 8301, TCP/UDP • 9099, TCP • 5656, TCP • 4789, UDP
Tableau Cloud permissions	Site Admin role and the credentials to access the data source.

Data source	An authentication method for the data source that is currently supported by Data Connect and that is network accessible from the cluster.

Database access

Data Connect uses Tableau connectors to connect to different databases to maintain data freshness. Some of those connectors require drivers to communicate with the databases. To get drivers for connectors that the Data Connect supports, go to Tableau Driver Download and filter to Linux. Data Connect only supports Linux drivers. Make sure to use the instructions listed for each database.

Database authentication

The underlying data that a data source, Prep Conductor flow, or virtual connection connects to often requires authentication. If authentication is required, the publisher or owner can configure how the database credentials are obtained.

Data sources

The authentication configuration options for data sources are *Prompt user* or *Embedded password.*

- If the data source is set to prompt users, database credentials are not stored with the connection. This means, a user who opens the data source (or workbook that uses the data source) must enter their own database credentials to access the data.
- If a data source is set up with the password embedded, database credentials are saved with the connection and used by anyone who accesses the data source (or refreshes the data source).

For more information, see Set Credentials for Accessing Your Published Data.

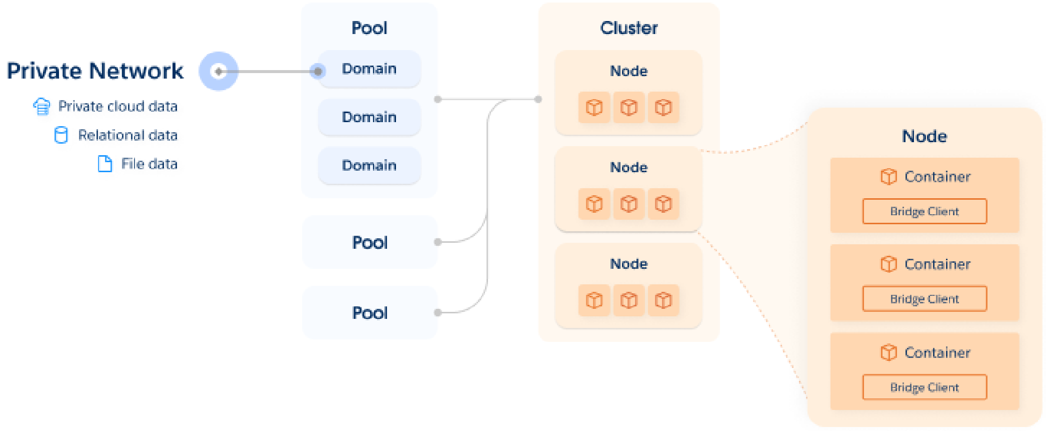
Tableau Prep Conductor and virtual connections

Database credentials are stored in a Prep flow or a virtual connection. For Prep flows, the credentials are used when a Prep Conductor flow runs. For virtual connections, these credentials are used by anyone who accesses the virtual connection.

For more information on data source credential management, please refer to Data Connect Security.

Capacity planning

There are several tools available to administrators to manage capacity of their workloads on Data Connect.


Private Network
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Relational data
File data
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Domain
Domain
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Pool
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Node
Node
Node
Node
Container
Bridge Client
Container
Bridge Client
Container
Bridge Client

Cluster management

Data Connect clusters are a cluster of nodes that access data within a specified private network. Those nodes can access any databases within their network that they have been configured to access. All Bridge clients on all nodes of that cluster can handle workloads for any sites that have access to the cluster. To increase capacity of a cluster you can add nodes to the cluster to increase throughput or increase the size of the computer (CPU, memory, etc).

Load balancing with pools

Each cluster uses a pool to load balance traffic across all Bridge clients in the cluster. Having multiple nodes within each cluster ensures that you have multiple Bridge clients available to handle traffic associated with the pool. For every domain added to a pool, all traffic to that domain is load balanced across the cluster. Domains cannot be added to more than one pool on a site. This design ensures traffic is routed appropriately.

Site limits

There are site limits enforced on jobs delivered by Data Connect to ensure a good experience for all customers on Tableau Cloud. The limits that are enforced are the same as those enforced for Tableau Bridge because Data Connect is deploying Tableau Bridge on your behalf to service database queries. For more information on those limits, seeBridge Site Capacity.

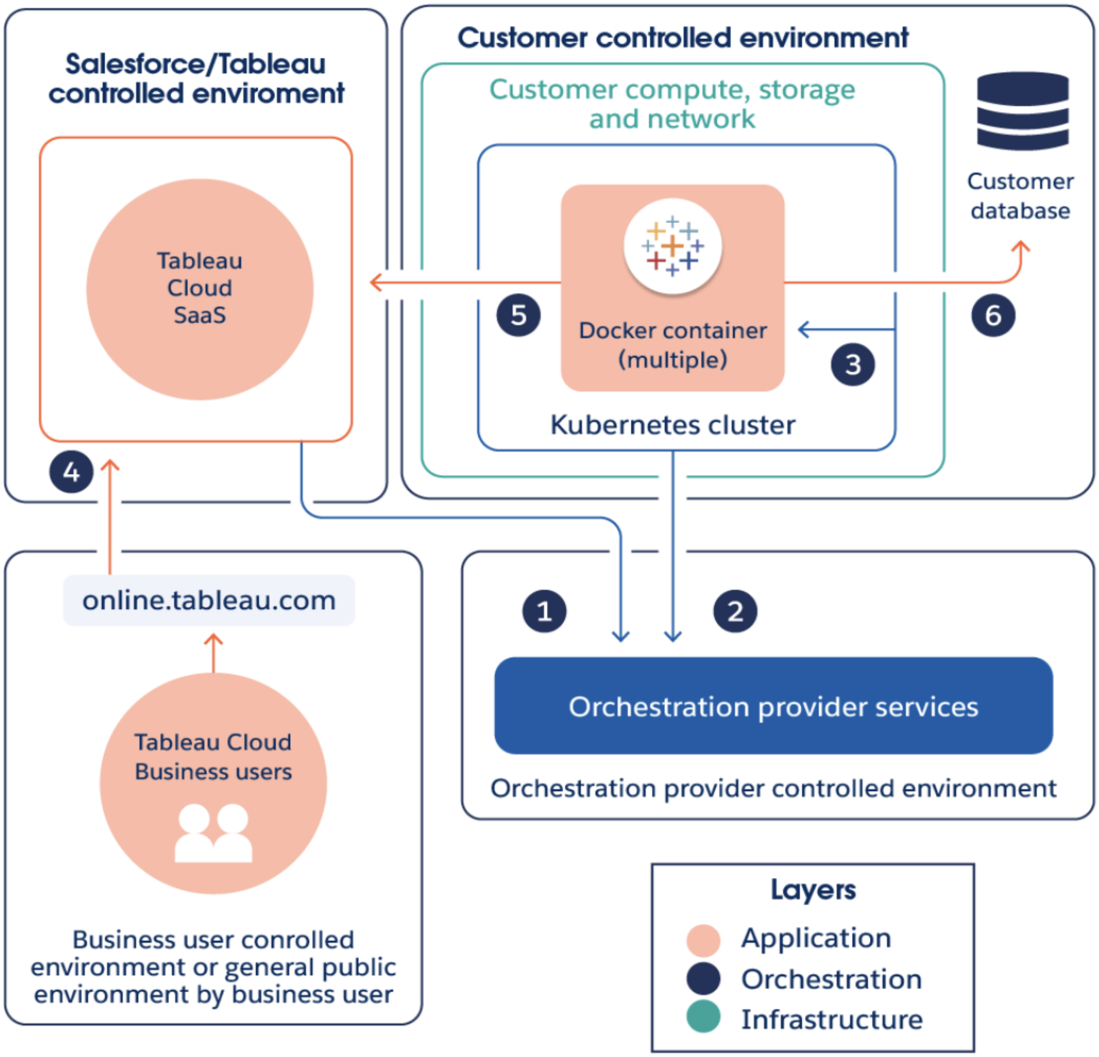
For more information about capacity planning, download the whitepaper, Accessing Your Private Network Data with Tableau Cloud.

Deploy Data Connect

Before you deploy Data Connect in your organization verify that you have met the prerequisites:

- The person or team responsible for deploying Data Connect should have experience with the Linux operating system, shell scripting, Docker, and Kubernetes.
- Minimum hardware requirements as specified in Plan Your Data Connect Deployment.
- Networking specification and database access as specified in Plan Your Data Connect Deployment.

Step 1: Set up your cluster


Salesforce/Tableau controlled environment
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Business user conrolled environment or general public environment by business user
Orchestration provider services
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Layers
Application
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Verify the following connectivity and access:

- Data Connect infrastructure, cluster, and container require networking access to the orchestration provider services (#2 in the image above) and to Tableau Cloud (out-bound only, #5).
- Data Connect infrastructure, cluster, container, and Agent require networking access to your database (#6).

See Networking specifications.

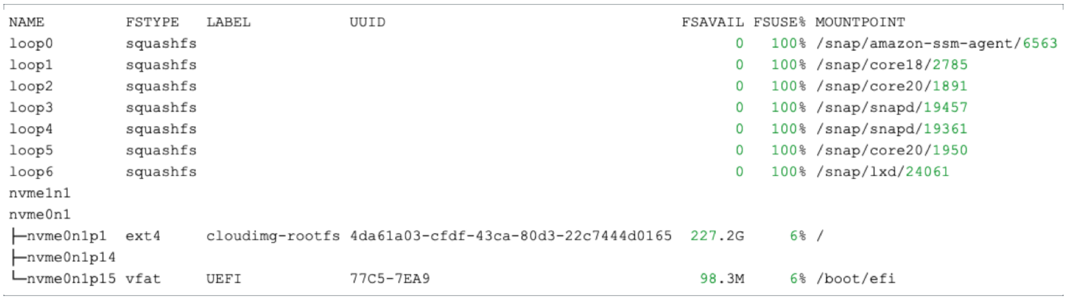
Deploy and configure

Run the following procedure on each computer in your organization where you want to run the Kubernetes cluster.

1. Verify that your secondary volume is unformatted. On the Linux node, run the following command:

   `lsblk -f`

   The following image shows an example where the extra volume `nvme1n1` on a cluster node is unformatted and the `FSTYPE` is empty:

```
NAME         FSTYPE   LABEL           UUID                                 FSAVAIL FSUSE% MOUNTPOINT
loop0        squashfs                                                            0   100% /snap/amazon-ssm-agent/6563
loop1        squashfs                                                            0   100% /snap/core18/2785
loop2        squashfs                                                            0   100% /snap/core20/1891
loop3        squashfs                                                            0   100% /snap/snapd/19457
loop4        squashfs                                                            0   100% /snap/snapd/19361
loop5        squashfs                                                            0   100% /snap/core20/1950
loop6        squashfs                                                            0   100% /snap/lxd/24061
nvme1n1
nvme0n1
├─nvme0n1p1  ext4     cloudimg-rootfs 4da61a03-cfdf-43ca-80d3-22c7444d0165  227.2G     6% /
├─nvme0n1p14
└─nvme0n1p15 vfat     UEFI            77C5-7EA9                              98.3M     6% /boot/efi
```

2. On the Data Connect tab, under Pools, click **New Pool**. In the New Pool window, enter a pool name and then click **Create**.

3. On the Data Connect tab, under Cluster and Nodes, click New **Cluster**. In the New Cluster window, enter a cluster name and then click **Create**.

4. On the cluster you just created, click the **Actions** column and then click **New Node**. In the Add New Node window, click **Download File**.

   A *cluster.tar* file is downloaded to your Downloads folder. This file contains the bootstrapping scripts that you will run on the node.

5. Copy the cluster.tar file onto your computer. The following example shows how to copy the tar file, extract the files, change the script to an executable file, and then run the

script. The example shows this in the context of AWS. Change the file paths for your environment.

Run the following commands as root or sudo user, replacing `<key-name>` and `<IP-address`> with your values:

```
> scp -i <key-name>.pem /Downloads/cluster.tar ec2-user@ip-<IP-address>.us-west-2compute.internal:~/
```

```
> ssh -i <key-name>.pem ex2-user@ip-<IP-address>.us-west-2compute.internal
```

```
> tar -xvf cluster.tar
```

```
> chmod +x onboard_node.sh preflight_check.sh
```

```
> ./onboard_node.sh
```

Note: bzip2 is not installed with Ubuntu by default. To install it, run `apt install bzip2 -y`.

After the script is successfully run, you will see `Successfully performed all operations` in the terminal window and the Tableau team will begin the provisioning process.

If you encounter an error, verify that your deployment meets the minimum hardware requirements and networking specifications described in Plan Your Data Connect Deployment.

6. On the Data Connect tab for your site, find in the pool you created in step 2. Under the Actions column, click **Assign Cluster** and then select the cluster you created in step 3.
7. Click the chevron (`v`) on the cluster to see the host name and available actions. If this information isn't displayed, you may need to reload the page. After confirming the

hostname is the target node, click **Accept Node** and then click **Confirm**.

The cluster node will transition to Provisioning status. Provisioning the node may take an hour or more.

8. When the status on your node changes to Available, navigate to the pool to which you assigned the cluster and click the actions button (**...**), and then click **Refresh Tokens**. Verify that you are refreshing tokens for the correct pool, and then click **Confirm**.

9. Wait for the token refresh to complete. When complete, the pool status is set to Available. Navigate back to the cluster and click the chevron (`v`) to collapse the cluster name section. Click the actions button for the cluster (**...**) and then click **Get Container Registry Information**.

    - If you receive an error when attempting this step, the registry is not yet deployed and the provisioning process may still be finalizing. Wait a few minutes and try again.
    - When the registry information (server name, user name, and password) is displayed, copy it for the next step.

Step 2: Build your base image and publish

In this step, you will build your base image with the drivers you need, then publish the image to your Docker container registry. Before you begin:

- Verify that you have your Docker container registry information from the previous step.

- Each pool can have its own unique base image and set of drivers.

- If you plan to connect using a TDC file, you will need to include this file in your base image. The system user, `tableau`, must have read access to this file. For more information about how to create and store this file, see the Tableau Desktop help topic, Customize and Tune a Connection.

> **Important** Base images will vary according to different drivers and platforms. The examples that follow are intended to illustrate the process of building a base image. You must adapt the build process for your particular environment.

Build the container

The following procedure shows an example of building a container. You may need to install package manager tools or other tools specific to your deployment. Please note that the docker image you build must be from Red Hat because the Tableau Bridge installer is a Red Hat installer (*.rpm file).

1. Log in to any node in the Data Connect cluster. Copy the cluster.tar file onto your computer. The following example shows how to copy the tar file, extract the files, change the script to an executable file, and then run the script. The example shows this in the context of AWS. Change the file paths for your environment.

   Run the following commands as root or sudo user, replacing <key-name> and <IP-address> with your values:

   ```
   scp -i <key-name>.pem /Downloads/cluster.tar ec2-user@ip-<IP-
   address>.us-west-2compute.internal:~/
   ssh -i <key-name>.pem ec2-user@ip-<IP-address>.us-west-2com-
   pute.internal
   tar -xvf clustertar.tar
   chmod +x onboard_node.sh preflight_check.sh
   ./onboard_node.sh
   ```

2. Install Docker and supporting tools as required:

   ```
   #RedHat
   sudo dnf install -y container-tools podman-docker
   #Ubuntu
   sudo apt-get update -y
   sudo apt-get install -y docker.io
   ```

3. Create the Dockerfile:

```
touch Dockerfile
```

4. Update the Dockerfile to include the drivers to support your connections. The commands specified in this Dockerfile will run during build time for your base image. For example:

   ```
   # example base
   FROM registry.access.redhat.com/ubi8
   RUN yum -y update
   WORKDIR /
   # Go to https://tableau.com/support/drivers
   # Follow the instructions to install your drivers for linux
   CMD [“/bin/bash”]
   ```

   The target directory for driver files will vary. See Tableau Driver Download for more details.

   > **Note**: Data Connect supports Exchange Connectors that have a Linux driver and are labeled, "*Works with Tableau Cloud via Bridge*.” For more information, see Tableau Exchange Connectors.

   Example Dockerfile lines for public JDBC driver, using curl command to download the driver:

   ```
   RUN mkdir -p /opt/tableau/tableau_driver/jdbc
   RUN curl --location --output /opt/tableau/tableau_driver-
   /jdbc/<file> <URL>
   ```

   Example Dockerfile lines for non-public JDBC driver, using copy:

   ```
   RUN mkdir -p /opt/tableau/tableau_driver/jdbc
   COPY  <file> /opt/tableau/tableau_driver/jdbc
   ```

   Example Dockerfile lines for taco driver, using copy:

```
RUN mkdir -p /home/tableau/Documents/My_Tableau_Bridge_Repos-
itory/Connectors
COPY  <file> /home/tableau/Documents/My_Tableau_Bridge_
Repository/Connectors
```

5. While you are still logged into your Kubernetes cluster node, set the variable POOL_ID with the value of your pool id. To display the pool id value, open the Data Connect tab and click the pool name.

   - Set the registry value that you copied to the respective values.

     ```
     REGISTRY_HOSTNAME=registry_host_name_you_copied
     REGISTRY_USERNAME=registry_user_name_you_copied
     REGISTRY_PASSWORD=registry_password_you_copied
     ```

   - Set the pool ID value:

     ```
     POOL_ID=<pool_id_value>
     ```

6. Build the container, which is used as your base image.

   ```
   docker build -f <path_to_dockerfile> -t $REGISTRY_
   HOSTNAME/bridge-base:$POOL_ID .
   ```

7. Sign in to your existing Kubernetes node and push the image to the local container registry.

   ```
   docker login --username $REGISTRY_USERNAME $REGISTRY_HOSTNAME
   docker push $REGISTRY_HOSTNAME/bridge-base:$POOL_ID
   ```

8. Under the pool you are configuring, click the actions button (...) and click **Refresh Base Image**. This action will initiate a deployment using the base image and may take up to 10 minutes.

> **Note**: Whenever a new base image is created and refreshed, a new deployment will be created. The bridge agent used for the prior base image will persist as an unassigned asset. Do not delete unassigned bridge agents.

Step 3: Map a domain to a pool

The domain names that you specify in the allowlist are the server names used for the data source connection.

1. While on the Data Connect tab, under the pool and private network allowlist section, select the pool you have assigned and click **New Domain** in the Actions column.
2. In the Domain text box, enter the URI of the domain using the information described in Allowlist registry rules. The domain URI that you specify will be scoped only to the pool you are configuring.
3. Under Domain permissions, confirm that the Allow radio button is selected.
4. When finished, click **Save**.

Troubleshooting connection errors

You must configure your network infrastructure so that the Data Connect can reach all required data sources that you would like to connect to. To verify that Data Connect can reach your data sources, run the following curl command from the nodes where Data Connect will run:

```
$ curl -v $DB_HOSTNAME:$DB_PORT
```

If you have successfully set up your connection, you should see a collection of responses. Some examples are shown here:

- `Host $DB_HOSTNAME:$DB_PORT was resolved`: Confirms the DNS servers successfully resolved the hostname.
- `Connected to $DB_HOSTNAME`: Confirms the node has network connection.

- `Empty reply from server. Closing connection`: This is expected since curl is not a database client.
- `Could not resolve host: $DB_HOSTNAME`: There is an issue with DNS resolution.
- `Trying $DB_IP_ADDRESS:$DB_PORT`: When this message is followed by a hanging result, there is a network problem.

If you are using a third party for the Data Connection infrastructure, ensure that networking logic is not being disrupted by the third party.

(Optional) Step 4: Share clusters across sites

By default, Data Connect Clusters and their corresponding nodes are used only by the site where they were originally created. But Data Connect clusters can be shared across all sites within your Tableau Cloud Manager tenant. Sharing clusters allows queries on different sites within the tenant to use the same node infrastructure.

To ensure data privacy across the sites, no data about your shared cluster is available to any other sites on your tenant.

> **Note**: Sharing a cluster is a permanent operation. To unshare a cluster you will have to remove and reinstall a cluster.

Clusters can only be shared after they are successfully accepted on the original site where they were created.

To share a Data Connect cluster:

- Navigate to the cluster you would like to share, click the action ellipsis (**...**), and then click **Share**.

After you have shared the cluster, site admins on other sites within your tenant will be able to use the cluster with any pools they create in their site.

(Optional) Step 5: Creating a pool on a shared cluster as a cluster recipient

Before you creating your pool as a recipient on a shared cluster verify the following:

- The shared cluster has networking connectivity to the databases used by your site
- All database drivers required by the database in your site must be installed on the cluster

To begin using a shared cluster as a cluster recipient you will need to communicate with the cluster owner to have your pool's base image added to the cluster:

1. On the Data Connect tab, under Pools, click **New Pool**.
2. In the New Pool window, enter a pool name and then click **Create**.
3. In the new pool, click **Assign Cluster**, select the shared cluster, click the action ellipsis (**...**), and then click **Refresh Tokens**.
4. Verify that you are refreshing tokens for the correct pool, and then click **Confirm**.
5. When the pool status is set to Available, copy the Pool_ID of your pool.. To display the Pool_ID value, click the pool name.
6. Add a base image for your site. See Step 2: Build your base image and publish, above.

   The admin with access to the cluster will need to build a new container with the `Pool_ID` value as part of adding the base image. You will also need the registry values on the site that originally created the cluster, which can be provided by the cluster owner.

7. After the base image has been published to the local container registry, navigate to the pool on the share site and then click, **Refresh Base Image**.
8. To complete setup see, Step 3: Map a domain to a pool, above.

Add a node from an existing cluster

1. Navigate to the cluster and click **New Node**.
2. Follow steps 4, 5, 7, 8, 9 in the procedure above, Step 1: Set up your cluster. Omit step 6 since you will not need to assign the cluster.
3. After the refresh token step is complete, go to the pool associated with the cluster and click **Refresh Base Image**.

Note: When a new base image is created and refreshed, a new deployment will be created. The Bridge client used for the prior base image will persist as an unassigned asset. Do not delete unassigned Bridge clients.

Remove a node from an existing cluster

After a node is removed from a cluster the Bridge client will no longer be accessible by Tableau Cloud. Any jobs running on Data Connect at the time the node is deleted will fail. However, no additional jobs will be routed to those Bridge clients.

To remove a node, navigate to the cluster, click the action ellipsis (**...**), and select **Delete**.

Updating base images for existing pools

If you decide to utilize a new database or update a driver that your Data Connect cluster will use, you can make changes to existing base images to accommodate those changes. To do so, update the container file with the changes as explained in Step 2: Build your base image and publish. After you have updated the container file, click **Refresh Base Image**. Deploying the new base imager may take up to 15 minutes. Your previous base image will be used until the new base image has been successfully deployed.

Troubleshooting Database Connectivity

Start by validating that your domains adhere to the allowlist registry rules. See Configure Pools.

Next, confirm that you have configured your network infrastructure so that the Data Connect can reach all required data sources that you would like to connect to. To verify that Data Connect can reach your data sources, run the following curl command from the nodes where Data Connect will run:

```
$ curl -v $DB_HOSTNAME:$DB_PORT
```

If you have successfully set up your connection, you should see a collection of responses. Some examples are shown here:

- `Host $DB_HOSTNAME:$DB_PORT was resolved`: Confirms the DNS servers successfully resolved the hostname.

- `Connected to $DB_HOSTNAME`: Confirms the node has network connection.

- `Empty reply from server. Closing connection`: This is expected since curl is not a database client.

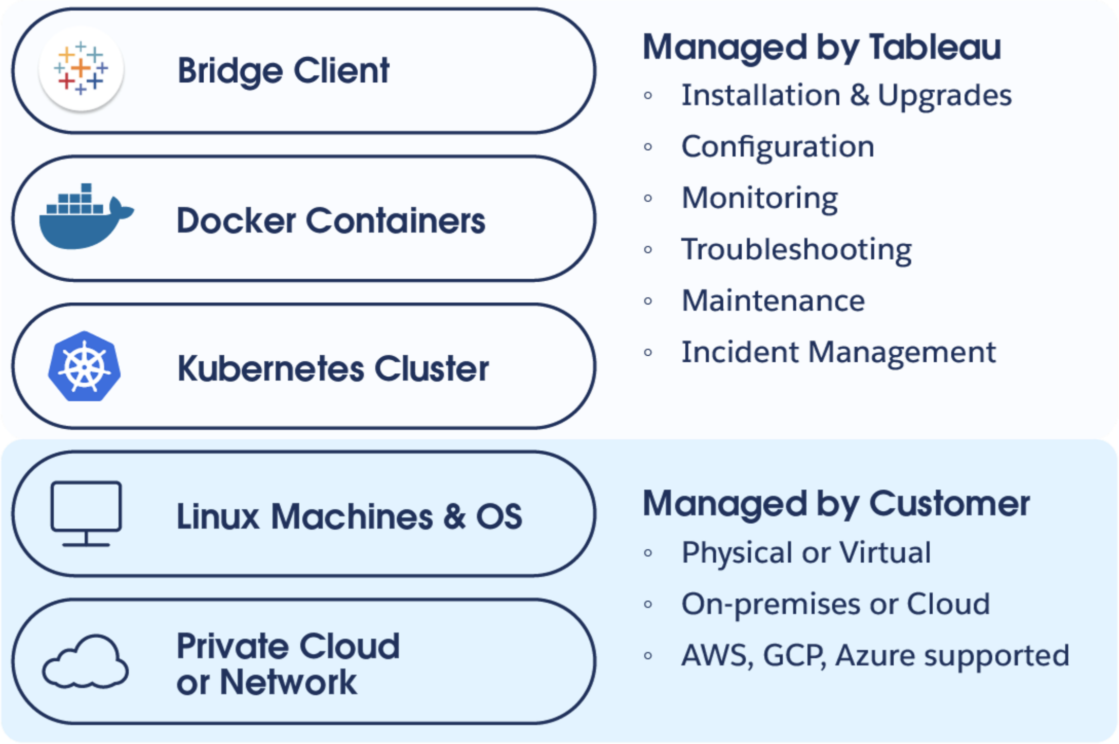
- `Could not resolve host: $DB_HOSTNAME`: There is an issue with DNS resolution.

- `Trying $DB_IP_ADDRESS:$DB_PORT`: When this message is followed by a hanging result, there is a network problem.

If you are using a third party for the Data Connection infrastructure, ensure that networking logic is not being disrupted by the third party.

Manage Data Connect

Data Connect operates as a shared responsibility model. With this model, customers supply the physical or virtual compute resources, and Tableau hosts and manages the Data Connect Kubernetes cluster on those resources. Tableau reduces the overhead of administration by remotely managing, monitoring, and maintaining the Kubernetes cluster. In this model, Tableau is responsible for operating the Data Connect service securely and customers are responsible for managing the infrastructure and networking layers.


Bridge Client
Docker Containers
Kubernetes Cluster
Linux Machines & OS
Private Cloud or Network
Managed by Tableau
Installation & Upgrades
Configuration
Monitoring
Troubleshooting
Maintenance
Incident Management
Managed by Customer
Physical or Virtual
On-premises or Cloud
AWS, GCP, Azure supported

Managing Data Connect nodes

As a part of the shared responsibility model, Tableau manages troubleshooting the health of Bridge clients that are deployed on Data Connect nodes. You are responsible for the health of the nodes themselves, keeping the computers up-to-date and healthy and managing network connectivity. To support managing Data Connect nodes, Tableau will provide alerts in Tableau Cloud when node action is required.

Node licenses

Data Connect is licensed by the node and is available for purchase by customers who are on the Tableau Cloud Enterprise or Tableau+ editions. Nodes can only be added to a single cluster at a time. Learn more at About Data Connect.

Node licenses are shared across all sites on a Tableau Cloud Manager tenant. This allows you to share clusters across different sites without having to pay for separate node licenses. If you see that Data Connect node licenses are consumed before you have set up a cluster, this means that another site on your tenant has already set up Data Connect nodes. Consider sharing Data Connect nodes with other sites on your tenant to reduce overall costs.

Monitoring node health

In the case where a node becomes unhealthy or loses connectivity with Tableau Cloud, details will be provided to Tableau Cloud site admins.

Node utilization percentages are provided for near real-time monitoring of your deployment. Values provided are refreshed every 15 seconds and will display updated values when you refresh your browser. When node computers surpass 90% CPU utilization or 80% memory load, alerts will surface within the Tableau Cloud user experience.

For more information on troubleshooting node issues, see Troubleshooting service initialization and health.

Adding and removing nodes from a cluster

Nodes can be added and removed from clusters to accommodate different usage patterns. However they are intended to serve a single cluster at a time and are not intended for dynamically changing between Clusters. To add or remove a node, you must be a Site Admin on the cluster owner site. See Add a node from an existing cluster and Remove a node from an existing cluster.

Managing node capacity

As Data Connect workloads grow, you may begin to run into limitations of the existing infrastructure initially provided. There are two ways to expand Data Connect service capacity. The first is to increase the size of the computer you are using for your Data Connect node. The second is to increase the number of nodes you have within a cluster.

Increasing CPU on a machine will particularly benefit the throughput of live queries and embedded data source extracts on a node. Increasing memory will particularly benefit the performance of published data source extracts on a node.

Increasing the number of nodes within a cluster will increase the throughput of the system overall.

For more information about capacity planning, download the whitepaper, Accessing Your Private Network Data with Tableau Cloud.

Making changes to existing nodes

While Data Connect is actively deployed you may need to make operational changes to your node infrastructure. This can include adding memory or CPU to your infrastructure, rotating a node new machine or performing maintenance on a node.

Changing the node identity (hostname or IP address) or otherwise impacting network availability will result in downtime of the Data Connect node.

If you are changing the node identity (hostname or IP address), you will need to take additional steps to delete the node within Tableau Cloud prior to making your changes and then onboard that node as a new node after the changes are complete.

Example Scenario #1: Add resources to an existing computer without requiring restart

Some cloud providers allow you to add resources to an existing machine (CPU/memory) without restarting the computer. In this scenario, no Data Connect changes are required and the service will utilize the additional resources without requiring Data Connect action.

Example Scenario #2: Making changes that require computer restart but do not impact networking or machine identity

Oftentimes computer maintenance or adding resources to an existing computer (CPU/memory) will require a restart of the computer itself, but do not impact computer identity or networking. In these cases, the node requiring a restart will become disconnected from Tableau Cloud during its restart. After it restarts, it will also need to start the Data Connect service on the computer. After this process is complete (typically less than 1 hour), the node will show as “Available” within Tableau Cloud. There should be no other action required to enable Data Connect.

If you unexpectedly change the computer identity, please see Example Scenario #3.

If you unexpectedly impact networking of the computer during maintenance, see Troubleshooting service initialization and health.

Example Scenario #3: Making changes that require a change to node identity (hostname or IP address)

In this scenario, you must first disconnect the node from Tableau Cloud by deleting the node before making any changes. After the node is disconnected, conduct the required maintenance, and add the node back to the cluster.

Example Scenario #4: Making changes that impact networking

This scenario is most common if another team at your organization or a third party hosts the computer for you. If they conduct maintenance on the computer and it impacts the computer's networking, then the node will become unavailable within Tableau Cloud. To resolve this issue you will need to resolve the networking issue, and in some cases, restart the computer. For more details on the appropriate networking configurations, see Troubleshooting service initialization and health.

Sharing Data Connect clusters

Data Connect clusters and their corresponding nodes can be used by all sites on a Tableau Cloud tenant (Tableau Cloud Manager). Sharing infrastructure reduces the cost of running Data Connect across your Tableau Cloud deployment. Sharing clusters allows queries on different sites within the tenant to use the same node infrastructure.

After a cluster has been shared, site admins on the shared sites will be responsible for setting up the pools in their site. After the pools have been established, queries on the site will begin to use Data Connect for queries sent to the domains specified in the pools.

See (Optional) Step 4: Share clusters across sites.

Roles and responsibilities for shared clusters

Cluster owners and cluster recipients work together to manage shared clusters.

Cluster owners

The site admins of the site that originally configured the Data Connect cluster are referred to as the *cluster owners*. Cluster owners are responsible for ensuring the health of the Data Connect nodes on behalf of all sites that use the cluster. Cluster owners are also responsible for configuring the pools on the site that owns the cluster, as well as monitoring the health of individual queries of that site. However, configuring pools and monitoring the health of individual queries on all other sites will be the responsibility of the sites those pools are configured on.

Cluster recipients

The site admins of the sites who did not originally configure the Data Connect cluster are referred to as the *cluster recipients*. Cluster recipients do not have visibility into node health and are unable to take action on node health from their site. Cluster recipient site admins are only responsible for establishing pools and monitoring individual query health.

Any communication about node health for cross-site purposes must take place outside of Tableau Cloud.

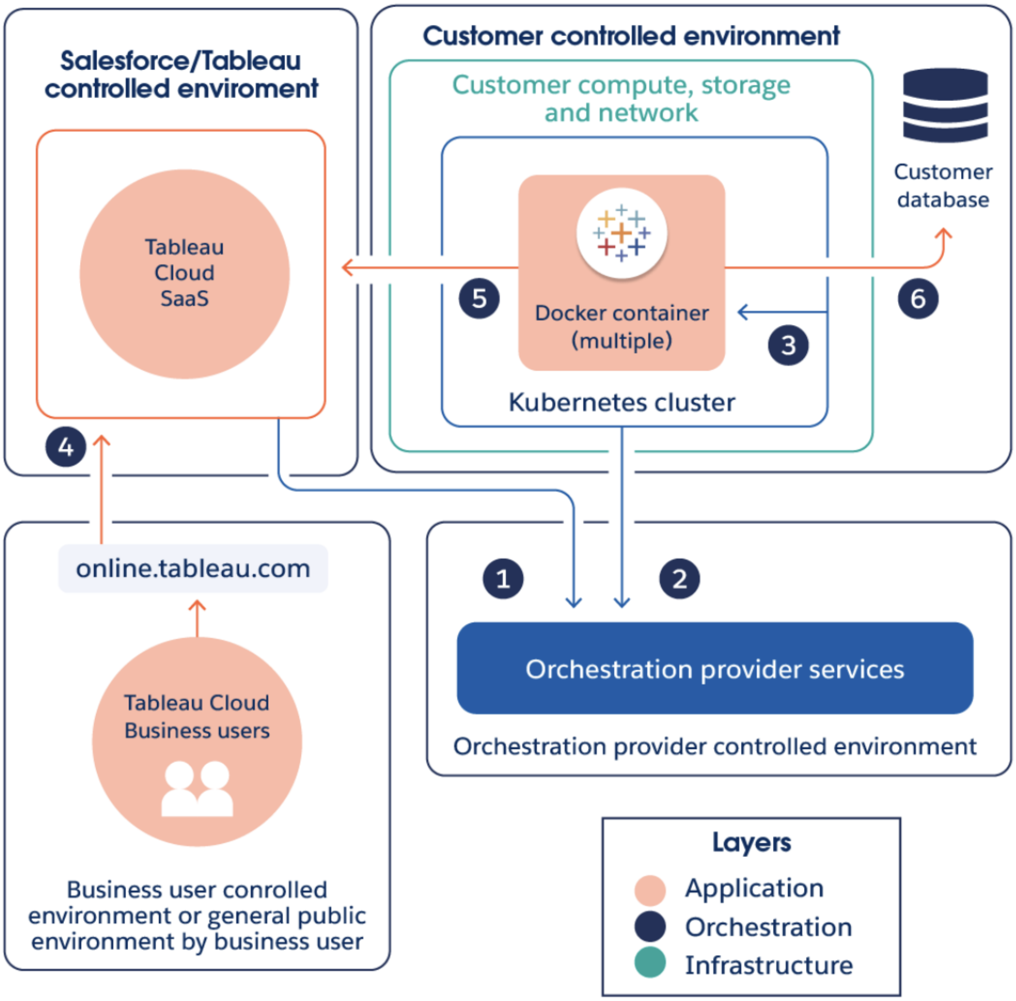
Shared cluster responsibility summary

Responsibility	Cluster owner	Cluster recipient
Setup	Cluster setup Networking configuration Install drivers for all sites Add base images for all recipient sites	Provide pool ID and driver requirements to cluster owner
Enable	Share the cluster	
Pool configuration	Managed by site admins on owning site	Managed by site admins on receiving site
Monitoring	Cluster owner monitors Data Con-	

	nect health at cluster level	
Refresh tokens (90 days)	Refresh on own site	Refresh on own site
Query health	Monitors on own site	Monitors on own site

Troubleshooting service initialization and health

Data Connect uses a shared responsibility model to deploy Tableau Bridge within your environment and keep private network data up-to-date. This troubleshooting section covers issues that may arise while setting up Data Connect and issues that cause existing clusters and nodes to become unavailable.


Salesforce/Tableau controlled enviroment
Tableau Cloud SaaS
Customer controlled environment
Customer compute, storage and network
Customer database
Docker container (multiple)
Kubernetes cluster
5
3
6
4
online.tableau.com
Tableau Cloud Business users
Business user conrolled environment or general public environment by business user
1
2
Orchestration provider services
Orchestration provider controlled environment
Layers
Application
Orchestration
Infrastructure

If you experience initiation issues, verify the following connectivity and access:

- Data Connect infrastructure, cluster, and container require networking access to the orchestration provider services (#2 in the image above) and to Tableau Cloud (out-bound only, #5).
- Data Connect infrastructure, cluster, container, and Agent require networking access to your database (#6).

See Networking specifications.

Monitoring Data Connect query health

Data Connect deploys and manages Bridge clients. Individual Bridge clients are responsible for the queries sent to your private network data. To learn more, see Architecture.

There are several monitoring solutions available in Tableau Cloud to help you manage different monitoring scenarios for individual queries handled by Data Connect. All of these solutions are available to all admins. Admins can make Admin Insights and Activity Log available to non-admin users.

Real-time monitoring

- Jobs page: Monitor real-time extract job status for jobs performed in the last 24 hours. See Managing Background Jobs in Tableau Cloud.
- Admin views: Monitor real-time extract job status and performance. Includes recent job history for longer term analysis. See Find Admin Views.

Historical analysis

- Admin Insights: Monitor job status and performance using Tableau Cloud data sources that are published in your environment. This data is updated daily and shows historical data for longer term analysis. It can be shared with non-admin users if desired. See Use Admin Insights to Create Custom Views.
- Activity Log: Monitor job status and performance using log data that can be stored as long as necessary for your analysis. This data can be shared with non-admin users if desired. Available for Tableau Cloud Enterprise and Tableau+ customers only. See Activity Log.

Please note that for shared Data Connect clusters, monitoring of Data Connect queries is managed at the site level. Site admins will only be able to monitor queries that use the pools in their site(s).

For a full description of monitoring individual jobs through various user scenarios, download the whitepaper, Accessing Your Private Network Data with Tableau Cloud.

For information related to troubleshooting individual errors, see Troubleshooting Errors from Individual Queries.

Publish with Data Connect

Data Connect is a product that is managed by site admins. But it can service queries for all users on a Tableau Cloud Site. Creators who publish content will need to keep a few things in mind when connecting to private network data using Data Connect. Those items are outlined below. Explorers and Viewers will utilize Data Connect, but will largely be unaware of whether or not it is in use.

Database connectivity

Data Connect deploys the Bridge client which services database queries. The Bridge clients used in Data Connect are individual deployments of Tableau Bridge on Linux for Containers. Therefore, Data Connect supports all database connectors and database authentication patterns that Tableau Bridge on Linux for Containers supports. For more information, see Connectivity with Bridge.

Data Connect supports both live and extract data sources.

Data Connect only supports database drivers built for Linux. The drivers must be included in the base image that site admins configure during Data Connect setup.

Using Data Connect to query private data

Creators who need to connect to private network data with Data Connect follow the same process of connecting to data with Tableau Desktop and publishing it to Tableau Cloud. There are two additional steps required for keeping that data fresh with Data Connect:

- When setting up Data Connect, site admins create pools. Pools define the database domains that will use Data Connect. Queries to that database domain are sent to the Data Connect Bridge client.

- (Published Data Sources only) Data Source owners must take one additional action for each data source after publishing it to Tableau Cloud to use Data Connect.

After a data source is published you can rotate the credentials of that data source and update other aspects of the connection information. See Update Bridge Connection Information.

- **Using embedded data sources**: Data Connect supports querying embedded data sources. There are many advantages to using published data sources to scale centralized data sources. For more information, see Using Embedded Data Sources.
- **Setting up refresh schedules**: Data Connect allows you to schedule refreshes of extract data on a regular basis. See SSet Up a Private Network Refresh Schedule.
- **Managing email alerts**: If enabled by your site admin, you will receive email alerts about refresh failures for all of the data sources that you own. When refreshes for your data sources are managed by Data Connect, the type of alerts you receive, when you receive the alerts, and the alerts that you can configure will differ from Tableau Cloud alerts. See Manage Email Alerts for Bridge.

Troubleshooting errors from individual queries

Individual jobs are handled by the Data Connect Bridge client. To determine the underlying cause, the troubleshooting steps required will depend on the user scenario.

Site admins have access to data about all refresh jobs serviced by Data Connect. For more information on accessing this data, see Monitoring Data Connect query health.

The Admin Insights Job Performance data source is especially useful in identifying if issues are occurring commonly on the same database or on the same Data Connect Agent.

In the event that a node becomes unhealthy, the Bridge clients and the queries they execute can fail. To troubleshoot node health, see Troubleshooting service initialization and health.

Live query errors

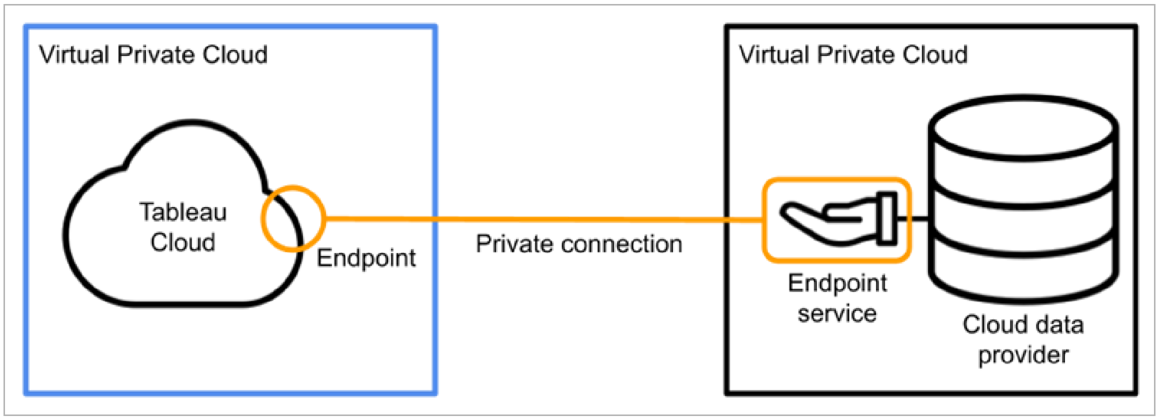
Live query errors arise when a user opens a dashboard with a live data source configured to use Data Connect. These errors indicate that there is an issue with the connection to the database. For common troubleshooting steps, see Identifying causes for live query issues .

Extract refresh failures

Data source owners receive email notifications if an extract refresh is unsuccessful. These email notifications will contain error messages that can support troubleshooting the issue. For more information about how Data Source owners can troubleshoot their jobs, see Identifying causes for scheduled refresh issues.

Private Connect for AWS

Private Connect for AWS (Amazon Web Services) allows cloud administrators to create secure, private, and dedicated connections between Tableau Cloud and AWS-hosted data providers. These private connections are provisioned on top of AWS PrivateLink, using private IP address space, meaning that data traffic doesn't traverse the public internet. The private and secure nature of private connections addresses a key requirement of restricting data traffic to private networks.



After the private connection is created and ready, creators use the **connection address** like any other database address in workbook and data source connection dialogs. Likewise, administrators and creators use the **connection address** when creating virtual connections.

Supported AWS data providers are:

- Athena
- Aurora MySQL
- Microsoft SQL
- MySQL
- Oracle
- PostgreSQL
- Redshift
- Snowflake

Your ability to work with private connections depends on your role:

- **Cloud administrators** create private connections in Tableau Cloud Manager (TCM), and assign them to sites. They can also provide connection information to creators and the groups that support them.
- **Site administrators** have read-only access to information about the private connections that are assigned to their site. They can also provide connection information to creators and the groups that support them.
- **Creators** use private connections to securely connect to data stored in AWS. Using a private connection in a workbook, data source, or virtual connection is as simple as using a regular, non-private connection, except the creator uses a special connection address provided by the site administrator or cloud administrator. The data traffic doesn't traverse the public internet, but is instead restricted to private connections between AWS Virtual Private Clouds (VPCs).

Example Use Cases

Scenario 1: Avoid Public Internet

Your organization's data is in Snowflake. Network security policy prevents Tableau Cloud from reaching the Snowflake data over the public internet.

With Private Connect for AWS

You create a private connection between your Tableau Cloud site and your Snowflake data. Data travels securely and privately between Tableau Cloud and Snowflake, without traversing the public internet.

Scenario 2: Migrate from Bridge, Use Private Address Space

Your organization's data is in Redshift. Network security policy requires Tableau Cloud to reach the Redshift data using private IP addresses, so you use Tableau Bridge to connect to it. Tableau Bridge is free, but has management overhead.

With Private Connect for AWS

You create a private connection between your Tableau Cloud site and your Redshift data. Data now travels securely and privately between Tableau Cloud and Redshift, using private IP addresses, without traversing the public internet, and without the need for Tableau Bridge. Management is simpler using Private Connect, though there is a cost for data transferred.

For information on migrating to Private Connect from Bridge or Data Connect, see Migrate from Tableau Bridge to Private Connect.

Licensing Requirements

Private Connect works on Tableau Cloud with an Enterprise or Tableau+ license edition, and requires an add-on license for each private connection. For information on licensing and pricing, contact your account manager.

Private connection data usage is billed per terabyte. For information on Private Connect usage, see Private Connect Licensing.

Private Connection Set Up: Overview

The private connection consists of:

- the data provider (hosted at AWS)
- the endpoint service (AWS)
- the endpoint (Tableau Cloud)

For private connections to Athena and Snowflake, your Tableau Cloud site and AWS-hosted data provider must be in the same AWS region. For a table that includes Tableau Cloud pods and associated regions, see IP Addresses for Tableau Cloud.

Data provider and AWS components

The AWS-hosted data provider and AWS endpoint service are configured in AWS.

In the case of most AWS-hosted data providers, the AWS endpoint service needs to explicitly allow the connection from your Tableau Cloud site. The AWS endpoint service identifies your Tableau Cloud site using an Identity and Access Management (IAM) Amazon Resource Name (ARN) for its region.

To allow access, the AWS endpoint service needs Tableau Cloud's IAM ARN added to the list of allowed principals.

Tableau Cloud component

The Tableau Cloud end of the private connection is configured in Tableau Cloud Manager (TCM).

Tableau Cloud needs the AWS endpoint service name. Tableau Cloud may also need custom address information about the endpoint service if the data provider requires it.

Typical Set Up Steps

The *typical* process to set up a private connection is:

1. **AWS**: Set up the data provider and create the endpoint service. (You may need to rely on a third party. More details are in the specific topics for individual data providers under Private Connection Set Up: AWS.)
2. **TCM**: Get the Tableau Cloud IAM ARN for the region.
3. **AWS**: Add the Tableau Cloud IAM ARN as an allowed principal on the endpoint service. (You may need to rely on a third party. More details are in the specific topics for individual data providers under Private Connection Set Up: AWS.)

4. **AWS**: Get the endpoint service name.
5. **TCM**: Create the private connection using the AWS endpoint service name. (A custom connection address may also be required or allowed. More details are in the specific topics for individual data providers under Private Connection Set Up: AWS.)

Exceptions to the typical set up process depend on the data provider, and are in the specific topics for individual data providers under Private Connection Set Up: AWS.

After both ends are configured correctly and the private connection is ready, creators can use the private connection to connect securely and privately to the AWS-hosted data provider.

Create your Private Connection

To create and configure a private connection on for your sites:

1. See the subtopic for your AWS-hosted data provider under Private Connection Set Up: AWS
2. See the topic Private Connection Set Up: Tableau Cloud.

Private Connection Set Up: AWS

As stated in the Private Connection Set Up: Overview topic, the setup for AWS-hosted data providers and the AWS endpoint service varies.

For setup information on your data provider, see the appropriate article below for specific instructions.

Then see the topic Private Connection Set Up: Tableau Cloud topic.

Private Connect for Athena

This topic covers setup information specific to the data provider. General information on setting up a private connection is in Private Connection Set Up: Overview, and information on setting up the Tableau Cloud endpoint is in Private Connection Set Up: Tableau Cloud.

Prerequisites

- Your Tableau Cloud site and AWS-hosted data provider must be in the same AWS region. For a table that includes Tableau Cloud pods and associated regions, see IP Addresses for Tableau Cloud.

Tableau Cloud Information for the Data Provider

Not applicable. Amazon Athena doesn't require endpoint service configuration. This means you don't have to get the Identity and Access Management (IAM) Amazon Resource Name (ARN) from Tableau Cloud and add it to the endpoint service.

Data Provider Information for Tableau Cloud

Tableau Cloud requires an endpoint service name from Amazon Athena. Choose an endpoint service name for your site's region from the list at Amazon Athena endpoints and quotas. (Use the "endpoint" column.)

Note: Reverse the domain name elements in order to make it fit the expected **Endpoint Service Name** format in Tableau Cloud's **Create Private Connection** dialog.

Example

- **From the** Amazon Athena endpoints and quotas **page:**
  Endpoint: athena.us-east-2.amazonaws.com
- **In the Create Private Connection dialog:**
  Endpoint Service Name: com.amazonaws.us-east-2.athena

Private Connect for Aurora MySQL

This topic covers setup information specific to the data provider. General information on setting up a private connection is in Private Connection Set Up: Overview, and information on setting up the Tableau Cloud endpoint is in Private Connection Set Up: Tableau Cloud.

Prerequisites

1. Create and connect to an Aurora MySQL DB cluster

2. Create network load balancer to front the instance. If your Tableau Cloud site and your Aurora MySQL instance are in different regions, make sure the load balancer is deployed in multiple AWS Availability Zones.
3. Create VPC endpoint service for the network load balancer. If your Tableau Cloud site and your Aurora MySQL instance are in different regions, make sure your Tableau Cloud site's region is in the endpoint service's Supported Regions tab.

Tableau Cloud Information for the Data Provider

To get the IAM ARN that needs to be added as an allowed principal on the endpoint service in AWS:

1. Log in to Tableau Cloud Manager (TCM).
2. Go to **Settings**.
3. Select the **Private Connect** tab.
4. Expand **IAM Regions and ARNs**.
5. Find the region for your Tableau Cloud site.
6. In the **Actions** menu (...), select **Copy IAM ARN**.

After you have copied Tableau Cloud's IAM ARN, allow it as an allowed principal on the endpoint service per the instructions in Configure an endpoint service.

Data Provider Information for Tableau Cloud

Use the AWS Management Console or AWS CLI to get the endpoint service name needed for the Tableau Cloud **Create Private Connection** dialog.

Alternative Approach

As an alternative to the high level steps in the Prerequisites and subsequent sections, you can use the blog post Enhance Agentforce data security with Private Connect for Salesforce Data Cloud and Amazon Redshift – Part 3 for information on configuring a private connection between Redshift and Salesforce Data Cloud. Adjust the instructions as described below to work with Aurora MySQL and Tableau Cloud instead.

From the blog post, follow the instructions in these sections completely:

- Create a security group for the Network Load Balancer
- Create a target group
- Create a load balancer

Then, from the "Create an endpoint service" section of the blog post:

- Instead of steps 9-12, use the Tableau Cloud Information for the Data Provider section above to get the IAM ARN.
- In step 14, use the IAM ARN in place of the Principal ID when adding allowed principals to the endpoint service.
- In step 15, note the endpoint service name.
- For step 17 and later, set up the private connection in Tableau Cloud per Private Connection Set Up: Tableau Cloud.

Private Connect for Microsoft SQL

This topic covers setup information specific to the data provider. General information on setting up a private connection is in Private Connection Set Up: Overview, and information on setting up the Tableau Cloud endpoint is in Private Connection Set Up: Tableau Cloud.

Prerequisites

1. If your database is hosted in RDS: Set up your Amazon RDS Environment
2. Create and connect to a Microsoft SQL DB instance
3. Create network load balancer to front the instance. If your Tableau Cloud site and your Microsoft SQL instance are in different regions, make sure the load balancer is deployed in multiple AWS Availability Zones.
4. Create VPC endpoint service for the network load balancer. If your Tableau Cloud site and your Microsoft SQL instance are in different regions, make sure your Tableau Cloud site's region is in the endpoint service's Supported Regions tab.

Tableau Cloud Information for the Data Provider

To get the IAM ARN that needs to be added as an allowed principal on the endpoint service in AWS:

1. Log in to Tableau Cloud Manager (TCM).
2. Go to **Settings**.
3. Select the **Private Connect** tab.

4. Expand **IAM Regions and ARNs**.
5. Find the region for your Tableau Cloud site.
6. In the **Actions** menu (...), select **Copy IAM ARN**.

After you have copied Tableau Cloud's IAM ARN, allow it as an allowed principal on the endpoint service per the instructions in Configure an endpoint service.

Data Provider Information for Tableau Cloud

Use the AWS Management Console or AWS CLI to get the endpoint service name needed for the Tableau Cloud **Create Private Connection** dialog.

Alternative Approach

As an alternative to the high level steps in the Prerequisites and subsequent sections, you can use the blog post Enhance Agentforce data security with Private Connect for Salesforce Data Cloud and Amazon Redshift – Part 3 for information on configuring a private connection between Redshift and Salesforce Data Cloud. Adjust the instructions as described below to work with Microsoft SQL and Tableau Cloud instead.

From the blog post, follow the instructions in these sections completely:

- Create a security group for the Network Load Balancer
- Create a target group
- Create a load balancer

Then, from the "Create an endpoint service" section of the blog post:

- Instead of steps 9-12, use the Tableau Cloud Information for the Data Provider section above to get the IAM ARN.
- In step 14, use the IAM ARN in place of the Principal ID when adding allowed principals to the endpoint service.
- In step 15, note the endpoint service name.
- For step 17 and later, set up the private connection in Tableau Cloud per Private Connection Set Up: Tableau Cloud.

Private Connect for MySQL

This topic covers setup information specific to the data provider. General information on setting up a private connection is in Private Connection Set Up: Overview, and information on setting up the Tableau Cloud endpoint is in Private Connection Set Up: Tableau Cloud.

Prerequisites

1. If your database is hosted in RDS: Set up your Amazon RDS Environment
2. Create and connect to a MySQL DB instance
3. Create network load balancer to front the instance. If your Tableau Cloud site and your MySQL instance are in different regions, make sure the load balancer is deployed in multiple AWS Availability Zones.
4. Create VPC endpoint service for the network load balancer. If your Tableau Cloud site and your MySQL instance are in different regions, make sure your Tableau Cloud site's region is in the endpoint service's Supported Regions tab.

Tableau Cloud Information for the Data Provider

To get the IAM ARN that needs to be added as an allowed principal on the endpoint service in AWS:

1. Log in to Tableau Cloud Manager (TCM).
2. Go to **Settings**.
3. Select the **Private Connect** tab.
4. Expand **IAM Regions and ARNs**.
5. Find the region for your Tableau Cloud site.
6. In the **Actions** menu (...), select **Copy IAM ARN**.

After you have copied Tableau Cloud's IAM ARN, allow it as an allowed principal on the endpoint service per the instructions in Configure an endpoint service.

Data Provider Information for Tableau Cloud

Use the AWS Management Console or AWS CLI to get the endpoint service name needed for the Tableau Cloud **Create Private Connection** dialog.

Alternative Approach

As an alternative to the high level steps in the Prerequisites and subsequent sections, you can use the blog post Enhance Agentforce data security with Private Connect for Salesforce Data Cloud and Amazon Redshift – Part 3 for information on configuring a private connection between Redshift and Salesforce Data Cloud. Adjust the instructions as described below to work with MySQL and Tableau Cloud instead.

From the blog post, follow the instructions in these sections completely:

- Create a security group for the Network Load Balancer
- Create a target group
- Create a load balancer

Then, from the "Create an endpoint service" section of the blog post:

- Instead of steps 9-12, use the Tableau Cloud Information for the Data Provider section above to get the IAM ARN.
- In step 14, use the IAM ARN in place of the Principal ID when adding allowed principals to the endpoint service.
- In step 15, note the endpoint service name.
- For step 17 and later, set up the private connection in Tableau Cloud per Private Connection Set Up: Tableau Cloud.

Private Connect for Oracle

This topic covers setup information specific to the data provider. General information on setting up a private connection is in Private Connection Set Up: Overview, and information on setting up the Tableau Cloud endpoint is in Private Connection Set Up: Tableau Cloud.

Prerequisites

1. If your database is hosted in RDS: Set up your Amazon RDS Environment
2. Create and connect to an Oracle DB instance
3. Create network load balancer to front the instance. If your Tableau Cloud site and your Oracle instance are in different regions, make sure the load balancer is deployed in multiple AWS Availability Zones.

4. Create VPC endpoint service for the network load balancer. If your Tableau Cloud site and your Oracle instance are in different regions, make sure your Tableau Cloud site's region is in the endpoint service's Supported Regions tab.

Tableau Cloud Information for the Data Provider

To get the IAM ARN that needs to be added as an allowed principal on the endpoint service in AWS:

1. Log in to Tableau Cloud Manager (TCM).
2. Go to **Settings**.
3. Select the **Private Connect** tab.
4. Expand **IAM Regions and ARNs**.
5. Find the region for your Tableau Cloud site.
6. In the **Actions** menu (...), select **Copy IAM ARN**.

After you have copied Tableau Cloud's IAM ARN, allow it as an allowed principal on the endpoint service per the instructions in Configure an endpoint service.

Data Provider Information for Tableau Cloud

Use the AWS Management Console or AWS CLI to get the endpoint service name needed for the Tableau Cloud **Create Private Connection** dialog.

Alternative Approach

As an alternative to the high level steps in the Prerequisites and subsequent sections, you can use the blog post Enhance Agentforce data security with Private Connect for Salesforce Data Cloud and Amazon Redshift – Part 3 for information on configuring a private connection between Redshift and Salesforce Data Cloud. Adjust the instructions as described below to work with Oracle and Tableau Cloud instead.

From the blog post, follow the instructions in these sections completely:

- Create a security group for the Network Load Balancer
- Create a target group
- Create a load balancer

Then, from the "Create an endpoint service" section of the blog post:

- Instead of steps 9-12, use the Tableau Cloud Information for the Data Provider section above to get the IAM ARN.
- In step 14, use the IAM ARN in place of the Principal ID when adding allowed principals to the endpoint service.
- In step 15, note the endpoint service name.
- For step 17 and later, set up the private connection in Tableau Cloud per Private Connection Set Up: Tableau Cloud.

Private Connect for PostgreSQL

This topic covers setup information specific to the data provider. General information on setting up a private connection is in Private Connection Set Up: Overview, and information on setting up the Tableau Cloud endpoint is in Private Connection Set Up: Tableau Cloud.

Prerequisites

1. If your database is hosted in RDS: Set up your Amazon RDS Environment
2. Create and connect to a PostgreSQL DB instance
3. Create network load balancer to front the instance. If your Tableau Cloud site and your PostgreSQL instance are in different regions, make sure the load balancer is deployed in multiple AWS Availability Zones.
4. Create VPC endpoint service for the network load balancer. If your Tableau Cloud site and your PostgreSQL instance are in different regions, make sure your Tableau Cloud site's region is in the endpoint service's Supported Regions tab.

Tableau Cloud Information for the Data Provider

To get the IAM ARN that needs to be added as an allowed principal on the endpoint service in AWS:

1. Log in to Tableau Cloud Manager (TCM).
2. Go to **Settings**.
3. Select the **Private Connect** tab.
4. Expand **IAM Regions and ARNs**.
5. Find the region for your Tableau Cloud site.
6. In the **Actions** menu (...), select **Copy IAM ARN**.

After you have copied Tableau Cloud's IAM ARN, allow it as an allowed principal on the endpoint service per the instructions in Configure an endpoint service.

Data Provider Information for Tableau Cloud

Use the AWS Management Console or AWS CLI to get the endpoint service name needed for the Tableau Cloud **Create Private Connection** dialog.

Alternative Approach

As an alternative to the high level steps in the Prerequisites and subsequent sections, you can use the blog post Enhance Agentforce data security with Private Connect for Salesforce Data Cloud and Amazon Redshift – Part 3 for information on configuring a private connection between Redshift and Salesforce Data Cloud. Adjust the instructions as described below to work with PostgreSQL and Tableau Cloud instead.

From the blog post, follow the instructions in these sections completely:

- Create a security group for the Network Load Balancer
- Create a target group
- Create a load balancer

Then, from the "Create an endpoint service" section of the blog post:

- Instead of steps 9-12, use the Tableau Cloud Information for the Data Provider section above to get the IAM ARN.
- In step 14, use the IAM ARN in place of the Principal ID when adding allowed principals to the endpoint service.
- In step 15, note the endpoint service name.
- For step 17 and later, set up the private connection in Tableau Cloud per Private Connection Set Up: Tableau Cloud.

Private Connect for Redshift

This topic covers setup information specific to the data provider. General information on setting up a private connection is in Private Connection Set Up: Overview, and information on setting up the Tableau Cloud endpoint is in Private Connection Set Up: Tableau Cloud.

Prerequisites

Note: Private Connect doesn't support Redshift-managed PrivateLink.

1. Create Redshift in private subnet in a VPC
2. Create network load balancer to front the instance. If your Tableau Cloud site and your Redshift instance are in different regions, make sure the load balancer is deployed in multiple AWS Availability Zones.
3. Create VPC endpoint service for the network load balancer. If your Tableau Cloud site and your Redshift instance are in different regions, make sure your Tableau Cloud site's region is in the endpoint service's Supported Regions tab.

Tableau Cloud Information for the Data Provider

To get the IAM ARN that needs to be added as an allowed principal on the endpoint service in AWS:

1. Log in to Tableau Cloud Manager (TCM).
2. Go to **Settings**.
3. Select the **Private Connect** tab.
4. Expand **IAM Regions and ARNs**.
5. Find the region for your Tableau Cloud site.
6. In the **Actions** menu (...), select **Copy IAM ARN**.

After you have copied Tableau Cloud's IAM ARN, allow it as an allowed principal on the endpoint service per the instructions in Configure an endpoint service.

Data Provider Information for Tableau Cloud

Use the AWS Management Console or AWS CLI to get the endpoint service name needed for the Tableau Cloud **Create Private Connection** dialog.

Alternative Approach

As an alternative to the high level steps in the Prerequisites and subsequent sections, you can use the blog post Enhance Agentforce data security with Private Connect for Salesforce Data Cloud and Amazon Redshift – Part 3 for information on configuring a private connection between Redshift and Salesforce Data Cloud. Adjust the instructions as described below to work with Redshift and Tableau Cloud instead.

From the blog post, follow the instructions in these sections completely:

- Create a security group for the Network Load Balancer
- Create a target group
- Create a load balancer

Then, from the "Create an endpoint service" section of the blog post:

- Instead of steps 9-12, use the Tableau Cloud Information for the Data Provider section above to get the IAM ARN.
- In step 14, use the IAM ARN in place of the Principal ID when adding allowed principals to the endpoint service.
- In step 15, note the endpoint service name.
- For step 17 and later, set up the private connection in Tableau Cloud per Private Connection Set Up: Tableau Cloud.

Private Connect for Snowflake

This topic covers setup information specific to the data provider. General information on setting up a private connection is in Private Connection Set Up: Overview, and information on setting up the Tableau Cloud endpoint is in Private Connection Set Up: Tableau Cloud.

Prerequisites

- Your Snowflake edition is Business Critical Edition.
- Your Snowflake account has at least one warehouse.
- Your Tableau Cloud site and AWS-hosted data provider must be in the same AWS region. For a table that includes Tableau Cloud pods and associated regions, see IP Addresses for Tableau Cloud.
- If you use OAuth, use an external Oauth provider instead of Snowflake Oauth. For more information on using an external OAuth provider with Snowflake, see External OAuth for Snowflake.
- Optional, but convenient: You have access to a Snowflake account administrator user to execute the Snowflake SYSTEM$GET_PRIVATELINK_CONFIG function. If you don't, you can get the information from Snowflake support when needed.

Tableau Cloud Information for the Data Provider

To get the IAM ARN that needs to be added as an allowed principal on the endpoint service in AWS:

1. Log in to Tableau Cloud Manager (TCM).
2. Go to **Settings**.
3. Select the **Private Connect** tab.
4. Expand **IAM Regions and ARNs**.
5. Find the region for your Tableau Cloud site.
6. In the **Actions** menu (...), select **Copy IAM ARN**.

After you have the IAM ARN, open a Snowflake support case. Ask for PrivateLink to be enabled, and provide them with the IAM ARN to allow connections from.

Data Provider Information for Tableau Cloud

As a Snowflake account administrator, invoke the SYSTEM$GET_PRIVATELINK_CONFIG function and get these values from the output:

- privatelink-vpce-id
- privatelink-account-url

If you don't have access to a Snowflake account administrator account, use your Snowflake support case and ask for the values of **privatelink-vpce-id** and **privatelink-account-url**.

After you have the values, enter them in the Tableau Cloud **Create Private Connection** dialog:

- Enter the value of **privatelink-vpce-id** in the **Endpoint Service Name** field.
- Enter the value of **privatelink-account-url** in the **Custom Address** field.

Private Connection Set Up: Tableau Cloud

Cloud administrators create, edit, and delete private connections in Tableau Cloud Manager (TCM). They also assign private connections to sites, and can provide connection information to creators and the groups that support them.

Prerequisites

- **The AWS endpoint service and AWS-hosted data provider is set up.** For information on setting up AWS and the AWS-hosted data provider, see the topics for Private Connection Set Up: AWS.
- **You're a cloud administrator**, able to use Tableau Cloud Manager (TCM).
- **You see the Private Connect tab in TCM Settings.** The Private Connect tab shows when you have Tableau Cloud with an Enterprise or Tableau+ license edition, and you have at least one Private Connect endpoint add-on license.
- **TCM shows available private connection capacity.** Above the table of private connections, the capacity is represented as X/Y, where X is current number of private connections, and Y is the maximum number. If there's no available capacity, delete a private connection or talk to your Tableau account manager about more capacity.
- **You know the AWS endpoint service name.** The endpoint service name begins with "com.amazonaws.vpce", and looks something like this: `com.amazonaws.vpce.us-west-1.vpce-svc-0123456789abcdef0`. You may be able to get the endpoint service name, or you may need to rely on a third party to get it for you. It depends on the data provider. For more information, see the topics under Private Connection Set Up: AWS.
- **You are aware of allowances or requirements around connecting with a custom address.** For more information, see the topics under Private Connection Set Up: AWS.

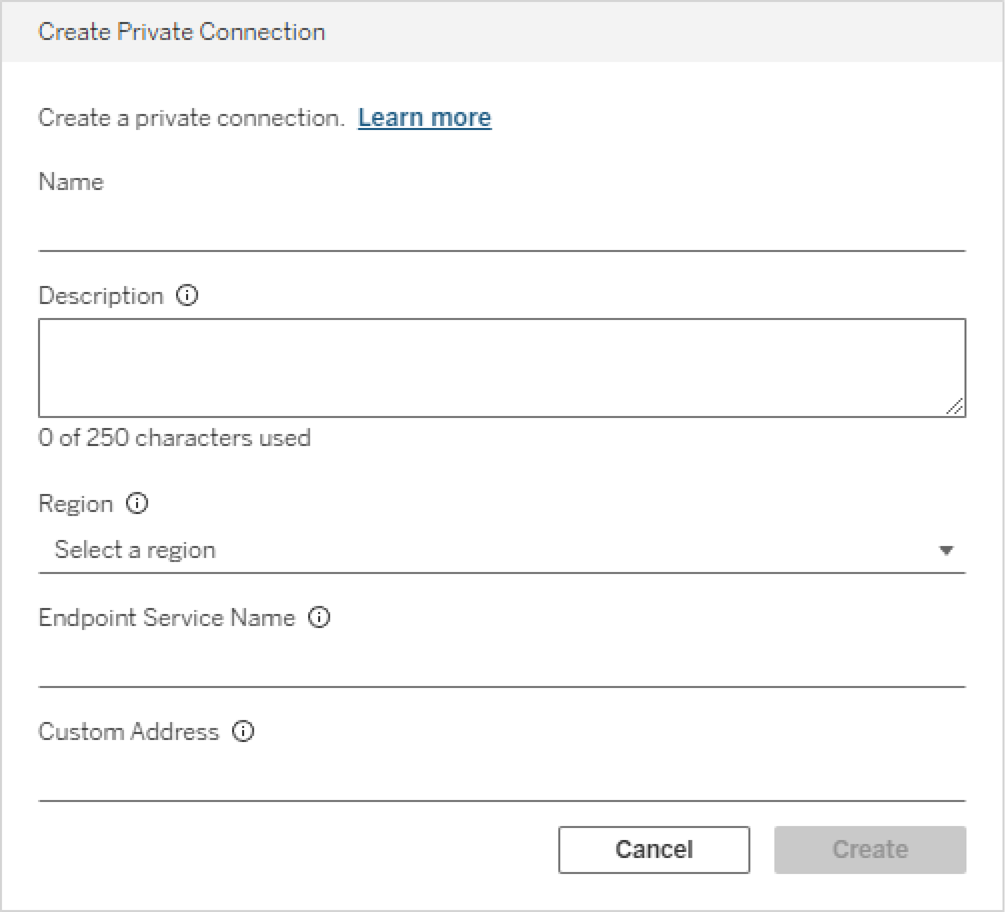
Create a Private Connection

1. Log in to Tableau Cloud Manager (TCM).
2. Go to **Settings**.
3. Select the **Private Connect** tab.
4. Select **Create**.

In the **Creation Private Connection** dialog:

1. Enter a **Name**. Cloud administrators and site administrators can see the private connection name. It has no functional effect on the private connection, but can help administrators distinguish this private connection from others.
2. Optionally, enter a **Description**. Cloud administrators and site administrators can see the private connection description. It has no functional effect on the private connection, but can help administrators distinguish one private connection another.

3. Select a **Region**. Select the region for your Tableau Cloud site. The region also matches the IAM ARN that's allowed as a principal on the AWS endpoint service. For private connections to Athena and Snowflake, your Tableau Cloud site and AWS-hosted data provider must be in the same AWS region. For a table that includes Tableau Cloud pods and associated regions, see IP Addresses for Tableau Cloud.
4. Enter the **Endpoint Service Name** from AWS. The endpoint service name begins with "com.amazonaws.vpce".
5. If required or allowed by the endpoint service, enter the endpoint service's **Custom Address**. The group that administers the AWS endpoint service can help determine if you need or have the option for custom address in this field.
6. Select **Create** to create the private connection.


Create Private Connection

Create a private connection. Learn more

Name
Description ⓘ
0 of 250 characters used
Region ⓘ
Select a region
Endpoint Service Name ⓘ
Custom Address ⓘ
Cancel
Create

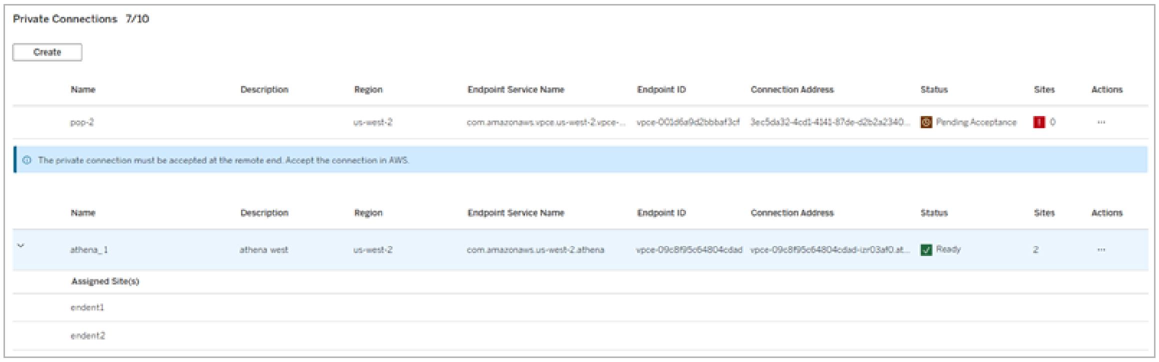
The new private connection is added to the table of private connections, and begins in the **Allocating** state.

Private Connection Status

Select **Sync** in the private connection's **Actions** menu (...) to check for updates in the private connection's status.

Status	Description	Next Steps
Allocating	The private connection is being provisioned. This is a pending state that concludes with either success or failure.	Select **Sync** in the **Actions** menu (...) to check for updated status every few minutes until the status changes. If the status never changes from Allocating, check to make sure your Tableau Cloud site and the endpoint service are in the same AWS area.
PendingAcceptance	Provisioning is waiting because the private connection needs to be accepted by the endpoint service in AWS.	Accept the connection in AWS. Optionally configure the endpoint service in AWS so that it doesn't require acceptance.
RejectedRemotely	The private connection was rejected by the endpoint service in AWS. This is an error state.	Make sure that the endpoint service is configured to allow connections from Tableau Cloud. Verify the IAM ARN is an allowed principal on the AWS endpoint service.
Ready	Provisioning is complete and the private connection can be assigned to sites.	Select **Assign to Sites** in the **Actions** menu (...) to assign the private connection to sites. After a private connection is assigned to a site, site administrators can see it in the site settings **Private Connect** tab, and creators can use it to create content.

Inactive	The private connection is configured but inactive. After 30 days of being inactive, the private connection is deleted.	Delete the private connection if it's not being used, or resolve the reason it's inactive.



Name	Description	Region	Endpoint Service Name	Endpoint ID	Connection Address	Status	Sites	Actions
pop-2		us-west-2	com.amazonaws.vpce.us-west-2.vpce-...	vpce-001d6a9d2bbbaf3cf	3ec5da32-4cd1-4141-87de-d2b2a2340...	Pending Acceptance	! 0	···

The private connection must be accepted at the remote end. Accept the connection in AWS.

Name	Description	Region	Endpoint Service Name	Endpoint ID	Connection Address	Status	Sites	Actions
athena_1	athena west	us-west-2	com.amazonaws.us-west-2.athena	vpce-09c8f95c64804cdad	vpce-09c8f95c64804cdad-izr03af0.at...	✓ Ready	2	···

Assigned Site(s)
endent1
endent2

Assign a Private Connection to Sites

After a private connection's status is **Ready**, it can be assigned to sites. After a private connection is assigned to a site, site administrators can see it in the site settings **Private Connect** tab, and creators can use it to create workbooks and data sources. Data traffic that uses a private connection never traverses the public internet.

To assign a private connection to sites:

1. Find the private connection in the list of private connections.
2. Select **Assign to Sites** in the **Actions** menu (...).
3. Select or deselect sites to change the private connection assignment. You can search for sites using the search bar, or select the check box in the table heading to select or deselect all sites. The number in the **Save Assignment** button indicates the total number of sites that the private connection will be assigned to.
4. Select **Save Assignment**.

Edit the Private Connection Description

To edit the description of a private connection:

1. Find the private connection in the list of private connections.
2. Select **Edit Description** in the **Actions** menu (...).
3. Edit the description.
4. Select **Save**.

The description has no functional effect on the private connection, but can help administrators distinguish one private connection from another.

Delete a Private Connection

To delete a private connection:

1. Find the private connection in the list of private connections.
2. Select **Delete** in the **Actions** menu (...).
3. Select **Delete** in the **Delete Private Connection** dialog.

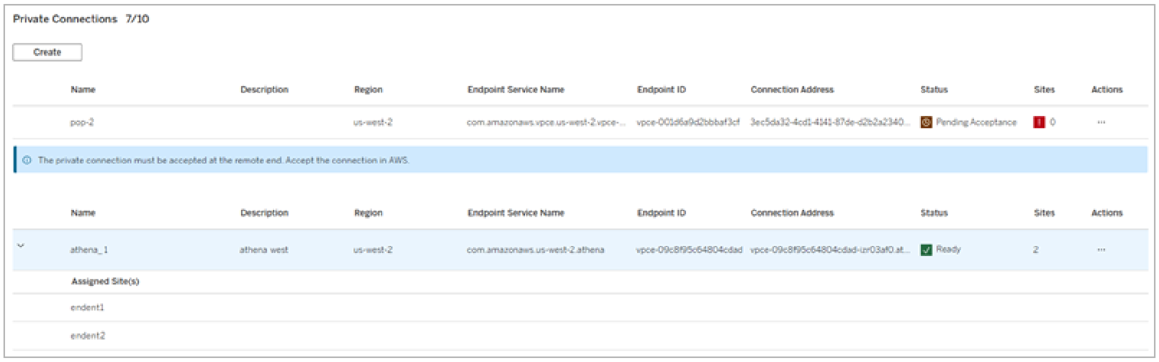
You can't undo a deletion. After the private connection is deleted, workbooks and data sources that use the private connection won't work. Furthermore, because every private connection is assigned a unique connection address at creation time, recreating the private connection won't resolve broken workbooks and data sources. If, however, both the deleted private connection and the recreated private connection use a custom address, and those addresses are the same, the workbooks and data sources will continue to work after private connection delete and recreation.

List and Share Private Connections

Cloud Administrator

As a cloud administrator, see all private connections using the **Private Connect** tab in Tableau Cloud Manager (TCM) **Settings**:

- Log in to Tableau Cloud Manager (TCM).
- Go to **Settings**.
- Select the **Private Connect** tab.



Name	Description	Region	Endpoint Service Name	Endpoint ID	Connection Address	Status	Sites	Actions
pop-2		us-west-2	com.amazonaws.vpce.us-west-2.vpce-...	vpce-001d6a9d2bbbaf3cf	3ec5da32-4cd1-4141-87de-d2b2a2340...	Pending Acceptance	! 0	···

The private connection must be accepted at the remote end. Accept the connection in AWS.

Name	Description	Region	Endpoint Service Name	Endpoint ID	Connection Address	Status	Sites	Actions
athena_1	athena west	us-west-2	com.amazonaws.us-west-2.athena	vpce-09c8f95c64804cdad	vpce-09c8f95c64804cdad-uz03af0.at...	✓ Ready	2	···

Assigned Site(s)
endent1
endent2

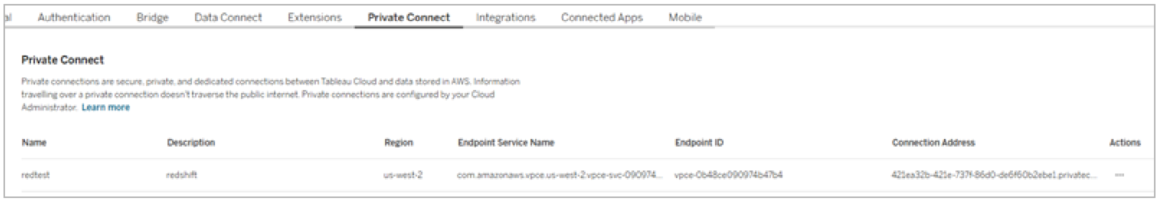
The list of private connections in TCM Settings includes all private connections, regardless of state or site assignment.

If you can't see the **Private Connect** tab, talk to your Tableau account manager and confirm you are using Tableau Cloud with an Enterprise or Tableau+ license edition, and you have at least one Private Connect endpoint add-on license.

Site Administrator

As a site administrator, see useable private connections using the **Private Connect** tab in site **Settings**:

1. Log in to your Tableau Cloud site.
2. Go to **Settings**.
3. Select the **Private Connect** tab.



Private Connect

Private connections are secure, private, and dedicated connections between Tableau Cloud and data stored in AWS. Information travelling over a private connection doesn't traverse the public internet. Private connections are configured by your Cloud Administrator. Learn more

Name	Description	Region	Endpoint Service Name	Endpoint ID	Connection Address	Actions
redtest	redshift	us-west-2	com.amazonaws.vpce.us-west-2.vpce-svc-090974...	vpce-0b48ce090974b47b4	421ea32b-421e-737f-86d0-de6f60b2ebe1.privatec...	···

If you can't see the **Private Connect** tab, or the list of private connections looks inaccurate or incomplete, talk to your cloud administrator.

Share a Private Connection with Creators

Creators need the private connection's **Connection Address** for connecting to the AWS-hosted data. Cloud administrators and site administrators get the **Connection Address** from the private connections table and give it to creators or the group that supports them. The full address is often truncated due to length, and the easiest method to copy the **Connection Address** is to use the **Actions** menu (...):

1. Find the private connection in the list of private connections.
2. Select **Copy Connection Address** in the **Actions** menu (...) to copy the full **Connection Address** to your clipboard.
3. Share the connection address with Creators.

In workbook and data source connection dialogs, creators enter the private connection's **Connection Address** like any other server name. Creators fill in the other connection dialog fields (for example, port, database name, or authentication) the same as the regular, non-private version of the connection.

Migrate from Tableau Bridge to Private Connect

Tableau Bridge, Data Connect, and Private Connect all satisfy security and network requirements that are common when working with Tableau Cloud and private data. In some cases, Private Connect offers a simpler and lower maintenance solution than Tableau Bridge or Data Connect, and you may want to update a workbook or data source so that it uses Private Connect instead of Tableau Bridge or Data Connect. You can update a workbook or data source to use Private Connect by changing the connection server name (and port if required).

Update a data source or workbook to use a private connection

Prerequisites

You need to know the following:

- The **Connection Address** for the private connection. The site administrator and cloud administrator have access to the connection address.

- The port number for the database, if different than the current one. The port number depends on the configuration of the endpoint service in AWS, and the person who configured it (or interacted with the party that did) should know if a different port number is required. The site administrator and cloud administrator should also know.

Update the connection information

1. In the left navigation, select **Explore**.
2. Go to the published data source or workbook.
3. If it's a data source, go to the **Connections** tab. If it's a workbook, go to the **Data Sources** tab.
4. Select the **Actions** menu (...) for the connection or data source, then select **Edit Connection**.
5. Change **Server name** to the private connection **Connection Address**.
6. Change **Server port** to the new port (if a change is required).
7. Change **Network type** to **Tableau Cloud**.
8. Select **Save**.

Considerations for assets with scheduled extract refreshes

- Changing the **Network Type** from **Private Network** to **Tableau Cloud** does not change the network type used by existing extract refresh schedules. If you change the network type for an asset that has an existing extract refresh schedule associated with it, you must create a new extract refresh schedule.
- Extract refreshes over private connections count towards concurrent refreshes, whereas some extract refreshes using Tableau Bridge don't.

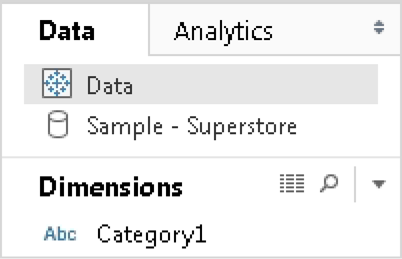
Refresh Published Extracts from Tableau Desktop

You can send updates to published extracts from Tableau Desktop. This option is best for refreshing extracts of data you maintain on your local network.

1. In Tableau Desktop, connect to the data source that is published to Tableau Cloud or open a workbook that connects to it.

   To connect to the server, use the address **https://online.tableau.com**.

In the Data pane, a data source published to a Tableau server shows a Tableau icon next to its name.



2. Select **Data** > **Tableau Data Server**, and then choose one of the following options:

   - **Refresh from Source**

     Refreshes the extract (full or incremental) using the data in the original data source.

     This command is available only for extracts that include a connection to the original data source. If you connected directly to a extract file and then published it, the connection to the original data source is not included.

   - **Append Data from Data Source**

     Updates the extract from another data source in the workbook.

   - **Append Data from File**

     Updates the extract from the contents of a file if the original data source type of the extract is the same file-based data source or extract file.

Note: If you do not see the Tableau Data Server option, your data source may not be published to Tableau Cloud (in which case it will not show the icon above). If you see the Tableau Data Server option, but refresh commands are unavailable, the data source exists on the server, but it is not an extract. For example, it is a live connection to data hosted on the internet.

See also

Topics in the Extracting Data section in the Tableau Help.

Automate Extract Refresh Tasks from the Command Line

You can automate extract refresh tasks using the Tableau Data Extract Command-Line Utility. This is a command-line utility that comes with Tableau Desktop, through which you can refresh published extract data sources or append data to them from a file.

Requirements for using the Tableau Data Extract Command-Line Utility include the following:

- It is available with Tableau Desktop on Windows and can run only on a Windows system.
- It is not available with the trial version of Tableau Desktop.
- You can use it for extract data sources that don't use OAuth.
- You can use it to refresh single-connection data sources only. It does not work for multi-connection data sources.

Deprecated October 2022: This utility isn't available in later releases due to the multi-factor authentication requirement in Tableau Cloud. To refresh data sources or virtual connections data that Tableau Cloud can't reach directly, use Tableau Bridge instead. For more information, see Set Up a Bridge Refresh Schedule.

To initiate refresh jobs using a script, use tabcmd refreshextracts or REST API Run Extract Refresh Task.

Run the utility

1. Open the Command Prompt as an administrator and change to the Tableau Desktop bin directory. For example:

   ```
   cd C:\Program Files\Tableau\Tableau Current\bin
   ```

2. Use either of the following commands, adding parameters described in the tables below.

   - `tableau refreshextract`
   - `tableau addfiletoextract`

Note: When using the utility, always specify `tableau` on the command line or in scripts, never `tableau.exe`.

Note: To troubleshoot, check the logs in the tableaucom.txt file in the \My Tableau Repository\Logs folder.

Note: In a multiple-site environment, specify the site to which the command applies.

Syntax and parameters for the tableau refreshextract command

Use `tableau refreshextract` to refresh an extract on Tableau Server or Tableau Cloud. Refreshing an extract updates an existing extract with any modifications that have been made to the data source since the last refresh.

To see help for this command, at the Windows command prompt, type the following command:

```
tableau help refreshextract
```

Using parameters

- All options have a full form that you use with a double hyphen (for example, `--server`).
- Some options also have a short form that you use with a single hyphen (for example, `-s`).
- If the value for an option contains spaces, enclose it in quotation marks.
- The source being refreshed must be the original data source, not an extract (`.hyper`).

tableau refreshextract command options

Short Form	Full Form	Description
	`--source-username <user name>`	A valid user name for the data source connection. Use this option with `--source-password`, or use `--original-file` instead of the user name and password options. **Note**: You must provide the user name and password when refreshing a published extract, even if the data source was originally published with embedded credentials.
	`--source-password "<password>"`	The password for the data source user.
	`--original-file <path`	Path and file name for the data source to be refreshed on the server. For example: `--ori-`

	`and file name>`
	or
	`--original-file <path and folder name>`
		`ginal-file c:\folder\file.csv`
		To refresh a multi-file data source, pass the path to a folder that contains the data files. For example: –`-original-file c:\folder`.
		If the file is on a network share, use the UNC format for the path: `\\server\path\filename.csv`

	`--force-full-refresh`	If the data source is set up for incremental refreshes, use this option to force a full extract refresh. If this option is not included, an incremental refresh is performed. Not all data sources support incremental refresh.
`-s <server http address>`	`--server <URL>`	The URL for the Tableau server on which the data is published. For Tableau Cloud, specify `https://online.tableau.com`.
`-t <site id>`	`--site <siteid>`	In a multiple-site environment, specifies the site to which the command applies. For Tableau Cloud, use this argument if your user name is associated with more than one site. For Tableau Server, if you do not specify a site, the default site is assumed. The site id is independent of the site name, and it is indicated in the URL when you view the site in a browser. For example, if the URL for the page you see after signing in to Tableau Cloud is `https://online.tableau.com/t/vernazza/views`

		the site id is *vernazza*.
	`--datasource <datasource>`	The name of the data source, as published to Tableau Server or Tableau Cloud.
	`--project <projectname>`	The project to which the data source belongs. If this option is not included, the default project is assumed. If the project you want to specify is a child project nested within a project hierarchy, you must use this parameter along with the `--parent-project-path` parameter.
	`--parent-project-path path/to/project`	If a project to which the data source is published is not at the top level of a project hierarchy, use this parameter along with the `--project` parameter to specify the path to a nested project. Use the forward slash character (`/`) to delimit project levels in the hierarchy. Use the backward slash (`\`), to escape instances of forward or backward slash characters in project names. For example, for a project named Sandbox, in project Social, under top-level Marketing: `--project Sandbox --parent-project-path Marketing/Social`
`-u <username>`	`--username <username>`	Valid Tableau Server or Tableau Cloud user.
`-p "<password>"`	`--password "<password>"`	The password for the specified Tableau Server or Tableau Cloud user.

	`--proxy-username <username>`	The user name for a proxy server.
	`--proxy-password "<password>"`	The password for a proxy server.
`-c "<path and file name>"`	`--config-file "<path and file name>"`	Path and file name information for a file containing configuration options for the command. Always enclose the path in double quotation marks. For more information, see Using a config file below.

Sample tableau refreshextract command

The following command refreshes an extract named CurrentYrOverYrStats that has been published to Tableau Cloud. This command specifies the following:

- Tableau Cloud user and password.
- Tableau Cloud site and project names.
- The data source, which in this case is hosted by a cloud-based data source provider (for example, Salesforce.com), and the username and password to sign in to the hosted data source.

```
C:\Program Files\Tableau\Tableau Current\bin>tableau refreshextract --server https://online.tableau.com --username email@domain.com --password "OurServerPwd" --site vernazza --project "New Animations" --datasource "CurrentYrOverYrStats" --source-username database_user@hosted_datasource_provider.com --source-password "db_password"
```

To refresh an extract of file-based data source, provide the path to the original file from which you created the extract. If the file is on a network share, use the UNC format instead of a mapped drive.

```
C:\Program Files\Tableau\Tableau Current\bin>tableau refreshex-
tract --server https://online.tableau.com --username email@-
domain.com --password "OurServerPwd" --site vernazza --project
"New Animations" --datasource "CurrentYrOverYrStats" --ori-
ginal-file "\\server\path\filename.csv"
```

Syntax for tableau addfiletoextract

Use `tableau addfiletoextract` to append file content to an extract that has been published to Tableau Server or Tableau Cloud. This command combines the two files.

If you want simply to update an existing extract with the latest changes, use the `refreshextract` command instead. Using `addfiletoextract` to update an existing extract will duplicate data instead.

To see help for this command, at the Windows command prompt, type the following command:

```
tableau help addfiletoextract
```

All options have a full form that you use with a double hyphen (for example, `--server`). Some options also have a short form that you use with a single hyphen (for example, `-s`). If the value for an option contains spaces, enclose it in quotation marks.

tableau addfiletoextract command options

Short Form	Full Form	Description
	`--file <path and file name>`	Path and file name information for the data file containing data to append. The file can be from Excel, Access, a Tableau data extract, or a delimited text file. It cannot be password protected. Use UNC format if the file is on a network share. For example, `\\server-`

		`\path\filename.csv`
`-s <server http address>`	`--server <URL>`	The URL for the Tableau server on which the data is published. For Tableau Cloud, specify `https://online.tableau.com`.
`-t <site id>`	`--site <site id>`	In a multiple-site environment, specifies the site to which the command applies. For Tableau Cloud, you must include this argument if your user name is associated with more than one site. For Tableau Server, if you do not specify a site, the default site is assumed.
	`--datasource <datasource>`	The name of the data source, as published to Tableau Server or Tableau Cloud.
	`--project <projectname>`	The project to which the data source belongs. If this option is not included, the default project is assumed. If the project you want to specify is a child project nested within a project hierarchy, you must use this parameter along with the `--parent-project-path` parameter.
	`--parent-project-path path/to/project`	If a project to which the data source is published is not at the top level of a project hierarchy, use this parameter along with the `--project` parameter to specify the path to a nested project.

		Use the forward slash character (`/`) to delimit project levels in the hierarchy. Use the backward slash (`\`), to escape instances of forward or backward slash characters in project names. For example, for a project named Sandbox, in project Social, under top-level Marketing: `--project Sandbox --parent-project-path Marketing/Social`
`-u <username>`	`--username <username>`	Valid Tableau Server or Tableau Cloud user.
`-p "<password>"`	`--password "<password>"`	The password for the specified Tableau Server or Tableau Cloud user.
	`--proxy-username <username>`	The user name for a proxy server.
	`--proxy-password "<password>"`	The password for a proxy server.
`-c "<path and filename>"`	`--config-file "<path and filename>"`	Path and file name information for a file containing configuration options for the command. Always enclose the path in double quotation marks. For more information, see Using a config file below.

Sample tableau addfiletoextract command

```
C:\Program Files\Tableau\Tableau Current\bin>tableau add-
filetoextract --server https://online.tableau.com --username
email@domain.com --password "OurServerPwd" --site vernazza --
```

```
project "New Animations" --datasource "CurrentYrOverYrStats" --
file "C:\Users\user2\Documents\DataUploadFiles\AprMay.csv"
```

Using a config file

You can use a plain text editor, such as Notepad or Text Edit, to create a config (configuration) file that you can use with `tableau refreshextract` or `tableau add-filetoextract`. A config file can be useful if you expect to update the same data source regularly over time. Instead of having to type the same options each time you run a command, you specify the config file. A config file also has the advantage of not exposing user names and passwords on the command line.

Create the config file

For example, say you created a file called config.txt and saved it to your Documents folder. And in the file, you included the parameter information shown below.

For an extract from a hosted data source, published to Tableau Cloud, where **server** is **https://online.tableau.com**:

```
server=https://online.tableau.com
site=vernazza
username=email@domain.com
password=OurPassword
project=New Animations
datasource=CurrentYrOverYrStats
source-username=database_user@hosted_datasource_provider.com
source-password=db_password
```

Reference the Config File from the Command Line

After you create the config file, you run the `tableau refreshextract` or `tableau addfiletoextract` command, pointing to the config file as the only option you use on the command line, and enclosing the config file's path in double quotation marks. The syntax is as follows:

```
tableau refreshextract --config-file "<path>"
```

For example, to refresh the extract specified in the sample in the Create the config file section, you would run the following command (making sure that you are working in the bin directory for your version of Tableau Desktop):

```
C:\Program Files\Tableau\Tableau Current\bin>tableau refreshex-
tract --config-file "C:\Users\user1\Documents\config.txt"
```

Syntax Differences for Config Files

The syntax for specifying options inside a config file differs from the syntax you use on the command line in the following ways:

- Option names do not begin with dashes or hyphens.
- You use an equals sign (with no spaces) to separate option names from option values.
- Quotation marks are not necessary (or allowed) around values, even when they include spaces (as for the `project` option in the example shown earlier).

Use Windows Task Scheduler to Refresh Extracts

You can use Windows Task Scheduler, in combination with the Tableau Data Extract Command-Line Utility, to automate regular updates to Tableau Cloud data sources from within your corporate firewall. You can configure a task to occur once per day, week, or month, or after a specific system event. For example, run the task when the computer starts.

To learn more, see the Task Scheduler How To... page in the Microsoft TechNet library.

Set Up for Data-Driven Alerts

When data reaches important thresholds for your business, data-driven alerts automatically send email notifications to key people users specify. As a Tableau Cloud administrator, you set up data-driven alerts much like you do subscriptions. For information about how users create and manage these alerts, see Send Data-Driven Alerts in Tableau User Help.

Manage all data-driven alerts in a site

1. At the top of the browser window, click **Tasks**, and then click **Alerts**.
2. Select any alerts you want to update.
3. From the **Actions** menu, do any of the following:
    - Add or remove yourself as a recipient.
    - Edit alerts to change data thresholds, delivery schedules, and the full list of recipients.
    - Change alert ownership to different users, or delete alerts.

Disable data-driven alerts for a site

Data-driven alerts are supported for all sites by default, but administrators can disable them for specific ones.

1. While viewing a site, click **Settings** on the left-side navigation pane.
2. Under Data-Driven Alerts, uncheck **Let users create alerts and receive alert emails**.
3. Click **Save**.

Suspend data-driven alerts

Resume suspended alerts

If an alert fails enough times, you'll receive a notification email that your alert has been suspended. There are a few ways that administrators or alert owners can resume a suspended alert:

- From the Tasks > Alerts area of Tableau web pages, an ⚠ icon appears in the Last checked column to indicate that the alert is suspended. Select **...** > **Resume Alert** to resume the alert.
- Click **Resume Alert** in the notification email to resume the alert. A notification will either allow you to resume the alert, or indicate that the view has changed and the alert should be deleted.
- From the Alerts panel of the affected view or workbook. To resume the alert from a view or workbook, select **Alert** to open the Alerts panel. An icon appears next to the suspended alert. Select **Actions** > **Resume Alert** on the affected alert to resume.

Alert owners will receive an email notification when the alert is working again.

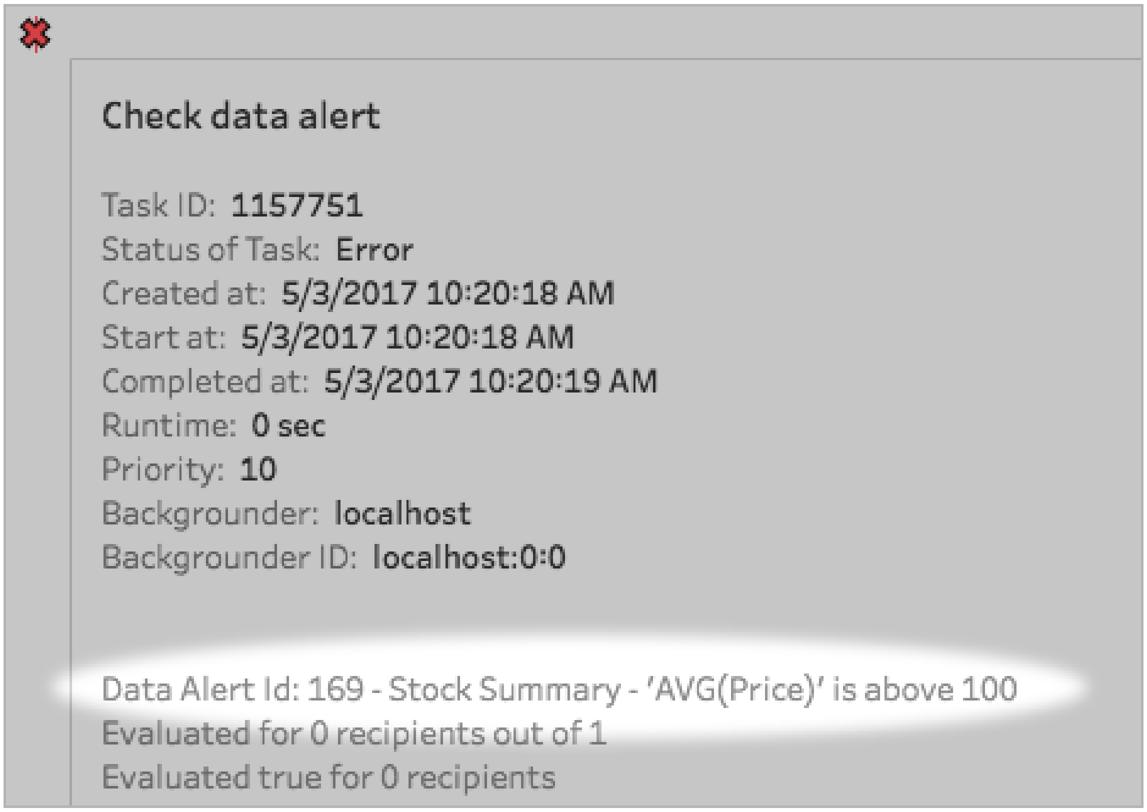
Identify and fix failing alerts

As an administrator, you can proactively identify failing alerts that users may be unaware of. To check:

1. Select Status in your site menu.
2. Select Background tasks for non-extracts.
3. From the Task dropdown menu, select Check if Data Alert is True.
4. In the far right, click Error to see a list of failing alerts.
5. Hover over the red failure icon to display a tooltip with alert details.

To determine the alert owner, look for the alert ID number in the data_alerts table of the Tableau Cloud Repository. (In the alert management area of a site, you can also look for the alert name following the number, but be aware that multiple different alerts may use the same name.)

> **Note:** Alert owners are automatically notified when an alert fails ten times. Administrators can customize when alert owners receive notifications.



Check data alert

Task ID: 1157751
Status of Task: Error
Created at: 5/3/2017 10:20:18 AM
Start at: 5/3/2017 10:20:18 AM
Completed at: 5/3/2017 10:20:19 AM
Runtime: 0 sec
Priority: 10
Backgrounder: localhost
Backgrounder ID: localhost:0:0

Data Alert Id: 169 - Stock Summary - 'AVG(Price)' is above 100
Evaluated for 0 recipients out of 1
Evaluated true for 0 recipients

Failing alerts are often caused by content changes on Tableau Cloud. Encourage users to recreate alerts if changes like the following occur:

- A workbook, view, or data field is removed or renamed.
- Database credentials embedded in workbooks expire.

- Data Driven Alerts require embedded credentials for Live Connections, the use of OAuth isn’t currently supported with Alerts.

- A data source becomes inaccessible.

Set Up for Metrics

Retirement of the legacy metrics feature

Tableau's legacy metrics feature was retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. In October 2023, Tableau retired the ability to embed legacy metrics in Tableau Cloud and in Tableau Server version 2023.3. With Tableau Pulse, we've developed an improved experience to track metrics and ask questions of your data. For more information, see Create Metrics with Tableau Pulse to learn about the new experience and Create and Troubleshoot Metrics (Retired) for the retired feature.

Metrics are a type of Tableau content that tracks the value of an aggregate measure, such as sum of sales. Because metrics refresh frequently and display their current value in an easy-to-glance format, they are useful for monitoring data. To learn more about how users work with metrics, see Create and Troubleshoot Metrics (Retired).

Ensure that users can create metrics

When metrics are enabled for a site, all users with a Creator or Explorer (can publish) site role can create metrics, if they have the correct permissions.

Metrics are created from existing views on a Tableau site. To ensure that users can create metrics on a view, verify that:

- Users have the Create/Refresh Metrics permission capability for the workbook that the view belongs to. For more information, see Permissions.
- The password for the data source is embedded, if it is required. For more information, see Edit Connections on Tableau Cloud.

Disable metrics for a site

Metrics are enabled on all sites by default. You can disable metrics on a per-site basis.

1. On the site where you want to disable metrics, from the navigation panel, click **Settings**.
2. Under **Metrics Content Type**, uncheck **Enable metrics**.
3. Click **Save**.

When you disable the metrics content type, metrics no longer appear on the site. The data for any existing metrics is retained, but these metrics will no longer refresh. If you re-enable metrics, these metrics will reappear and resume refreshing.

You can also disable metrics on a specific workbook by denying the Create/Refresh Metrics permission capability. For more information, see Permissions.

Manage metrics

Though metrics are created from a view, they are not tied to the view like alerts or subscriptions. This means you can manage metrics similar to how you manage workbooks, by renaming, moving, tagging, deleting, or setting permissions on a metric.

Find metrics to manage either by navigating the project hierarchy or via the following paths.

- To see all metrics on a site: Navigate to the Explore section, then select **All Metrics**.
- To see metrics created from all the views in a workbook: Navigate to the workbook, then select the **Connected Metrics** tab.
- To see metrics created from a single view: Open the view, then select **Watch** > **Metrics** from the toolbar.

Address failing and suspended metric refreshes

Metric refreshes may fail for one of the following reasons.

- The connected view was deleted or modified.
- Permissions changed for the connected view.
- The password for the data source is no longer embedded or is no longer valid.

- The metric owner doesn’t have the required site role to refresh the metric. A site role of Creator or Explorer (can publish) is required.
- There was a temporary connectivity issue, which will resolve itself.

Note: If the metric refresh is suspended because the owner doesn’t have the required site role for it to refresh, you won’t be able to resume the refresh unless you change the owner.

For more information on why metric refreshes fail and what users can do to fix them, see Fix failing refreshes.

Encourage users to overwrite a metric if the connected view was modified in a way that caused the refresh to fail, but the view is still available. Users can overwrite a metric by creating a metric with the same name in the same project as the existing metric.

Resume suspended refreshes

If the cause of the failure is fixed, for example by embedding the correct password for the data source, you can resume the metric refresh.

1. Locate the affected metric. Metrics with suspended refreshes display the text **Refresh Suspended**, instead of the time of last refresh, in grid and list view.
2. On the warning message, click **Resume refresh.**

Tableau attempts to perform the refresh. If this attempt succeeds, you’ll receive a confirmation, and the refresh will resume on schedule. If the attempt doesn’t succeed, the refresh remains suspended. You or the metric owner can delete or overwrite the metric, or keep it to reference historical data.

Monitor metric activity with administrative views

Use the administrative views for Tableau Cloud to monitor metric activity.

To monitor metric refresh activity:

1. From the navigation panel, click **Site Status**.
2. Select the **Background Tasks for Non Extracts** dashboard.
3. Filter for the tasks **Find Metrics to Update** or **Update All Metrics on a View**. For more information, see Background Tasks for Non Extracts.

To monitor more metric events, create a custom view using Admin Insights. Connect to the Admin Insights **TS Events** data source and use the **Event Name** dimension to see the following events: Create Metric, Delete Metric, Move Metric From, Move Metric To, and Update Metric. For more information, see Use Admin Insights to Create Custom Views.

Troubleshoot Refresh Issues

When Tableau Cloud is unable to complete a scheduled refresh, an alert appears to indicate that the refresh has failed. If a scheduled refresh fails five consecutive times, Tableau Cloud suspends the refresh. When a refresh is suspended, Tableau Cloud does not try to run it again until you take an action that attempts to correct the cause of the failure.

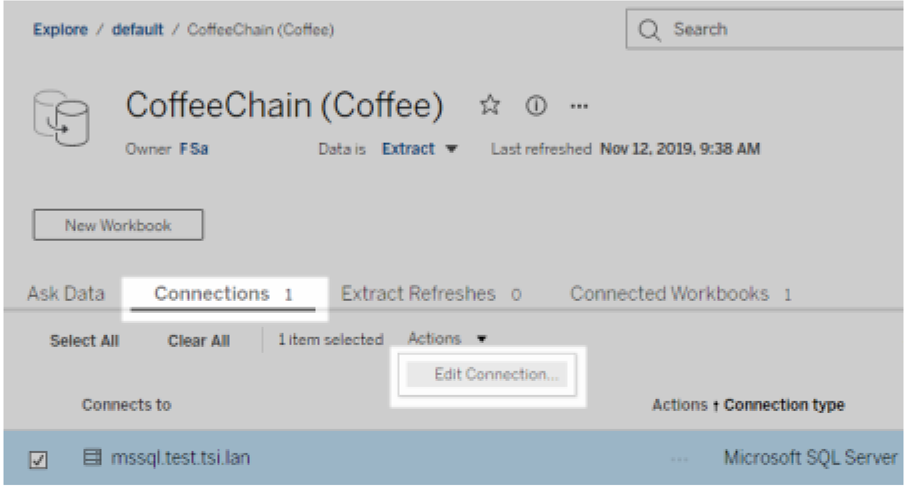
To display an alert that describes the reason the refresh failed, select the notification icon (🔔) in the upper-right corner of the browser window.

Resolve errors and resume suspended refreshes

To help resolve refresh issues, you can take any of these actions, based on the cause indicated in the alert:

- **Errors related to access token validation or user credentials**

  To correct these issues, click the **Connection Details** link in the alert to go to the **Connection** tab on the data source page for the data source whose scheduled failed. On the Connections tab, select the check box next to the data connection, and click **Edit Connection** so you can update a user name or password, or select a different access token. After you update the connection information, Tableau Cloud restarts the refresh schedule.


Explore / default / CoffeeChain (Coffee)
Search
CoffeeChain (Coffee)
New Workbook
Ask Data
Connections 1
Extract Refreshes 0
Connected Workbooks 1
Select All
Clear All
1 item selected
Actions
Edit Connection...
Connects to
Actions
Connection type

Owner FSa

Data is Extract

Last refreshed Nov 12, 2019, 9:38 AM

☑ mssql.test.tsi.lan … Microsoft SQL Server

If you originally embedded the credentials or other data connection information when you published the workbook or data source from Tableau Desktop, you can also republish the workbook or data source. As part of the publishing process, you can choose to set a new refresh schedule. Otherwise, Tableau Cloud restarts the existing schedule.

- **Errors that indicate the database was unreachable**

  Confirm that the underlying database is online and that you can sign in to access its data. You can use the **Try again** link in the alert to restart the refresh schedule.

- **Errors related to Tableau Bridge**

  To troubleshoot errors related to Bridge, see Troubleshoot Private Network Issues.

Troubleshoot Subscriptions

"The view snapshot in this email could not be properly rendered."

If you receive a subscription with this error message, there could be several reasons:

- **Missing credentials**: Some views are published with embedded credentials. You may receive the above error if the embedded credentials are now out-of-date, or if the view was republished without the embedded credentials.
- **Database temporarily down**: If the view has a live database connection and the database was temporarily down when the subscription was being generated, you might receive the above error.

Can't see images in email

For images of content to display in a subscription email, users subscribed to views, in addition to **View** permissions, must also have **Download Image/PDF** permissions. For more information, see Permissions.

Can't subscribe

If you can see a view on Tableau Server and it has a subscription icon (✉) in the upper right corner, you can subscribe to it.

To subscribe to a view, the view you're subscribing to must either have embedded credentials for its data source or not rely on credentials at all. Examples of the latter include a workbook that connects to an extract that isn't being refreshed, or a workbook whose data is in a file that was included with the workbook at publish time. Embedding credentials is a step that happens in Tableau Desktop (see the Tableau Help for details).

No subscription icon

It's possible to see a view but be unable to subscribe to it. This can happen :

- **The view uses a live database connection**: Views with live database connections, where you’re prompted for your database credentials when you first click the view, aren't available for subscription. A subscription includes a view (or workbook), data, and a schedule. To deliver the data required for the view, Tableau Server either needs embedded database credentials or data that doesn't require credentials. Where live database connections are concerned, Tableau Server doesn't have the credentials, only the individual users do. This is why you can only subscribe to views that either don’t require credentials or have them embedded.

Missing attachments

You can add a PDF attachment to your subscription if your administrator has it enabled. If the PDF attachment is missing from your subscription, it might be because the size of the PDF exceeds the email size limit. In Tableau Cloud, each site has a maximum email size of 2MB. For details, see Tableau Cloud Site Capacity.

Starting in Tableau 2024.1, you can send emails with your own sending server, which will allow you to send attachments with a maximum email size of 10MB.

To enable this feature, navigate to site settings, find the **Customize Email Notifications** section, and check the box next to **Use your SMTP server**.

> Note: If you're using your own sending server, Tableau will attempt to send a subscription email with a subset of the attachment that is under the 10MB limit, but this is not guaranteed. If Tableau can't send the attachment, you'll see a message letting you know that the attachment is too large to send.

Suspended Subscriptions

By default, a subscription is suspended after 5 consecutive subscription failures.

Resume suspended subscriptions

Subscription owners can resume subscriptions:

- from My Subscription tab in Content Settings
- from the Subscriptions tab per workbook

When a subscription is resumed, the alert failing count goes back to zero. The next evaluation of the subscription will occur at the next scheduled evaluation time.

Can't set subscription frequency to "When Data Refreshes"

You can set subscriptions to run when an extract refreshes if the workbook uses a connection to a published extract. When creating or modifying a subscription, you might not see a **Frequency** option if the workbook uses:

- An extract refresh through Tableau Bridge
- More than one extract refresh
- A live data connection

> **Note**: If a workbook's data source contains multiple connections where one connection is to a published extract and the other connection requires Tableau Bridge, you might be able to set the subscription frequency to **When Data Refreshes**. If selected, the subscription will run on the extract refresh, not the Tableau Bridge refresh.

Missing data quality warnings or sensitivity labels

Data quality warnings and sensitivity labels are included in subscription emails when:

- Tableau Server or Tableau Cloud is licensed with Data Management. For more information, see About Data Management.
- Tableau Catalog is enabled. For more information, see Enable Tableau Catalog.
- In site settings, the check box under **High-Visibility Data Labels in View and Workbook Subscriptions** is selected. (In earlier versions, the check box is under **Data Quality Warnings in Subscriptions**.)

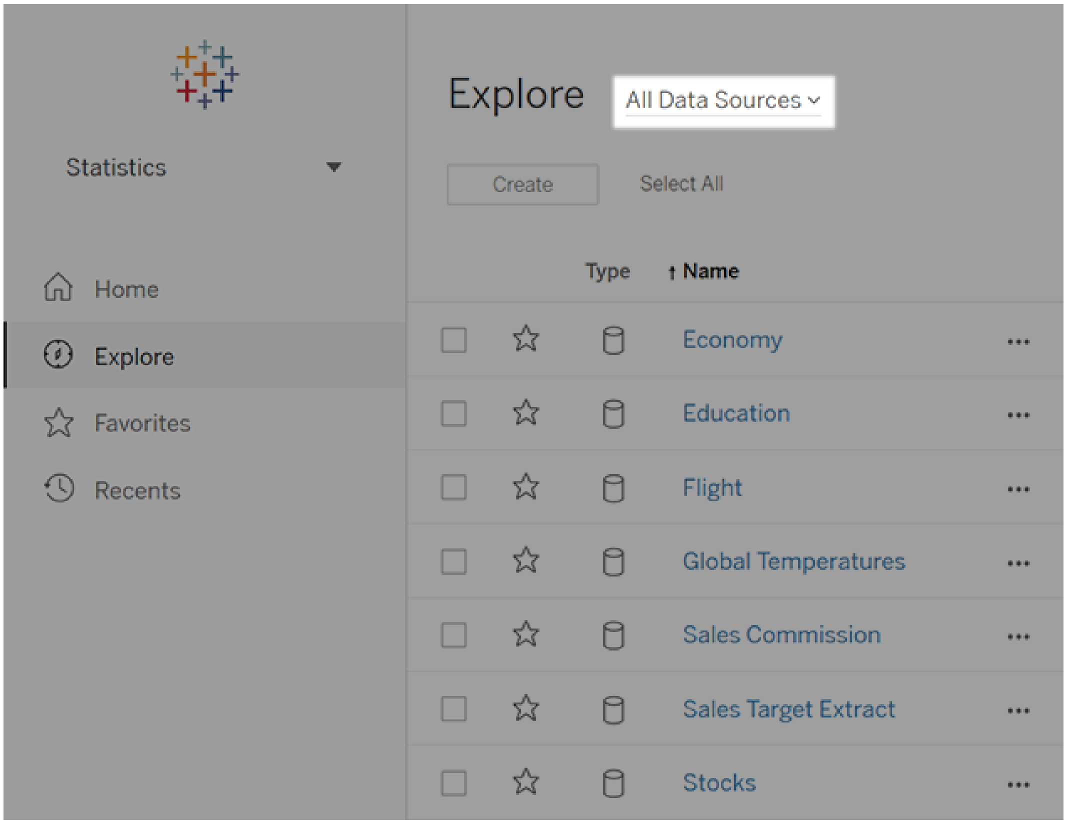
Manage Connection Information

Edit Connections on Tableau Cloud

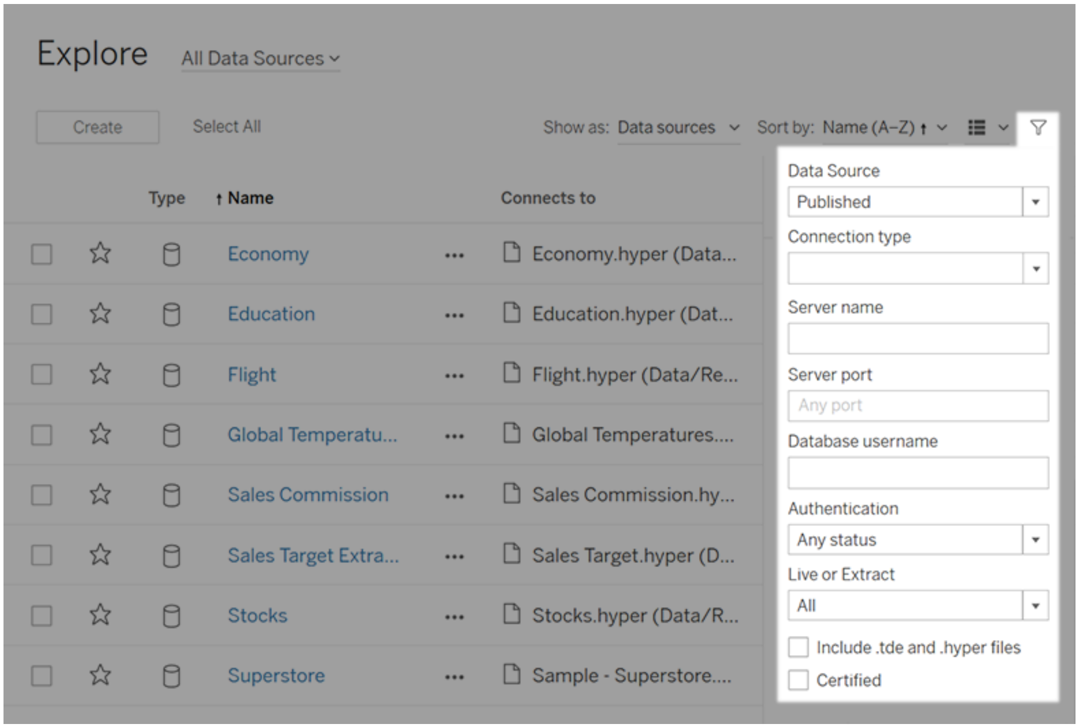
Administrators and data source owners can manage a published data source's connection information. The connection information describes the data source, its owner, and how to access the data. You can embed database credentials in the connection to allow users to access the data directly or to enable scheduled refreshes for extracts. Alternatively, you can set the connection so that users are prompted to sign in. You can also change the server name for cloud-based data.

The data source owner or a site administrator can manage this information directly on the site. For example, you can update tags or change the data source owner, without having to republish the data source.

1. On the site that has the data source you want to modify, open the Explore page, then filter to show **All Data Sources**.


Statistics
Home
Explore
Favorites
Recents
Explore
All Data Sources
Create
Select All
Type
Name
Economy
Education
Flight
Global Temperatures
Sales Commission
Sales Target Extract
Stocks

If there are a large number of data sources, use filters to narrow the list.



☐		Type	↑ Name		Connects to
☐	☆		Economy	•••	Economy.hyper (Data...
☐	☆		Education	•••	Education.hyper (Dat...
☐	☆		Flight	•••	Flight.hyper (Data/Re...
☐	☆		Global Temperatu...	•••	Global Temperatures....
☐	☆		Sales Commission	•••	Sales Commission.hy...
☐	☆		Sales Target Extra...	•••	Sales Target.hyper (D...
☐	☆		Stocks	•••	Stocks.hyper (Data/R...
☐	☆		Superstore	•••	Sample - Superstore....

Data Source: Published
Connection type:
Server name:
Server port: Any port
Database username:
Authentication: Any status
Live or Extract: All
☐ Include .tde and .hyper files
☐ Certified

2. Select the check box next to the data source you want to update, and on the **Actions** menu, select **Edit Connection**.

   Note: To edit the connection type of extract refreshes for online schedules to use Tableau Cloud instead of Bridge, see Change the connection type of a refresh to use Tableau Cloud.

3. Update the connection information and click **Save**.

   For connections that support using saved credentials to refresh the data, see Refresh Data Using Saved Credentials.

> **Note**: The **Test connection** button doesn't support Bridge connections. As an alternative to testing your connection with this button, consider running a manual

refresh to test the connection instead. For more information about running a manual refresh, see Start a Refresh Task Manually.

4. Refresh the Data Connections page (press F5 or Ctrl+R) for your changes to take effect.

OAuth Connections

An alternative to storing your sensitive database credentials with Tableau Cloud or Tableau Server is to create connections using the **OAuth 2.0** standard. The following connectors support OAuth authentication:

- Anaplan
- Azure Data Lake Storage Gen2, Azure SQL, Azure Synapse
- Box
- Esri ArcGIS Server
- Databricks
- Dremio
- Dropbox
- Google Ads, Google Analytics, Google BigQuery, Google Drive
- LinkedIn Sales Navigator
- Marketo
- OneDrive
- Oracle Eloqua
- QuickBooks Online
- Salesforce, Salesforce CDP
- SAP HANA
- ServiceNow ITSM
- Snowflake

From Tableau, when users sign in to data with a connector that uses OAuth, users are redirected to the authentication provider’s sign in page. After users provide their credentials and authorize Tableau to access their data, the authentication provider sends Tableau an **access token** that uniquely identifies Tableau and the users. This access token is used to access data on users' behalf. For more information, see Overview of the OAuth process below.

Using OAuth-based connections provides the following benefits:

- **Security:** Your database credentials are never known to or stored in Tableau Cloud, and the access token can be used only by Tableau on behalf of users.
- **Convenience:** Instead of having to embed your data source ID and password in multiple places, you can use the token provided for a particular data provider for all published workbooks and data sources that access that data provider.

> **Note:** For live connections to Google BigQuery data, each workbook viewer can have a unique access token that identifies the user, rather than sharing a single username and password credential.

Overview of the OAuth process

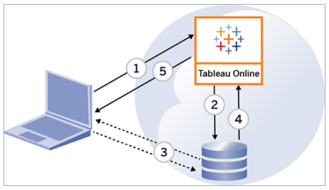
The following steps describe a workflow in the Tableau environment that calls the OAuth process.

1. A user takes an action that requires access to a cloud-based data source.

   For example, you open a workbook that’s published to Tableau Cloud.

2. Tableau directs the user to the cloud data provider’s sign in page. The information that is sent to the data provider identifies Tableau as the requesting site.
3. When the user signs in to the data, the provider prompts the user to confirm their authorization for Tableau Cloud to access the data.
4. Upon the user's confirmation, the data provider sends an access token back to Tableau Cloud.

5. Tableau Cloud presents the workbook and data to the user.



Note: Support for single use refresh tokens (sometimes called one-time use refresh tokens, rolling refresh tokens, or refresh token rotation) for OAuth connections to Tableau Cloud was added with the 2025.2 (Summer 2025) release. Single use refresh tokens are not yet supported in Tableau Bridge or Tableau Server. Support for these tokens in Tableau Bridge and Tableau Server is planned in a future release.

The following user workflows can use the OAuth process:

- Creating a workbook and connecting to the data source from Tableau Desktop or from Tableau Cloud.
- Publishing a data source from Tableau Desktop.
- Signing in to a Tableau Cloud site from an approved *client*, such as Tableau Mobile or Tableau Desktop.
- Using Tableau Bridge to access on-premises data. See Connectivity with Bridge.

Default saved credential connectors

Saved credentials refers to the functionality where Tableau Cloud stores user tokens for OAuth connections. This allows users to save their OAuth credentials to their user profile on Tableau Cloud. After they've saved the credentials, they won't be prompted when they subsequently publish, edit, or refresh when accessing the connector.

Note: When editing Tableau Prep flows on the web, you may still be prompted to reauthenticate.

All supported connectors are listed under **Saved Credentials for Data Sources** on users' **My Account Settings** page on Tableau Cloud. Users manage their saved credentials for each connector.

Access tokens for data connections

You can embed credentials based on access tokens with data connections, to enable direct access after the initial authentication process. An access token is valid until a Tableau Cloud user deletes it, or the data provider revokes it.

It's possible to exceed the number of access tokens your data source provider allows. If that's the case, when a user creates a token, the data provider uses the length of time since last access to decide which token to invalidate to make room for the new one.

Access tokens for authentication from approved clients

By default, Tableau Cloud sites allow users to access their sites directly from approved Tableau clients, after users provide their credentials the first time they sign in. This type of authentication also uses OAuth access tokens to store the users' credentials securely.

For more information, see Access Sites from Connected Clients.

Default-managed keychain connectors

Managed keychain refers to the functionality where OAuth tokens are generated for Tableau Cloud by the provider and shared by all users in the same site. When a user first publishes a data source, Tableau Server prompts the user for the data source credentials. Tableau Cloud submits the credentials to the data source provider, which returns OAuth tokens for Tableau Cloud to use on behalf of the user. On subsequent publishing operations, the OAuth token stored by Tableau Cloud for the same class and username is used so that the user isn't prompted for the OAuth credentials. Should the data source password change, then the preceding process is repeated and the old token is replaced by a new token on Tableau Cloud.

Additional OAuth configuration on Tableau Cloud isn't required for the default-managed keychain connectors:

- Google Analytics, Google BigQuery, and Google Sheets (deprecated in March 2022)
- Salesforce

Configure custom OAuth

Beginning with 2021.2, as a site admin, you can configure a custom OAuth client, for each OAuth supported data provider (connector), to override the pre-configured OAuth client settings for your site. You might consider configuring a custom OAuth client to support securely connecting to data that requires unique OAuth clients.

When a custom OAuth client is configured, default configurations are ignored and all new OAuth credentials created on the site use the custom OAuth client by default.

Important: Existing OAuth credentials established before the custom OAuth client is configured are temporarily usable but both site admins and users must update saved credentials to help ensure uninterrupted data access.

Step 1: Prepare the OAuth client ID, client secret, and redirect URL

Before you can configure the custom OAuth client, you must collect the information listed after this. After you have this information, you can configure the custom OAuth client for each of the OAuth supported connector.

- **OAuth client ID and client secret:** First register the OAuth client with the data provider (connector) to retrieve the client ID and client secret. Supported connectors include:
  - Azure Data Lake Storage Gen2, Azure SQL Database, Azure Synapse
  - Databricks
  - Dremio
  - Dropbox
  - Google Analytics, Google BigQuery, Google Sheets (deprecated in March 2022)
  - Intuit Quick books Online
  - Salesforce, Salesforce CDP
  - Snowflake (For more information, see OAuth Configuration and Usage in the Tableau Connector SDK documentation.)

- **Redirect URL:** Note the pod your Tableau Cloud site is located to ensure you enter the correct redirect URL during the registration process in **Step 2** below. The redirect URL uses the following format:

  https://<your_pod>.online.tableau.com/auth/add_oauth_token

  For example, https://us-west-2b.online.tableau.com/auth/add_oauth_token

  > **Note:** For more information about pods, see the Salesforce Trust page.

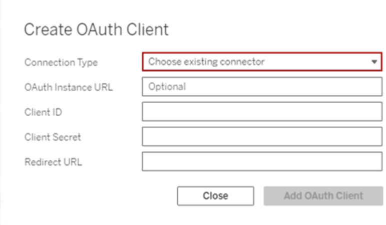
Step 2: Register OAuth client ID and client secret

Follow the procedure described below to register the custom OAuth client to your site.

1. Sign in to Tableau Cloud using your site admin credentials and navigate to the **Settings** page.
2. Under OAuth Clients Registry, click the **Add OAuth Client** button.
3. Enter the required information, including the information from **Step 1** above:

   Note: Leave the **OAuth Instance URL** field blank unless using multiple OAuth clients.

   a. For **Connection Type**, select a database class value that corresponds to the connector whose custom OAuth client you want to configure.
   b. For **Client ID**, **Client Secret**, and **Redirect URL**, enter the information you prepared in **Step 1** above.
   c. Click the **Add OAuth Client** button to complete the registration process.


Create OAuth Client
Connection Type
Choose existing connector
OAuth Instance URL
Optional
Client ID
Client Secret
Redirect URL
Close
Add OAuth Client

4. (Optional) Repeat step 3 for additional connectors.
5. Click the **Save** button at the bottom or top of the Settings page to save changes.

Step 3: Validate and update saved credentials

To help ensure uninterrupted data access, you (and your site users) must delete the previous saved credentials and add it again to use the custom OAuth client instead of the default OAuth client.

1. Navigate to your **My Account Settings** page.
2. Under **Saved Credentials for Data Sources**, do the following:
    1. Click **Delete** next to the existing saved credentials for the connector whose custom OAuth client you configured in **Step 2** above.
    2. Next to the same connector, click **Add,** and follow the prompts to 1) connect to the custom OAuth client configured in **Step 2** above and 2) save the latest credentials.

Step 4: Notify users to update their saved credentials

Make sure you notify your site users to update their saved credentials for the data provider whose custom OAuth client you configured in **Step 2** above. Site users can use the procedure described in Update saved credentials to update their saved credentials.

Connect Tableau Cloud Web Authoring to Salesforce Data Cloud

The Salesforce Data Cloud connector was released in Tableau Cloud October 2023. This connector seamlessly connects Tableau to Data Cloud, and is available for Tableau Desktop, Tableau Cloud, Tableau Server, and Tableau Prep. Compared to the older CDP connector, the Salesforce Data Cloud connector is easier to connect with, shows object labels instead of API names, and is powered by accelerated queries.

> **Note**: Data Cloud was previously called Customer Data Platform (CDP). The Customer Data Platform connector was deprecated in October 2023, was made unavailable for new connections in Tableau Cloud June 2024, and is removed entirely from Tableau Cloud October 2024 and later. Existing assets that use the CDP connector must be recreated using the Salesforce Data Cloud connector.

Connect Tableau Cloud Web Authoring to the Customer Data Platform by completing the following steps.

1. From an **Explore** page, select **New**, then **Workbook**. Or select the **Data** menu, then **New Data Source**.
2. In the **Connect to Data** window, select the **Connectors** tab.
3. Select **Salesforce Data Cloud**.
4. Log in and allow access when prompted.
5. Select the **Data space**. Data spaces represent a logical segregation of the data in Data Cloud. Data spaces didn't exist before the Salesforce June' 23 release.
6. Use **Object** to filter by the type of Data Cloud object, or select **All Objects**.

External OAuth for SAP HANA

Starting in Tableau 2024.3 for Tableau Cloud, you can use OAuth 2.0/OIDC to federate identity from an external identity provider to HANA.

Depending on the identity provider, there are different steps needed to configure the integration. This is a high-level overview.

> **Note**: Single use refresh tokens are not supported for OAuth connections to Tableau at this time. In most cases, you can set up your identity provider (such as Okta) to use rolling refresh tokens instead. For more information, see your provider’s OAuth documentation.

Configure IDP on HANA

For information on configuring your IdP on HANA, see Single Sign-On Using JSON Web Tokens in the SAP help system.

Here are some examples of different ways to set up IdP:

- Okta IdP using HANA Cockpit: Empower your users to access SAP HANA data with Okta identities
- Azure IdP using HANA Studio: Setting Up an SAP HANA Instance with OAuth or SSO

Configure the IDP

1. Create OAuth clients on the IDP for Tableau Desktop, and Tableau Server or Tableau Cloud. The Desktop client should enable `PKCE` and use `http://localhost` redirects.

2. Create the Tableau OAuth config files. For details on how to do this, see OAuth Configuration and Usage on GitHub, and examples here. We welcome examples for other IDPs.

   a. Be sure to prefix the Tableau OAuth config IDs with “`custom_`”.

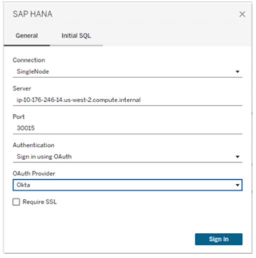
   > **Note:** Oauth config IDs have a maximum limit of 36 characters. IDs longer than this may not generate an error, but will not work.

   b. If your IDP supports dynamic localhost port then disable `OAUTH_CAP_FIXED_PORT_IN_CALLBACK_URL`. If your IDP does not support this, make sure to add several localhost callback URLs to the allowlist in the config file and on the IDP.

3. Install the new Tableau OAuth configuration files in the `OAuthConfigs` folder associated with each application on desktop hosts (Tableau Desktop, Tableau Prep Builder, Tableau Bridge), and on each Tableau Server and Tableau Cloud site that will be using OAuth, via the site settings page. For more details, see Custom OAuth Configs on Desktop and Site Level OAuth Clients.

Connect to HANA

The user must select **Sign in using OAuth**, and select the **OAuth Provider** installed earlier.



SAP HANA

Connection: SingleNode

Server: ip-10-176-246-14.us-west-2.compute.internal

Port: 30015

Authentication: Sign in using OAuth

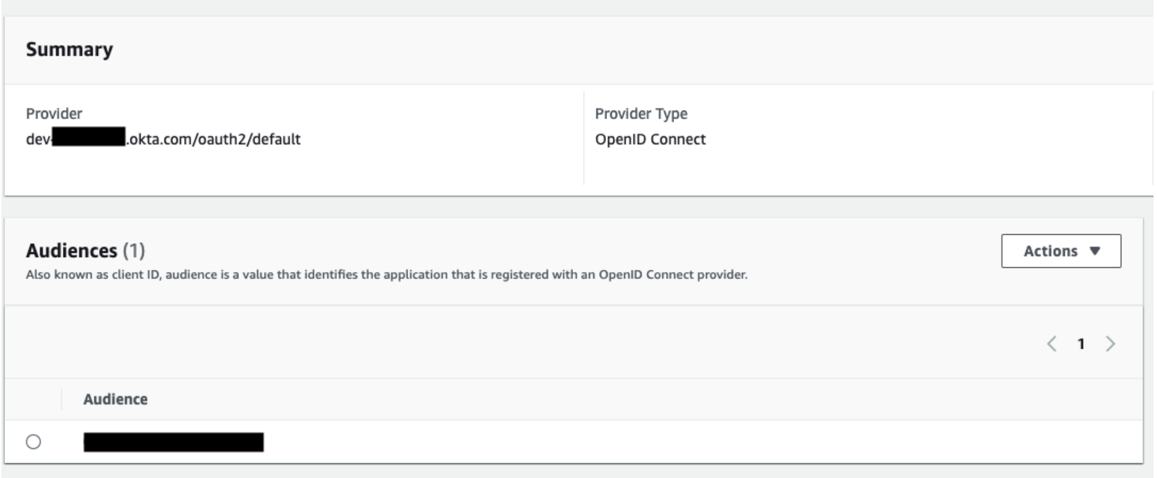
OAuth Provider: Okta

☐ Require SSL

Okta

If using Okta it’s better to use a “custom authorization server” rather than the “org authorization server.” The custom authorization servers are more flexible. There is a custom authorization server created by default, which is called “default”. The authorization URL should look like this:

```
https://${yourOktaDomain}/oauth2/{authServerName}/v1/authorize
```



Summary

Provider: dev-[redacted].okta.com/oauth2/default

Provider Type: OpenID Connect

Audiences (1)

Also known as client ID, audience is a value that identifies the application that is registered with an OpenID Connect provider.

	Audience
○	[redacted]

External OAuth for Snowflake

Starting in Tableau 2024.3, you can use OAuth 2.0/OIDC to federate identity from an external identity provider to Snowflake.

Depending on the identity provider, there are different steps needed to configure the integration. This is a high-level overview intended to guide your configuration without providing the necessary details you'll find in your identity provider documentation. It is assumed you are familiar with configuring OAuth and understand the technical details required in setting up authentication with an external identity provider.

Configure IDP on Snowflake

For information on configuring your IDP, see External OAuth overview in Snowflake's help system.

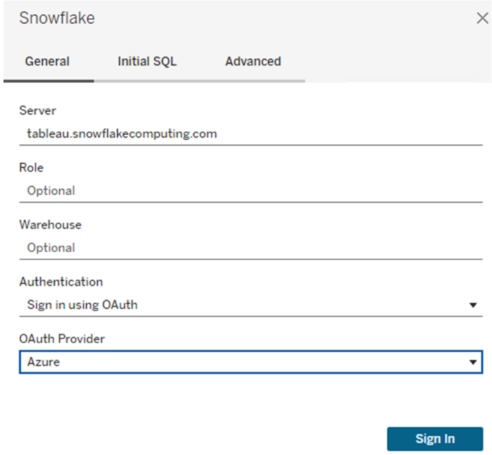
Configure the IDP on Tableau

1. Create OAuth clients on the IDP for Tableau Desktop, and on Tableau Cloud or Tableau Server. The Desktop client enables PKCE and uses `http://localhost` redirects.
2. Create the Tableau OAuth config file. For details on how to do this, see OAuth Configuration and Usage on github, and examples here. We welcome additional examples for other IDPs.
    A. Be sure to prefix the Tableau OAuth config IDs with “custom_”.

    > **Note:** Oauth config IDs have a maximum limit of 36 characters. IDs longer than this may not generate an error, but will not work.

    B. If your IDP supports dynamic localhost port, disable `OAUTH_CAP_FIXED_PORT_IN_CALLBACK_URL`. If your IDP does not support this, make sure to add several localhost callback URLs to the allowlist in the config file and on the IDP.
3. Install the new Tableau OAuth configuration files in the OAuthConfigs folder associated with each application on desktop hosts (Tableau Desktop, Tableau Prep Builder, Tableau Bridge), and on each Tableau Server and Tableau Cloud site that will be using OAuth via site settings page. For more details, see Custom OAuth Configs on Desktop and Site Level OAuth Clients.

When connecting, you must select OAuth and choose the OAuth configuration installed earlier.



Snowflake

Server: tableau.snowflakecomputing.com

Role: Optional

Warehouse: Optional

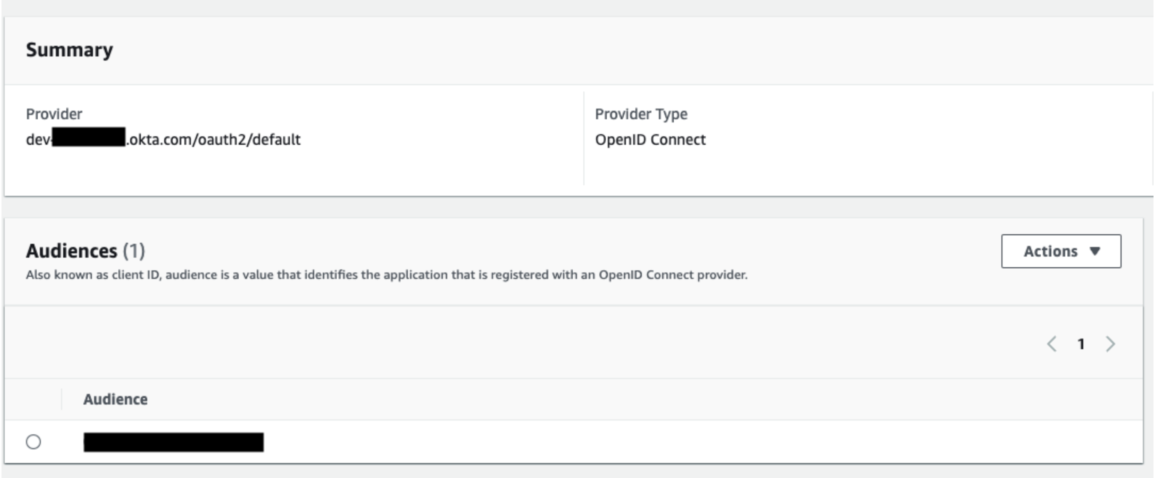
Authentication: Sign in using OAuth

OAuth Provider: Azure

Okta

If using Okta it’s better to use a “custom authorization server” rather than the “org authorization server.” The custom authorization servers are more flexible. There’s a custom authorization server created by default, which is called “default”. The authorization URL should look like this:

```
https://${yourOktaDomain}/oauth2/{authServerName}/v1/authorize
```



Summary

Provider: dev[redacted].okta.com/oauth2/default

Provider Type: OpenID Connect

Audiences (1)

Also known as client ID, audience is a value that identifies the application that is registered with an OpenID Connect provider.

	Audience
○	[redacted]

Set Up Amazon Redshift IAM OAuth

These instructions are for the older AWS IAM service. For IAM IDC integration see Set Up Amazon Redshift IAM Identity Center OAuth.

Depending on the identity provider, there are different steps needed to configure the integration. This is a high-level overview. Tableau cannot provide detailed instructions for how to configure AWS or the IDP, but the general approach is described below.

> **Note**: Single use refresh tokens (sometimes called rolling refresh tokens or refresh token rotation) are not supported for OAuth connections to Tableau at this time. Support for these tokens are planned for a future release.

Step 1: Configure the IDP

1. Create OAuth clients on the IDP for Tableau Desktop, and Tableau Server or Tableau Cloud. The Desktop client should enable `PKCE` and use `http://localhost` redirects.
2. Add custom claims to use for authorization to roles. In particular, if you are using original IAM, you may want to add claims for `DbUser` and `DbGroups`. These can be used in your IAM policies later.
3. Create the Tableau OAuth config files. See documentation on GitHub, and examples here. We welcome examples for other IDPs.
    a. Be sure to prefix the Tableau OAuth config IDs with “`custom_`”.

    > **Note:** Oauth config IDs have a maximum limit of 36 characters. IDs longer than this may not generate an error, but will not work.

   b. If your IDP supports dynamic localhost port then disable `OAUTH_CAP_FIXED_PORT_IN_CALLBACK_URL`. If your IDP does not support this, make sure to add several localhost callback URLs to the allowlist in the config file and on the IDP.

4. Install the new Tableau OAuth configuration files in the `OAuthConfigs` folder associated with each application on desktop hosts (Tableau Desktop, Tableau Prep Builder, Tableau Bridge), and on each Tableau Server and Tableau Cloud site that will be using OAuth.

Configure IDP on AWS

1. Create the IDP model on the AWS. See Amazon docs Web Identity Federation and Create OIDC Identity Provider.

2. Create roles and policies specifically for the IDP. See Create Role for OIDC in the AWS docs.

Configure Roles for Redshift Users

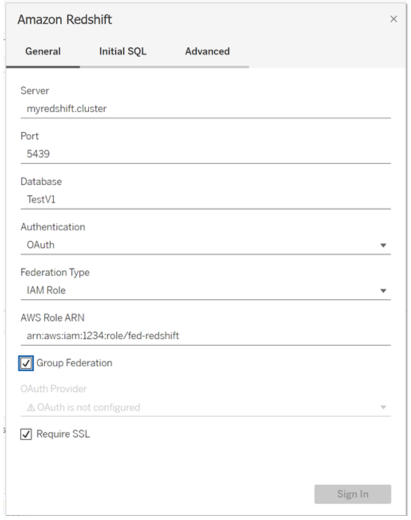
Attach the policies needed for Redshift. You may use custom claims from the token to authorize to roles. There are several examples with SAML in the AWS documentation. These can be easily adapted to OAuth. In the case of OAuth, the claims are just “`DbUser`”, “`DbGroups`”, etc.

Here is an example of the policy from the AWS documentation:

```
{
"Version": "2012-10-17",
"Statement": [
    {
        "Effect": "Allow",
        "Action": "redshift:GetClusterCredentials",
        "Resource": [
            "arn:aws:redshift:us-west-1:123456789012:dbname:cluster-
identifier/dev",
            "arn:aws:redshift:us-west-1:123456789012:dbuser:cluster-
identifier/${redshift:DbUser}",
            "arn:aws:redshift:us-west-
1:123456789012:cluster:cluster-identifier"
        ],
        "Condition": {
            "StringEquals": {
                "aws:userid": "AROAJ2UCCR6DPCEXAMPLE:${red-
shift:DbUser}@example.com"
            }
        }
    },
    {
        "Effect": "Allow"
        "Action": "redshift:CreateClusterUser",
        "Resource": "arn:aws:redshift:us-west-1:12345:d-
buser:cluster-identifier/${redshift:DbUser}"
    },
    {
        "Effect": "Allow",
        "Action": "redshift:JoinGroup",
        "Resource": "arn:aws:redshift:us-west-1:12345:d-
bgroup:cluster-identifier/my_dbgroup"
    },
    {
        "Effect": "Allow",
        "Action": [
            "redshift:DescribeClusters",
            "iam:ListRoles"
        ],
        "Resource": "*"
    }
]
}
```

Connect to Redshift

The user must specify the **role ARN** to assume, and select the OAuth config installed earlier.



Server: myredshift.cluster
Port: 5439
Database: TestV1
Authentication: OAuth
Federation Type: IAM Role
AWS Role ARN: arn:aws:iam:1234:role/fed-redshift
☑ Group Federation
OAuth Provider: ⚠ OAuth is not configured
☑ Require SSL

When properly configured, the user will be redirected to the IDP to authenticate and authorize tokens for Tableau. Tableau will receive openid and refresh tokens. AWS is able to validate the token and signature from the IDP, extract the claims from the token, look up the mapping of claims to IAM role, and either permit or block Tableau from assuming the role on the user's behalf. (in other words, AssumeRoleWithWebIdentity).

Tokens

By default Redshift OAuth IAM passes the ID token to the driver. For on-premise customers, including those using Tableau Bridge, you may use a TDC file to pass the access token instead.

```
<connection-customization class='redshift' enabled='true' ver-
sion='10.0'>
       <vendor name='redshift' />
       <driver name='redshift' />
       <customizations>
               <customization name='CAP_OAUTH_FEDERATE_ACCESS_TOKEN' value-
='yes'/>
       </customizations>
</connection-customization>
```

For more information about configuring and installing .tdc files, see Customize and Tune a Connection and Using a .tdc File with Tableau Server.

About Group Federation

When using OAuth authentication with an IAM Role, you can select whether or not you are using Group Federation. This will change how the connector interacts with the authentication API to interface with Redshift.

- When the Group Federation box (available in versions 2025.1 and beyond) is checked while connecting, the Redshift driver will use the `getClusterCredentialsWithIAM` API for obtaining the credentials in provisioned clusters.
- When the Group Federation box is not checked, the `getClusterCredentials` API will be used instead.

These two APIs will return IAM tokens with slightly different properties. For more information, consult the AWS API documentation linked above, and ODBC driver options.

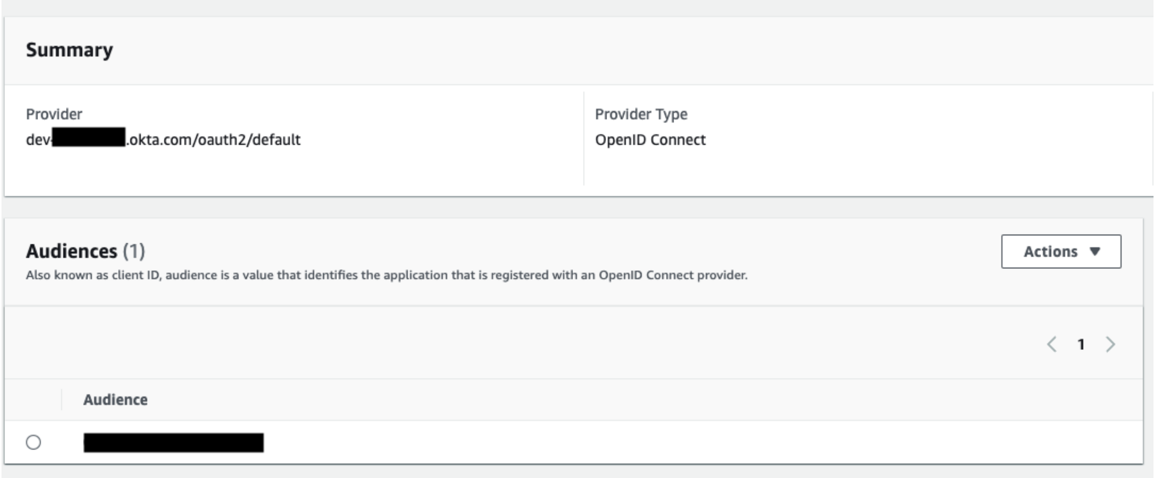
Usage Notes

- For Tableau Desktop and Tableau Prep Builder before version 2024.3, this can be set in the advanced driver configuration field using 'group_federation=1'. It can also be configured by using a TDC file to define custom connection properties. For more information on using a TDC, see Customize and Tune a Connection.
- Starting in version 2024.3, there is a group_federation field in the connection dialog for on-premise (Tableau Desktop, Tableau Prep Builder, and Tableau Server). This will be available in Tableau Cloud starting in 2025.1 (Available in February 2025).
- To use Group Federation with Tableau Server, group_federation must be added to the ODBC extras allowlist. For more information, see Customize Connection String for Native Connectors.

Okta

If using Okta it’s better to use a “custom authorization server” rather than the “org authorization server.” The custom authorization servers are more flexible. There is a custom authorization server created by default, which is called “default”. The authorization URL should look like this:

```
https://${yourOktaDomain}/oauth2/{authServerName}/v1/authorize
```



Summary

Provider
dev[redacted].okta.com/oauth2/default

Provider Type
OpenID Connect

Audiences (1)
Also known as client ID, audience is a value that identifies the application that is registered with an OpenID Connect provider.

○ [redacted]

Update Driver

For Redshift OAuth using the original IAM service, you may use either:

- Redshift ODBC v1 driver starting with version 1.59, which can be downloaded from https://docs.aws.amazon.com/redshift/latest/mgmt/configure-odbc-connection.html.
- Redshift ODBC v2 driver starting with version 2.0.1.0, which can be downloaded from https://github.com/aws/amazon-redshift-odbc-driver/tags. Note there is no v2 driver for OSX.

Troubleshooting

The best way to diagnose errors is to remove Tableau from the picture. You can instead test using the driver manager or a similar tool. This is just for troubleshooting - you shouldn't use a DSN or the "Other ODBC" connector for regular usage of this feature. To help ensure a valid test, the parameters should be the same as shown below, except for the cluster information, database, token, and namespace.

Note: Don't specify DbUser or DbGroups in the connection string of the DSN when testing because Tableau does not have access to these and cannot include them in the connection string. You may include it in the token claims.

If you see an error message about invalid/expired token coming from the driver on the first connection (it will have a SQLState error code like [28000] or [08001] in the error message), then Tableau successfully completed the OAuth flow, and failed in the driver. This means there is a misconfiguration on either the AWS side or the IDP side. There may also be permissions or authorization errors returned from the driver, which is also out of Tableau's control.

Before you begin testing, you first need to get an access token (the default for IAM IDC) or refresh token (if customized) to send to the driver.

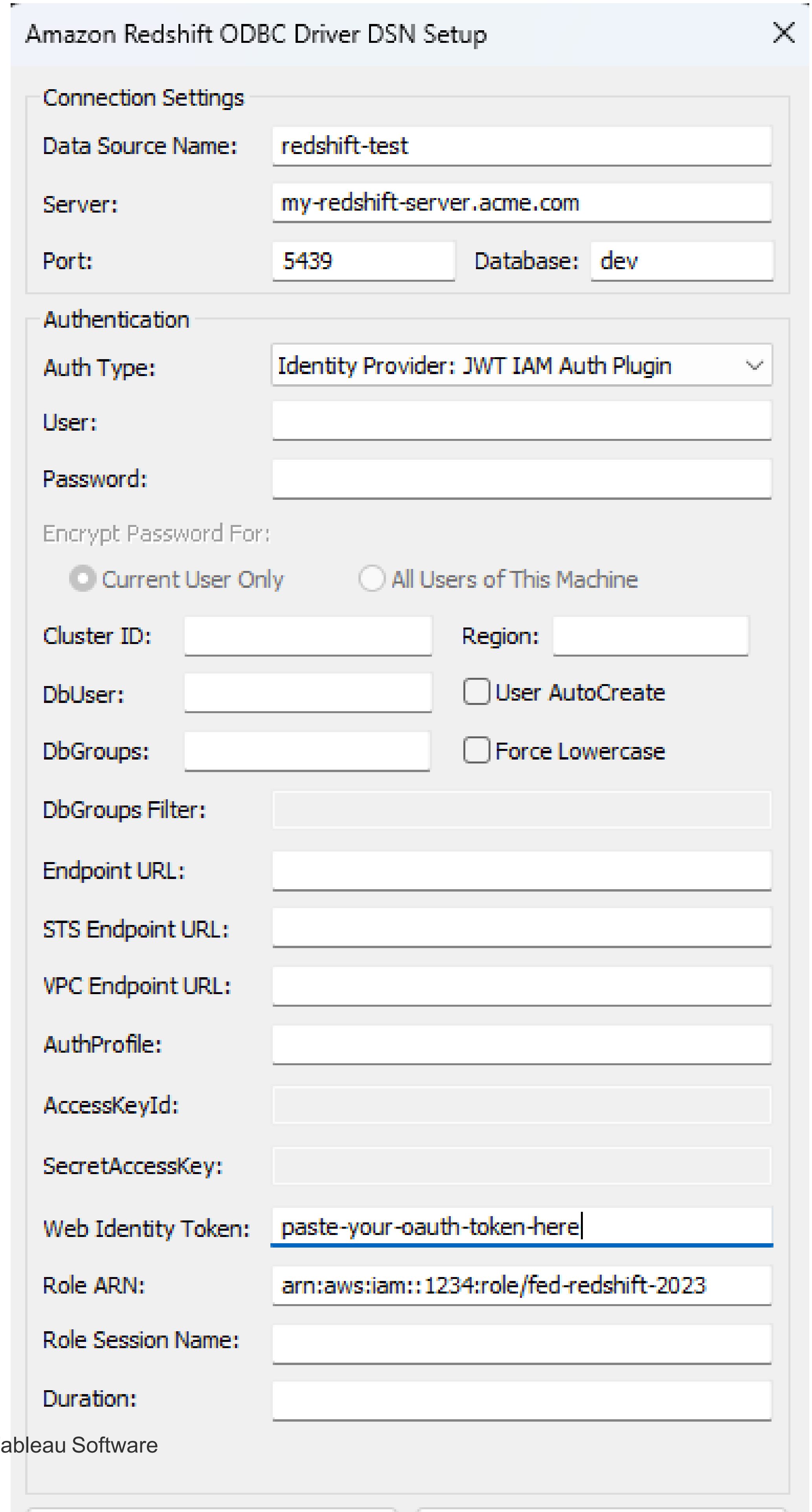
Here is an example with Okta. Almost all IDPs have a way to do this which is quite similar. Note that to use this flow you need to have enabled resource owner password grant type. Substitute the IDP URL, client secret, client ID, username, and password.

```
curl -X POST "https://OKTA_URL/v1/token" \
-H 'accept: application/json' \
-H "Authorization: Basic $(echo -n 'CLIENTID:CLIENTSECRET' |
base64)" \
-H "Content-Type: application/x-www-form-urlencoded" \
-d "grant_type-
e=password&username=USER&password=PASSWORD&scope=openid"
```

Once you have the token, you can use a DSN to test. For Windows, you can use the ODBC driver manager. On Mac you can use the iODBC driver manager UI. On Linux you can use the isql command line tool that is included with Tableau Server in the customer-bin folder.

The plugins that use a fixed AWS profile won't work unless you want to use the same profile for all users for that connection. The other OAuth plugins require direct access to the system browser, which doesn't work on the server side.

Below is an example of using the ODBC driver manager on Windows.



Amazon Redshift ODBC Driver DSN Setup

Connection Settings

Data Source Name: redshift-test

Server: my-redshift-server.acme.com

Port: 5439

Database: dev

Authentication

Auth Type: Identity Provider: JWT IAM Auth Plugin

User:

Password:

Encrypt Password For:

● Current User Only ○ All Users of This Machine

Cluster ID:

Region:

DbUser:

☐ User AutoCreate

DbGroups:

☐ Force Lowercase

DbGroups Filter:

Endpoint URL:

STS Endpoint URL:

VPC Endpoint URL:

AuthProfile:

AccessKeyId:

SecretAccessKey:

Web Identity Token: paste-your-oauth-token-here

Role ARN: arn:aws:iam::1234:role/fed-redshift-2023

Role Session Name:

Duration:

Set Up Amazon Redshift IAM Identity Center OAuth

These instructions are for the newer AWS IAM IDC service. For original IAM integration see Set Up Amazon Redshift IAM OAuth.

Depending on the identity provider, there are different steps needed to configure the integration. This is a high-level overview. Tableau cannot provide detailed instructions for how to configure AWS or the IDP, but this is the general approach.

For some detailed examples of implementing authentication with Redshift, see "Integrate Tableau and Okta with Amazon Redshift using AWS IAM Identity Center" and "Integrate Tableau and Microsoft Entra ID with Amazon Redshift using AWS IAM Identity Center".

> **Note**: Single use refresh tokens (sometimes called rolling refresh tokens or refresh token rotation) are not supported for OAuth connections to Tableau at this time. Support for these tokens are planned for a future release.

Step 1: Configure the IDP

1. Create OAuth clients on the IDP for Tableau Desktop and Tableau Server or Tableau Cloud. The Desktop client should enable `PKCE` and use `http://localhost` redirects.
2. Add any required custom claims to use for authorization to roles.
3. Create the Tableau OAuth config files. See documentation on GitHub, and examples. We welcome examples for other IDPs.
   a. Be sure to prefix the Tableau OAuth config IDs with “`custom_`”.

      > **Note:** Oauth config IDs have a maximum limit of 36 characters. IDs longer than this may not generate an error, but will not work.

   b. If your IDP supports dynamic localhost port then disable `OAUTH_CAP_FIXED_PORT_IN_CALLBACK_URL`. If it does not, make sure to add several localhost callback URLs to the allowlist in the config file and on the IDP.

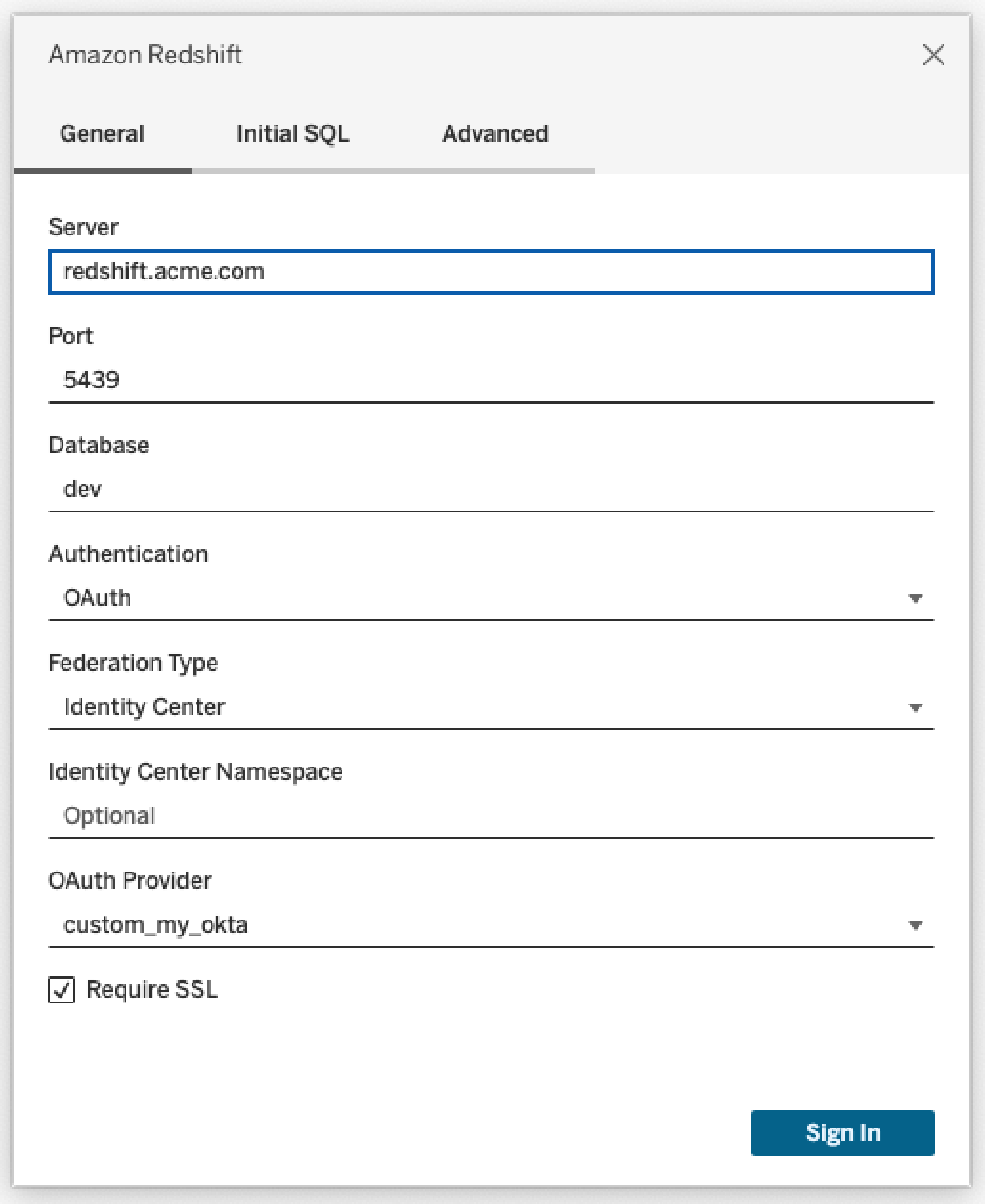
4. Install the new Tableau OAuth configuration files in the `OAuthConfigs` folder associated with each application on desktop hosts (Tableau Desktop, Tableau Prep Builder, Tableau Bridge), and on each Tableau Server and Tableau Cloud site that will be using OAuth.

Step 2: Configure IDP and Roles on AWS

See your AWS documentation for information on doing this.

Step 3: Connect to Redshift

1. Connect to Redshift.
2. Select OAuth for **Authentication**.
3. Select Identity Center for **Federation Type**.
4. (Optional) Specify the **Identity Center Namespace** if necessary.



Amazon Redshift
General
Initial SQL
Advanced

Server: redshift.acme.com

Port: 5439

Database: dev

Authentication: OAuth

Federation Type: Identity Center

Identity Center Namespace: Optional

OAuth Provider: custom_my_okta

☑ Require SSL

Sign In

When correctly configured, you will be redirected to the IDP to authenticate and authorize tokens for Tableau. Tableau will receive an access token and refresh tokens. It will send the access token to the driver for authentication.

Tokens

By default Redshift OAuth to IAM IDC passes the access token to the driver. For on-premise customers, including those using Tableau Bridge, you may use a TDC file to pass the ID token instead.

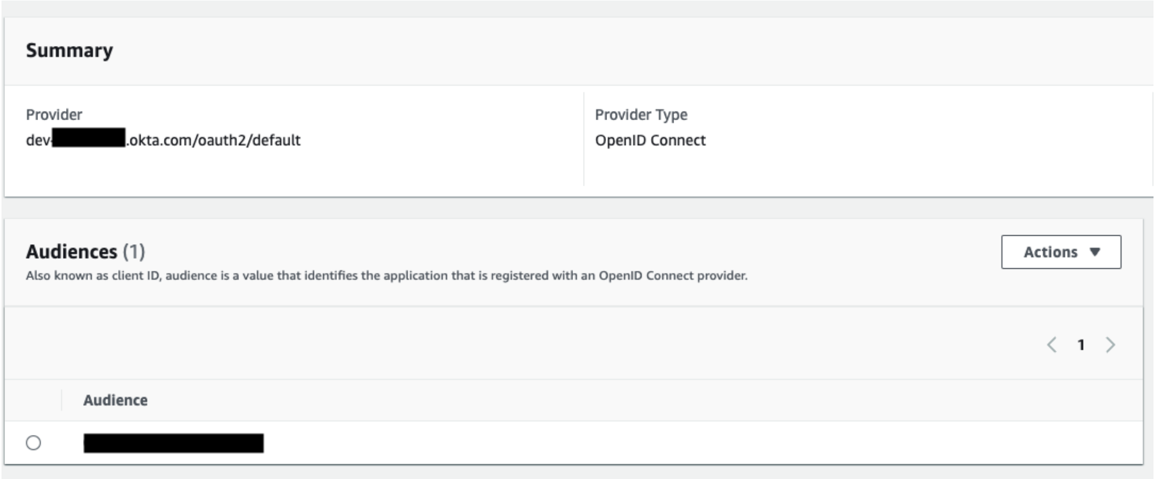
```
<connection-customization class='redshift' enabled='true' version='10.0'>
       <vendor name='redshift' />
       <driver name='redshift' />
       <customizations>
               <customization name='CAP_OAUTH_FEDERATE_ID_TOKEN' value='yes'/>
       </customizations>
</connection-customization>
```

For more information about configuring and installing .tdc files, see Customize and Tune a Connection and Using a .tdc File with Tableau Server.

Okta

If you are using Okta, it's better to use a "custom authorization server" instead of the "org authorization server." The custom authorization servers are more flexible. A custom authorization server is created by default and called "default". The authorization URL should look like this:

`https://${yourOktaDomain}/oauth2/{authServerName}/v1/authorize`



Summary

Provider
dev[redacted].okta.com/oauth2/default

Provider Type
OpenID Connect

Audiences (1)
Also known as client ID, audience is a value that identifies the application that is registered with an OpenID Connect provider.

	Audience
○	[redacted]

Update the driver

For Redshift OAuth using the IAM IDC service, you need to use at least version 2.x of the ODBC driver. Download the latest version of the Redshift ODBC driver found on https://github.com/aws/amazon-redshift-odbc-driver/tags. Note that there is no v2 driver yet for OSX.

Troubleshooting Redshift IAM IDC OAuth

The best way to diagnose errors is to remove Tableau from the picture. You can instead test using the driver manager or a similar tool. This is just for troubleshooting - you shouldn't use a DSN or the "Other ODBC" connector for regular usage of this feature. To help ensure a valid test, the parameters should be the same as shown below, except for the cluster information, database, token, and namespace.

If you see an error message about invalid/expired token coming from the driver on the first connection (it will have a SQLState error code like [28000] or [08001] in the error message), then Tableau successfully completed the OAuth flow, and failed in the driver. This means there is a misconfiguration on either the AWS side or the IDP side. There may also be permissions or authorization errors returned from the driver, which is also out of Tableau's control.

Before you begin testing, you first need to get an access token (the default for IAM IDC) or refresh token (if customized) to send to the driver.

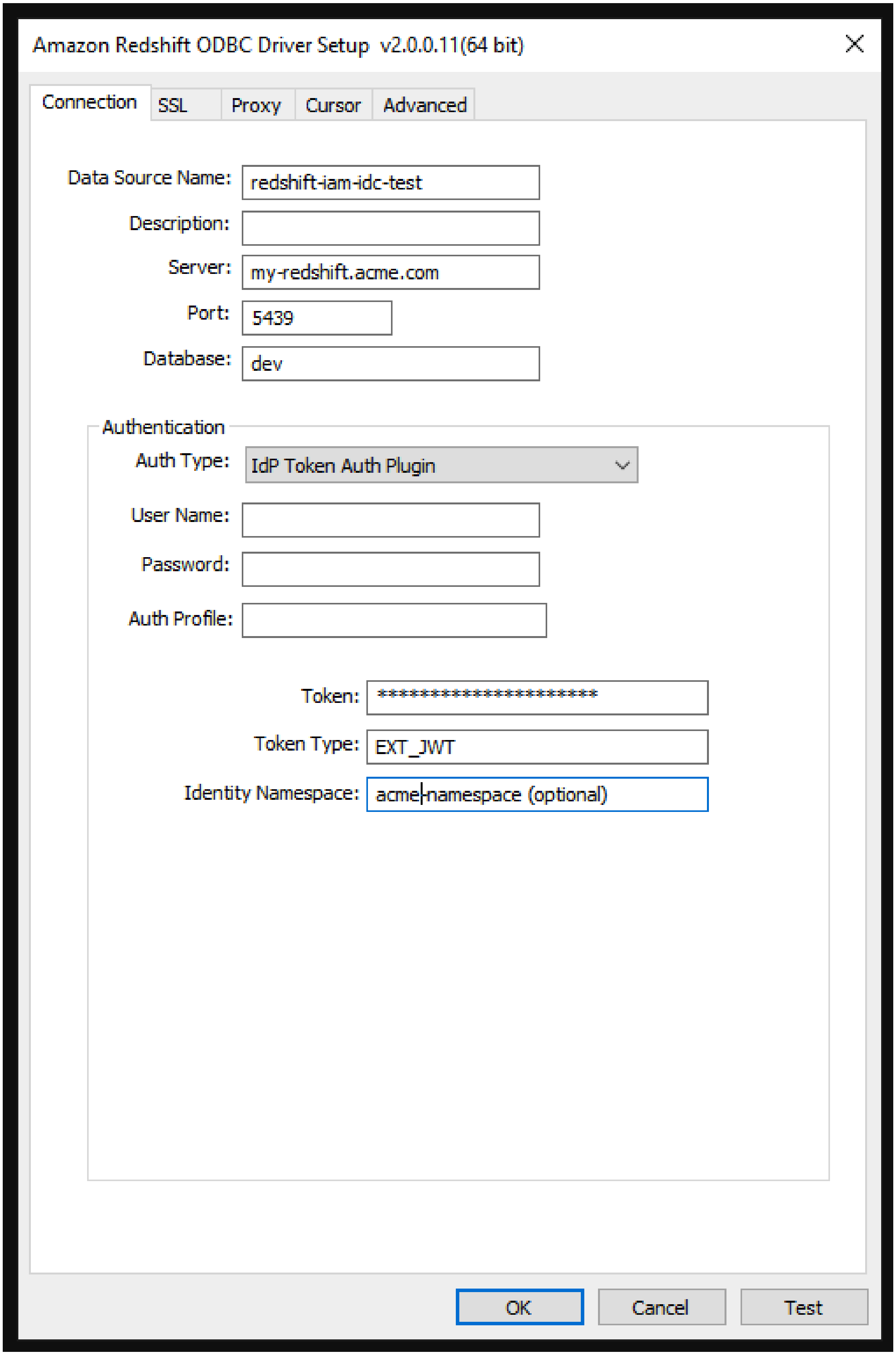
Here is an example with Okta. Almost all IDPs have a way to do this which is quite similar. Note that to use this flow you need to have enabled resource owner password grant type. Substitute the IDP URL, client secret, client ID, username, and password.

```
curl -X POST "https://OKTA_URL/v1/token" \
-H 'accept: application/json' \
-H "Authorization: Basic $(echo -n 'CLIENTID:CLIENTSECRET' |
base64)" \
-H "Content-Type: application/x-www-form-urlencoded" \
-d "grant_type-
e=password&username=USER&password=PASSWORD&scope=openid"
```

Once you have the token, you can use a DSN to test. For Windows, you can use the ODBC driver manager. On Linux you can use the isql command line tool that is included with Tableau Server in the customer-bin folder.

Tableau recommends you do not use other plugins to test, because they may not work in a server environment. They either use a fixed AWS profile, or require direct access to a browser.

Below is an example of using the ODBC driver manager on Windows.



Amazon Redshift ODBC Driver Setup v2.0.0.11(64 bit)

Connection
SSL
Proxy
Cursor
Advanced

Data Source Name: redshift-iam-idc-test

Description:

Server: my-redshift.acme.com

Port: 5439

Database: dev

Authentication

Auth Type: IdP Token Auth Plugin

User Name:

Password:

Auth Profile:

Token: **********************

Token Type: EXT_JWT

Identity Namespace: acme-namespace (optional)

OK
Cancel
Test

Configure Snowflake for Key-pair Authentication

To publish workbooks or flows using Snowflake data sources protected with Key-pair authentication from Tableau Desktop or Tableau Prep to a Tableau Cloud or Tableau Server site, you must also configure that site to support those credentials. This involves adding your new or updated authentication details for Snowflake Key-pair authentication to the Saved Credentials section of your Account Settings.

Notes

- To support using Key-pair authentication with Snowflake, you must install an ODBC driver from Snowflake that is version 3.4.0 or newer.
- You need to use OpenSSL version 3.x or newer to create the keys for this authentication.
- Each instance of Tableau Desktop that uses Snowflake data protected by Key-pair authentication will require the user to provide the key file as part of connecting to data. For more information, see Snowflake.
- Publishing workbooks and flows with Snowflake key-pair authentication is not supported in web authoring. You must use Tableau Desktop to create the workbooks, or Tableau Prep Builder to create the flows, and then publish them to Tableau Cloud or Tableau Server.

Add Key-pair Authentication Details

1. Sign in to Tableau Cloud or Server and navigate to your **My Account Settings** page.
2. Locate **Saved Credentials for Data Sources** in the **Security** section.
3. Next to **Snowflake**, click **Add**.
4. In the **Add a New Saved Credential** window, select **Key-pair Authentication**, and then click **Add**.
5. In the **Add Key-pair Authentication Credential** window, enter your Snowflake server, the optional Role, and the Username associated with these credentials.

Note: Role and Username are case sensitive and must match what is saved on Tableau Cloud or Tableau Server under **My Account Settings** > **Snowflake key pair information**.

6. For **Private Key File**, click Choose a file and select the .p8 file that contains your private key.
7. (Optional) If the key has a password or passphrase associated with it, enter it in the **Password** field, and then click **Add**.

You are now ready to share workbooks and flows protected by Key-pair authentication from Tableau Desktop or Tableau Prep Builder to your site.

See also

- Snowflake - Learn how to set up a connection to Snowflake to retrieve and analyze data.

Manage Saved Credentials for Data Connections

Saved credentials enable you to connect to a data source without being prompted for your credentials. The credentials saved for your connection can be OAuth access tokens, or other credentials, such as user name and password. You can manage saved credentials on your account settings page.

On Tableau Cloud, you can manage saved credentials on your **Account Settings** page.

> **Note:** When editing Tableau Prep flows on the web, you may still be prompted to re-authenticate.

Test connections using saved credentials

If the connector supports test functionality, you can test the connection using saved credentials.

1. While you're signed in to Tableau Server or Tableau Cloud, display your Account Settings page.
2. In the Saved Credentials section, select the **Test** link next to the stored connection that you want to test.

This test confirms that Tableau Cloud or Tableau Server can access your account using this corresponding saved credential. If the test succeeds, but you can't access your data through this managed connection, confirm that the credentials you provided for this connection can access your data.

For example, if you accidentally created the connection using your personal Gmail account, but you use a different account to access a Google Analytics database, you'll need to delete the saved credentials and sign in to the data using the appropriate Gmail account.

Update saved credentials

To help ensure uninterrupted data access from existing Tableau content after a custom OAuth client has been configured for your site, we encourage you to update your saved credentials. To update saved credentials, you can delete the previous saved credentials for a particular connector and then add it again.

When you add saved credentials again, both new and existing Tableau content will access the data using the custom OAuth client configured by your site admin. For more information about custom OAuth clients, see OAuth Connections.

1. Sign in to Tableau Server and navigate to your **My Account Settings** page.
2. Under **Saved Credentials for Data Sources**, do the following:
   1. Click **Delete** next to the saved credentials for a connector.
   2. Next to the same connector, click **Add** and follow the prompts to 1) connect to the custom OAuth client that your site admin notified you about and 2) save the latest credentials.

Clear all saved credentials

When you select **Clear All Saved Credentials**, the following items are removed from your user account:

- All saved credentials for connections that are stored in your account.

  > **Caution:** If any of these saved credentials are stored with published workbooks or data sources, deleting them also removes access to the data source from those locations. Effectively, this is like "changing the locks" anywhere the affected saved credentials are used.

- Passwords you’ve used to access published data extracts or workbooks that connect to them.

Remove saved credentials

To remove Tableau access to data, delete the associated saved credentials for that data from your account. After you delete the credentials, you’ll need to sign in to the data the next time you access it. This creates new saved credentials.

Your administrator might choose for all users to use the same shared credentials for connecting to a data source. If this is the case, the saved credential is associated with the data connection for all users, and it doesn’t appear under Saved Credentials on your Account Settings page.

> **Note:** If you're a Tableau Server user and can't delete saved credentials, ask your administrator if they've cleared the Allow users to save data source access tokens option in the server settings.

Create and Interact with Flows on the Web

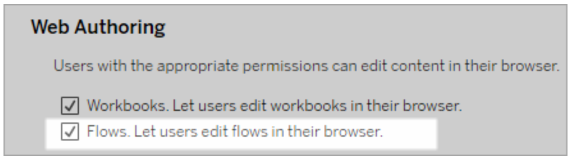
Starting in version 2020.4, you can create and interact with flows on Tableau Cloud to clean and prepare your data. Connect to your data, build a new flow, or edit an existing flow and your work is automatically saved every few seconds as you go. Create draft flows that are only available to you or publish your flow to make it available for others. Run your individual flows right from the web or run your flows automatically on a schedule using Tableau Prep Conductor if Data Management is licensed. For more information, see Tableau Prep on the Web.

Turn flow web authoring on or off for a site

Enabled by default, this option controls whether users can create and edit flows on Tableau Server or Tableau Cloud

Note: You can only change this setting in Tableau Server. Web authoring is automatically enabled for Tableau Cloud and can't be turned off.

1. In a web browser, sign in to the server as an administrator, go to the site and click **Settings**.
2. In the **Web Authoring** section, clear or select **Flows. Let users edit flows in their browser.** to turn the functionality off or on.

   Web Authoring

   Users with the appropriate permissions can edit content in their browser.

   ☑ Workbooks. Let users edit workbooks in their browser.

   ☑ Flows. Let users edit flows in their browser.

3. If you want the change to take effect immediately, restart the server. Otherwise, the change takes effect after server session caching expires or the next time users sign in after signing out.

Enable linked tasks

Supported in Tableau Cloud and Tableau Server version 2021.3 and later.

Use the **Linked Tasks** option to schedule up to 20 flows to run sequentially, one after the other. Linked tasks can only be run on schedules with the **Linked Tasks** option selected. For more information about setting up linked tasks, see Schedule Linked Tasks.

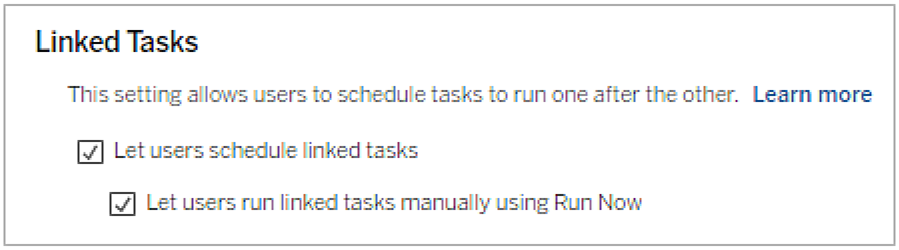
Starting in version 2022.1, **Linked Tasks** is enabled by default on the **Server Settings** and for any new flow schedules that you create. In prior versions, administrators must first enable the option.

If you have multiple sites, you can turn off **Linked Tasks** for individual sites by clearing the check boxes described below.

If the setting is turned off after linked tasks are scheduled, any tasks that are running will complete and the scheduled linked tasks are hidden and no longer show on the **Scheduled Tasks** tab.

Enable Linked Tasks (version 2021.4 and earlier)

1. In a web browser, sign in to the server as an administrator and go to the site in which you want to enable **Linked Tasks** for flows. In that site, click **Settings**.
2. In the **Linked Tasks** section, select **Let users schedule linked tasks** to enable administrators to configure schedules to run linked tasks.
3. Select **Let users run linked tasks manually using Run Now** to enable users to run linked flow tasks using **Run Now**.



Linked Tasks

This setting allows users to schedule tasks to run one after the other. Learn more

☑ Let users schedule linked tasks

☑ Let users run linked tasks manually using Run Now

Enable flow parameters

Enable users to schedule and run flows that include parameters. Parameters enable users to scale their flows by building them once, then changing the parameter values to accommodate different data scenarios.

Parameters can be entered in an input step for file name and path, table name, or when using custom SQL queries, in an output step for file name and path and table name, and in any step type for filters or calculated values.

Starting in Tableau Prep Builder and Tableau Cloud version 2023.2, you can add system parameters to flow output names to automatically include the flow run start date and time.

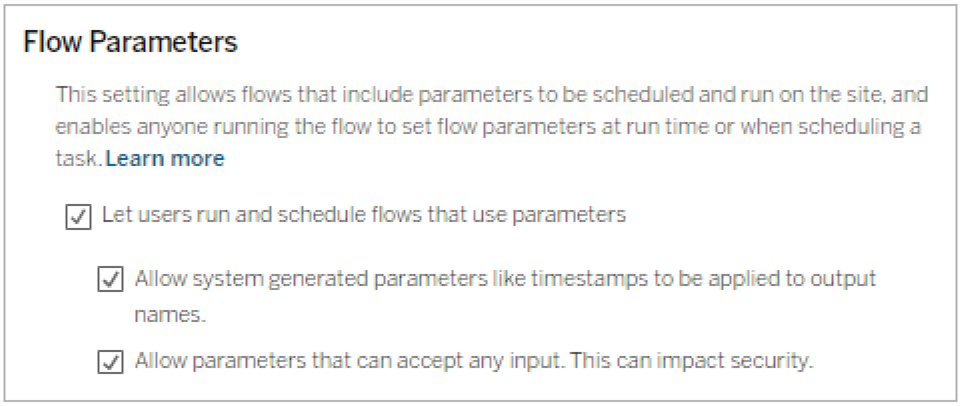
Flow parameter settings can be applied at the server level to include all sites on Tableau Server. The settings can be disabled at the site level to include only specific sites.

For more information about using parameters in flows, see Create and Use Parameters in Flows in the Tableau Prep help.

1. In a web browser, sign in to the server as an administrator and go to the site in which you want to enable **Flow Parameters**. In that site, click **Settings**.
2. In the **Flow Parameters** section, select **Let users run and schedule flows that use parameters** to enable the functionality.
3. (version 2023.2 and later) Select **Allow system generated parameters like timestamps to be applied to output names** to enable users to add a date or time stamp to the flow output name at runtime for file and published data source output types.
4. Select **Allow parameters that can accept any input** to enable anyone running the flow to enter any parameter value in the flow at run time.

   Important: Setting this option enables any flow user to enter any value in a parameter, potentially exposing data that the user should not have access to.

If this option is not selected, users can only select from predefined list of parameter values and any flows that include parameters that accept any value cannot be run or scheduled to run.



Flow Parameters

This setting allows flows that include parameters to be scheduled and run on the site, and enables anyone running the flow to set flow parameters at run time or when scheduling a task. **Learn more**

☑ Let users run and schedule flows that use parameters

  ☑ Allow system generated parameters like timestamps to be applied to output names.

  ☑ Allow parameters that can accept any input. This can impact security.

Enable Tableau Prep Conductor

If Data Management is licensed, enable this option to let users schedule and track flows in Tableau Server and Tableau Cloud. For information about the additional configuration requirements for Tableau Prep Conductor, see Tableau Prep Conductor.

1. In a web browser, sign in to the server as an administrator and go to the site in which you want to enable Tableau Prep Conductor. In that site, click **Settings**.
2. In the **Tableau Prep Conductor** section, select **Let users schedule and monitor flows** to enable the functionality.

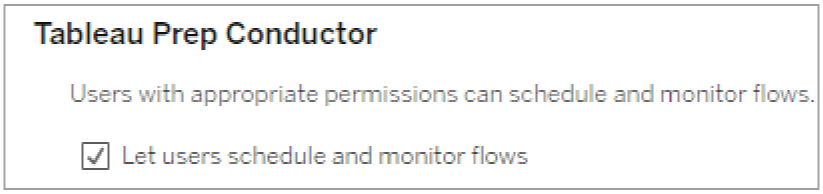


Tableau Prep Conductor

Users with appropriate permissions can schedule and monitor flows.

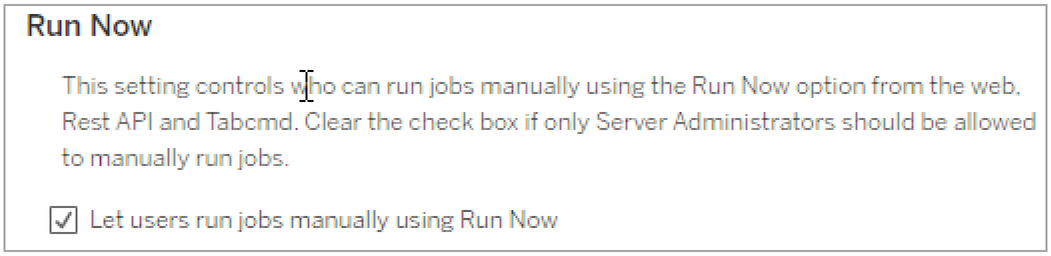
☑ Let users schedule and monitor flows

Enable Run Now

Control whether users or only administrators can run flows manually using the **Run Now** option. Data Management is not required to run flows manually.

1. In a web browser, sign in to the server as an administrator and go to the site in which you want to enable Run Now for flows. In that site, click **Settings**.

2. In the **Run Now** section, select **Let users run jobs manually using Run Now** to enable the functionality.



Run Now

This setting controls who can run jobs manually using the Run Now option from the web, Rest API and Tabcmd. Clear the check box if only Server Administrators should be allowed to manually run jobs.

☑ Let users run jobs manually using Run Now

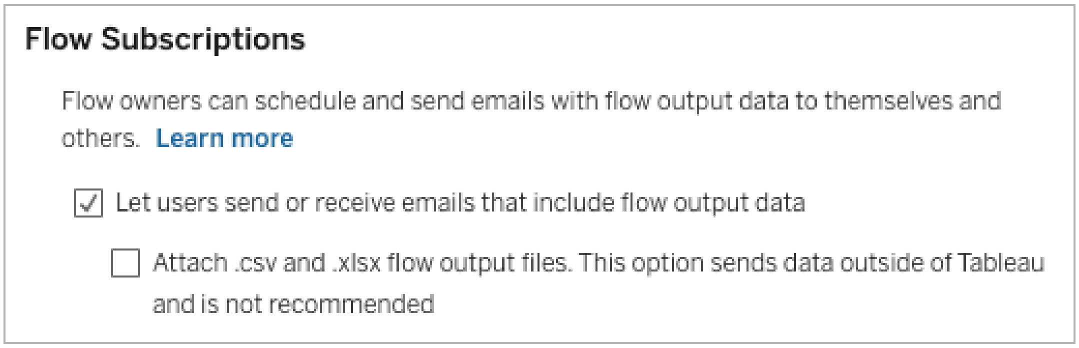
Clear the check box if only Server Administrators can run flows manually.

Flow Subscriptions

Control whether users can receive flows notifications about scheduled tasks for successful flow runs. Data Management is required to enable notifications.

1. In a web browser, sign in to the server as an administrator and go to the site in which you want to enable flow subscriptions. In that site, click **Settings**.

2. In the **Flow Subscriptions** section, select **Let users send or receive emails that include flow output data** to enable the functionality.



Flow Subscriptions

Flow owners can schedule and send emails with flow output data to themselves and others. Learn more

☑ Let users send or receive emails that include flow output data

☐ Attach .csv and .xlsx flow output files. This option sends data outside of Tableau and is not recommended

Note: The option to attach either a .csv or .xlsx file type to the email is only available for on-premise environments.

Enable Tableau Prep Extensions

Supported in Tableau Server and Tableau Cloud starting in version 2021.2.0

Set this option to control whether users can connect to Einstein Discovery to run predictive models against data in their flow.

You can use Einstein Discovery-powered models to bulk score predictions for the data in your flow when authoring flows on the web. Predictions can help you make better informed decisions and take actions to improve your business outcomes.

You'll need to configure additional settings to include predictions in our flow. For more information, see Add Einstein Discovery Predictions to your flow and Configure Einstein Discovery Integration.

1. In a web browser, sign in to the server as an administrator and go to the site in which you want to enable Tableau Prep Extensions. In that site, click **Settings** > **Extensions**.
2. In the **Tableau Prep Extensions** section, select **Let users connect to Einstein Discovery** to enable the functionality.

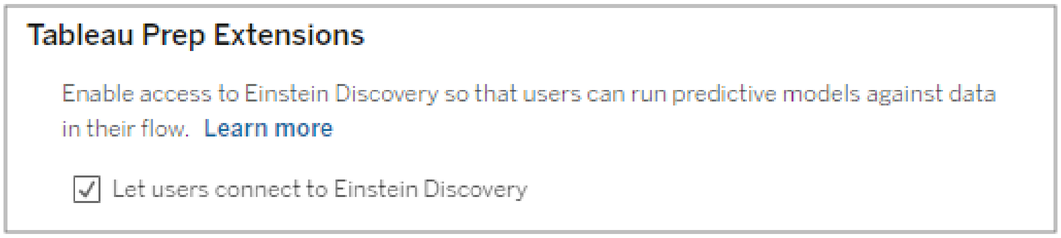


Tableau Prep Extensions

Enable access to Einstein Discovery so that users can run predictive models against data in their flow. Learn more

☑ Let users connect to Einstein Discovery

Turn autosave off or on

Enabled by default, this feature automatically saves a user's flow work every few seconds.

While not recommended, administrators can disable autosave on a site using the Tableau Server REST API method "Update Site" and `flowAutoSaveEnabled` setting. For more information, see Tableau Server REST API Site Methods: Update Site. For more information about autosave on the web, see Turn autosave off or on.

For more information about configuring site settings, see Site Settings Reference in the Tableau Server help.

Tableau Prep on the Web

Internet Explorer 11 on Windows and compatibility mode for Internet Explorer is not supported.

Starting in version 2020.4 ,Tableau Prep supports web authoring for flows. Now you can create flows to clean and prepare your data using Tableau Prep Builder, Tableau Server, or Tableau Cloud. You can also manually run flows on the web and the Data Management is not required.

While most of the same Tableau Prep Builder functionality is also supported on the web, there are a few differences when creating and working with your flows.

Important: To create and edit flows on the web you must have a Creator license. Data Management is only required if you want to run your flows on a schedule using Tableau Prep Conductor or via API. For more information about configuring and using Tableau Prep Conductor, see Tableau Prep Conductor in the Tableau Server or Tableau Cloud help.

Installation and Deployment

To enable users to create and edit flows on the web, you'll need to configure several settings on your server. For more information about each of these settings, see Create and Interact with Flows on the Web.

- **Web Authoring**: Enabled by default, this option controls whether users can create and edit flows on Tableau Server or Tableau Cloud.
- **Run Now**: Controls whether users or only administrators can run flows manually using the **Run Now** option. The Data Management isn't required to run flows manually on the web.

- **Tableau Prep Conductor**: If Data Management is licensed, enable this option to let users schedule and track flows.
- **Tableau Prep Extensions** (version 2021.2.0 and later): Controls whether users can connect to Einstein Discovery to apply and run predictive models against data in their flow.
- **Autosave**: Enabled by default, this feature automatically saves a user's flow work every few seconds.

Sample data and processing limits

To maintain performance while working with flows on the web, limits are applied to the amount of data you can include in a flow.

The following limits apply:

- When connecting to files, the maximum file size is 1GB.
- The data sampling option to include all data is not available. The default sample data limit is 1 million rows.
- The maximum number of rows that a user can select when using large data sets is configured by the administrator. As a user, you can select the number of rows up to that limit.
- In Tableau Cloud, the number of flow runs you can perform in a day is limited by the site administrator. For more information, see Tableau Cloud Site Capacity.

For more information about setting your data sample, see Set your data sample size in the Tableau Prep help.

Available features on the web

When you create and edit flows on the web you may notice a few differences in navigation and the availability of certain features. While most features are available across all platforms, some features are limited or not yet supported in Tableau Server or Tableau Cloud. The following table identifies features where differences might apply.

Feature area	Exceptions	Tableau Prep Builder	Tableau Server	Tableau Cloud

Connect to Data	Some connectors may not be supported on the web. Open the **Connect** pane on your server to see supported connectors.	✓	✓	✓
Build Tableau Prep flows with Tableau Agent	Supported in Tableau Prep Builder and Tableau Cloud starting in version 2025.2. Requires Tableau+	✓	🚫	✓
Build and Organize your Flow		✓	✓	✓
Set your data sample size	In Tableau Server and Tableau Cloud, the data sample size is subject to limits set by your administrator	✓	✓	✓
Union files and database tables in the input step	Input unions can't be edited or created in Tableau Server or Tableau Cloud. Only in Tableau Prep Builder.	✓	✓	✓
Clean and Shape Data		✓	✓	✓
Copy data grid values	Available in Tableau Prep Builder and Tableau Server starting in version 2022.3 and Tableau Cloud starting in 2022.2 (August)	✓	✓	✓
Aggregate, Join, or Union Data		✓	✓	✓

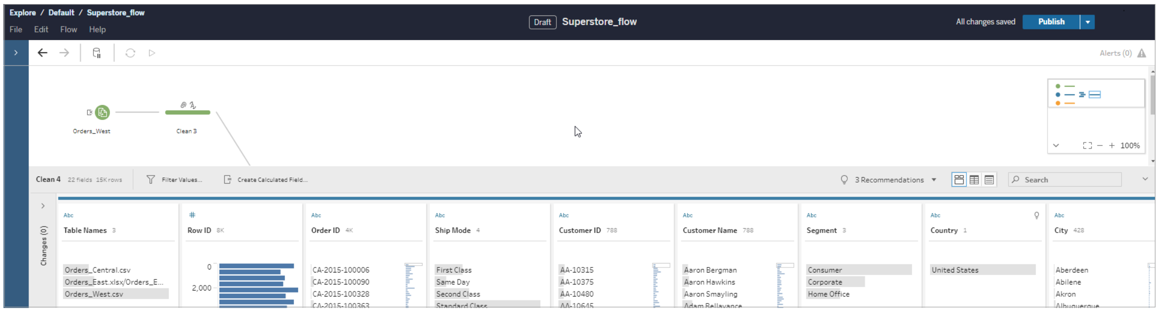
Use R and Python Scripts in your Flow	Script steps can't be added when creating or editing a flow in Tableau Cloud. This is currently supported only in Tableau Prep builder and Tableau Server.	✓	✓	🚫
Create reusable flow steps		✓	🚫	🚫
Automatically save your flows on the web		Not Applicable	✓	✓
Automatic file recovery		✓	Not Applicable	Not Applicable
View flow output in Tableau Desktop		✓	🚫	🚫
Create an extract to a file		✓	🚫	🚫
Create an extract to a Microsoft Excel worksheet		✓	🚫	🚫
Connect to a Custom SQL Query		✓	✓	✓
Create a published data source		✓	✓	✓
Save flow out-		✓	✓	✓

put to external databases				
Add Einstein Discovery Predictions to your Flow		✓	✓	✓

Autosave and working with drafts

When you create or edit flows on the server, your work is automatically saved as a draft every few seconds so that in the event of a crash, or when closing a tab by accident, you don't lose your work.

Drafts are saved to the server and project you are signed into. You can't save or publish a draft to another server, but you can save the flow to another project on that server using the **File** > **Publish As** menu option.


Explore / Default / Superstore_flow
File
Edit
Flow
Help
Draft
Superstore_flow
All changes saved
Publish
Alerts (0)
Orders_West
Clean 3
100%
Clean 4
22 fields 15K rows
Filter Values...
Create Calculated Field...
3 Recommendations
Search
Changes (0)
Abc
Table Names 3
Orders_Central.csv
Orders_East.xlsx/Orders_E...
Orders_West.csv
#
Row ID 8K
0
2,000
Abc
Order ID 4K
CA-2015-100006
CA-2015-100090
CA-2015-100328
CA-2015-100363
Abc
Ship Mode 4
First Class
Same Day
Second Class
Standard Class
Abc
Customer ID 788
AA-10315
AA-10375
AA-10480
AA-10645
Abc
Customer Name 788
Aaron Bergman
Aaron Hawkins
Aaron Smayling
Adam Bellavance
Abc
Segment 3
Consumer
Corporate
Home Office
Abc
Country 1
United States
Abc
City 428
Aberdeen
Abilene
Akron
Albuquerque

Draft content can only be seen by you until you publish it. If you publish changes and need to revert them, you can use the **Revision History** dialog to view and revert to a previously published version. For more information about saving flows on the web, see Automatically save your flows on the web.

Publishing flows on the web

Whether you create a flow from scratch on the web or edit an existing flow, before you can run the flow you'll need to publish it.

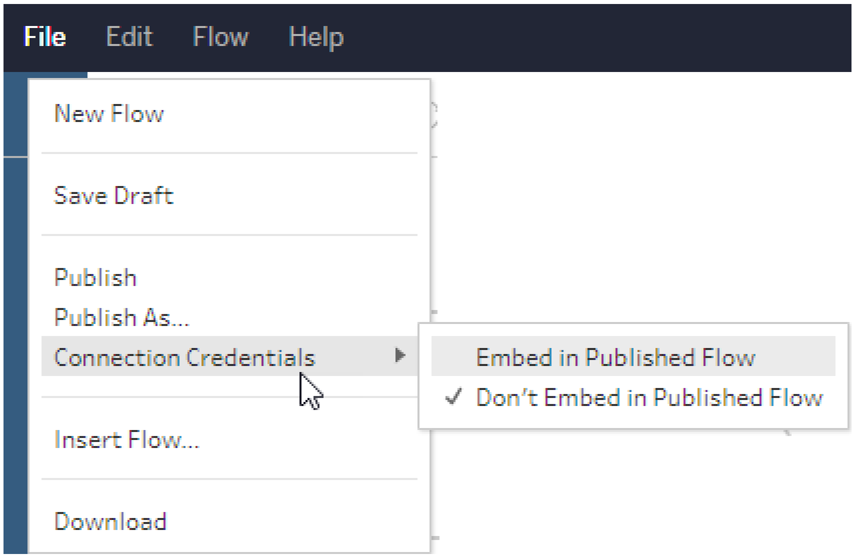
- You can only publish draft flows to the same server you are signed into.
- You can publish a draft to a different project using the **File** menu and selecting **Publish As**.
- You can embed credentials for your flow's database connections to enable the flow to run without having to manually enter the credentials when the flow runs. If you open the flow to edit it, you'll need to re-enter your credentials.

Embed credentials

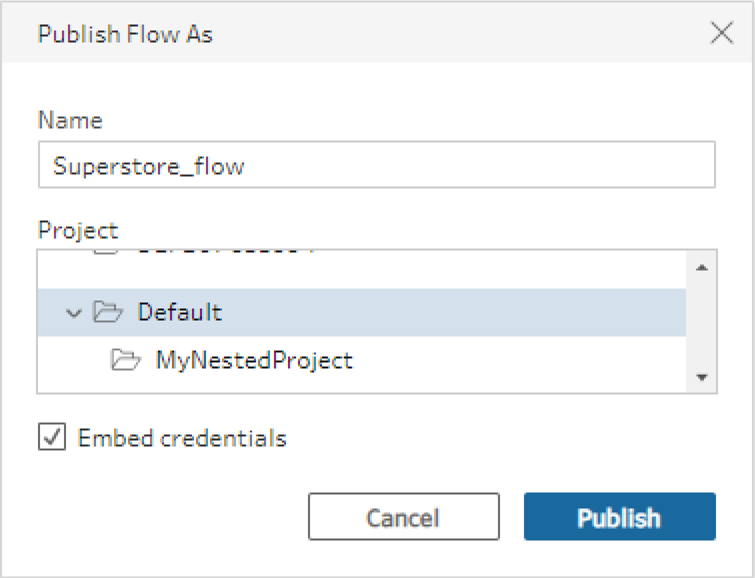
Embedding credentials only applies to running flows on your server. Starting in Tableau Cloud version 2025.2, flow owners can edit their flow in web authoring without having to re-authenticate to all of their database connections if those connections are embedded in the flow or saved to the user profile. If using Tableau Server, you will manually need to enter your credentials when editing a flow connected to a database. Embedding credentials can only be set at the flow level and not at the server or site level.

Do one of the following:

- From the top menu, select **File** > **Connection Credentials** > **Embed in Published Flow**.


File
Edit
Flow
Help
New Flow
Save Draft
Publish
Publish As...
Connection Credentials
Insert Flow...
Download
Embed in Published Flow
✓ Don't Embed in Published Flow

- When publishing a flow, select the **Embed credentials** check box. This option shows when you select **Publish As** to publish the flow to a new project for the first time or when you are editing a flow that was last published by someone else.


Publish Flow As

Name

Superstore_flow

Project

Default

MyNestedProject

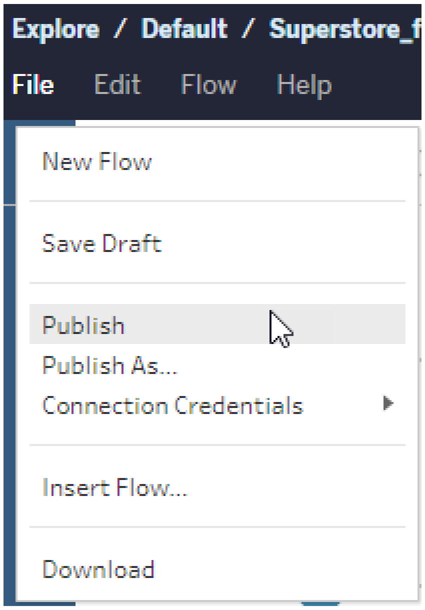
☑ Embed credentials

Publish a flow

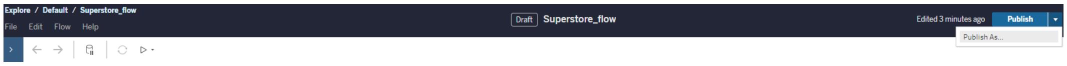
When you publish your flow, it becomes the current version of the flow and can be run and seen by others who have access to your project. Flows that are never published or flow changes that you make to a draft can only be seen by you until you publish the flow. For more information about flow statuses, see Automatically save your flows on the web.

To publish your flow, do one of the following:

- From the top menu, select **File** > **Publish** or **File** > **Publish As**


Explore / Default / Superstore_f
File
Edit
Flow
Help
New Flow
Save Draft
Publish
Publish As...
Connection Credentials
Insert Flow...
Download

- From the top bar, click the **Publish** button or click the drop arrow to select **Publish As**.


Explore / Default / Superstore_flow
File
Edit
Flow
Help
Draft
Superstore_flow
Edited 3 minutes ago
Publish
Publish As...

Who can do this

- Server Administrator, Site Administrator Creator, and Creator allow full connecting and publishing access.
- Creator can perform web authoring tasks.

Create Views and Explore Data on the Web

You can create and interact with views on Tableau Cloud. For more information, see the following topics in the Tableau Help for users.

Using Tableau on the Web

Tour your Tableau Site

Edit Views on the Web

Join your Data

Create a Dashboard

Create a Story

Embed Views and Dashboards in Web Pages

Make Workbooks Compatible Between Versions

Alerts and subscriptions

Troubleshoot Subscriptions

Send Data-Driven Alerts from Tableau Cloud or Tableau Server

Web Authoring and Tableau Desktop Feature Comparison

For anyone familiar with Tableau Desktop and new to the web authoring environment in Tableau Server and Tableau Cloud, this topic provides a summary of the web features that you use similarly to the way you do in Tableau Desktop. It also lists some fundamental differences between the two environments.

Note: This topic summarizes core authoring functionality and does not cover every difference between the desktop and web environments.

Features listed by version

For a list of the latest web editing features to be added to each release, see the web authoring sections in Tableau Desktop and Web Authoring Release Notes and Tableau Cloud Release Notes, or check out the Release Navigator viz to filter and compare changes by release.

General differences in web authoring

- Your authoring capabilities are determined by your license level. For an overview of what you can do with each license level, see What can I do with a Tableau site?
- You can access right-click menu actions on fields in the view, but not on every item in the workspace.
- Keyboard shortcuts for web authoring and Tableau Desktop are not the same. For a list of web authoring keyboard shortcuts, see Shortcuts for web authoring.

Web authoring capabilities

In the web environment, you can connect to data and create workbooks from those data sources, or data published through Tableau Desktop. You can edit views created on the web or published from Tableau Desktop.

Administrators can set at the site level what web authoring abilities users can have. Explorers can edit workbooks, create new workbooks from published data sources, connect to published data sources, and create and edit views, dashboards, and stories. Creators have those same capabilities, but can also create new workbooks, connect to data on the web, and use Ask Data and (in Tableau Cloud) Dashboard Starters to quickly dive into analysis.

Data management

- **Creators**: Connect to data sources, upload files (text, excel, and Tableau workbooks), or use pre-built Dashboard Starter templates for certain data sources. For more information, see Creators: Connect to Data on the Web.

- **Creators**: Prepare data on the web in the Data Source page. For more information, see Creators: Prepare Data on the Web.

  > **Note**: There is a limitation on the number of rows that can be viewed in the Data Source page when authoring data on the web, determined by browser:
  >
  > - Internet Explorer: 10,000 rows
  > - Other browsers: 100,000 rows
  >
  > Independent of browser, the total number of records (rows by columns) that can be viewed in the Data Source page on the web is **3 million**.

  - Run Initial SQL when connecting with some data sources

  - Relate your data to combine data from multiple tables

  - Join data from different tables in the same data source or from different databases using a multi-connection data source

  - Add a join calculation

  - Union data
  - Pivot data
  - Copy values in a grid (Ctrl+C, or Command-C on a Mac)
  - Edit Data Sources
  - Clean data using the Data Interpreter
  - Create a Custom SQL query
- **Explorers**: Connect to published data sources.
  - Blend published data sources.
  - Save a data source (embedded in a published workbook) as a separate, published data source.
  - Change aggregation of measures in the view. Change the default aggregation of measures in the Data pane.
  - Search for fields in the schema.
  - Duplicate, hide, or rename fields.
  - Change the data type of fields.
  - Convert measures to dimensions or vice versa.
  - Convert a discrete field to continuous and vice versa. This option is available for measures and date dimensions.
  - Assign a geographic role for a field.
  - Create aliases for members of dimensions.
  - Create and edit groups.

  - Create and edit sets (conditioned sets are not available)
  - Create, edit, and remove parameters. Formatting numbers and dates, and adding comments for the parameter are not supported on the web.

Analytics

- Create, edit, rename, duplicate, and clear sheets (views, dashboards, and stories) in a workbook.
- Use Ask Data to automatically create views.
- Use Explain Data to automatically create views.
- Search for fields in the Data pane with schema search
- Drag fields to the view, Rows, Columns, and different mark types in the **Marks** card.
- Use **Show Me** to create views. Also, from the Data pane, select and drag a field of interest to the view area to automatically create a "Show Me" view.
- View underlying data (via tooltips).
- Viz in Tooltip works in web views, but must be configured in Tableau Desktop. Viz in Tooltip worksheets can be hidden, the same way you would hide worksheets used in stories or dashboards.
- Actions work in web views, but must be configured in Tableau Desktop.
- Create and edit calculated fields.
- Create bins from continuous measures, and edit bins.
- Create and edit table calculations, and use quick table calculations.
- Create sets and show set controls. (Note that you cannot create sets from cube data sources in web authoring.)

- Use the **Analytics** pane to drag reference lines, trend lines, and other objects into the view. Edit reference lines, trend lines, and bands. Create and configure reference distributions on a continuous axis. Adding a cluster, and adding and modifying a forecast, are not supported for the web.
- Create groups by selecting marks in the view and then clicking Group Members (paperclip) in the tooltip for that selection. You can also edit existing groups in the Data pane.
- Create hierarchies by dragging one dimension onto another in the Data pane. **Note**: You can't create hierarchies when fields are already grouped within a folder.
- Change options for interacting with maps, including enabling or disabling pan and zoom, or showing map search, the view toolbar, or map scale. Users can also map units.
- Drill up and down a continuous hierarchy in the view. In a view with a continuous hierarchy, hover near the headers on a continuous axis to display the + and - controls. Click to drill down or up.
- Show labels, totals, and subtotals.
- Show, hide, and format mark labels
- Show and hide titles and captions.
- Show and hide cards for filters and highlighters.
- Show, hide, and resize headers in the view.
- Swap X and Y axes. Resize axes in the view.
- Change the view size.
- Show and hide the View Toolbar for any view or dashboard.
- Duplicate a sheet as a crosstab view.

Filtering and sorting

- Use data highlighting.
- Add, edit, and remove filters, and edit filter control layouts.

> **Note**: There is a limitation on the number of results that can be filtered when authoring data on Tableau Cloud or Tableau Server. Only the first 100 results are returned to limit the performance impact one user has when loading a large domain on the server.

- Filter across published data sources.
- Apply filters to multiple sheets
- Create context filters (**Add to Context** option in the Filters shelf) and dependent filters (**Only Relevant Values** option in a filter control shown in a view).
- Apply table calculation filters to totals in the view.
- Show hidden fields, and exclude or remove fields from the view.
- Sort fields in the view in ascending or descending order. Access the **Sort** dialog box by right-clicking a dimension on the Rows or Columns shelf. Nested sorting on dimension values within the context of each pane.
- Drag and drop headers to create a custom sort order within a view.

Formatting

- Resize the width of row headers and the height of column headers.
- Edit workbook formatting, including formatting lines.
- Edit worksheet and dashboard titles.

- Edit axes (double-click an axis in the view). Other options available: **Synchronize dual axes**, clearing the axis range (**Reset**), and tick mark settings. Enable or disable **Dual axis** in a field context menu (right-click a measure field on Rows or Columns shelf). Logarithmic scales can be positive or symmetric (includes 0 and negative values).
- Edit number formatting (decimal places, percentage, thousands separator, units, and currency).
- Create, edit, move, and resize point, mark, and area annotations.
- Add and edit dashboards objects, including: horizontal and vertical layout containers, text, images, navigation buttons, web page links, and dashboard extensions.
- Create transparent worksheet backgrounds (set background color to **None**). Combine transparent worksheets with transparent filters, highlighters, and parameters.
- Change the color palette. For categorical fields you can assign specific colors and custom colors (using a hex code) to data items. For continuous fields, you can set custom colors for start and end colors (using a hex code).
- Create, rearrange, and preview device-specific dashboard layouts
- Set a dashboard item's exact size, position, and spacing.
- Add padding, borders, and background colors around items in dashboards.
- Select a background map in map views.
- Legends per measure. If you create separate color legends for the measures in your view, Tableau assigns the default color palette to each new color legend. To change the color legend for each measure, click the drop-down arrow on the color legend to open the **Edit Colors**dialog box and select the palette that you want to use. For more details, see Legends per measure.

Related topics

What can I do with a Tableau site?

Set a Site’s Web Authoring Access

Getting Started with Web Authoring

Creators: Connect to Data on the Web

Creators: Prepare your Data on the Web

Build Views on the Web

Grant Web Edit, Save, and Download Permissions

Set a Site’s Web Authoring Access and Functions

Tableau Server administrators can specify at the site level whether to allow users to edit published views in the web environment and configure other web authoring functionality.

By default web authoring functionality is enabled for all sites. Users with the **Web Edit** capability can create and edit workbooks directly on the server. Turn off web authoring if you want users to be able to view and interact with published workbooks but not make any changes to the core information.

The steps below describe how to set web authoring and other associated functionality for an entire site. For more granular control over which users can use web editing, you can use projects, groups, and permissions. See Set Web Edit, Save, and Download Access on Content.

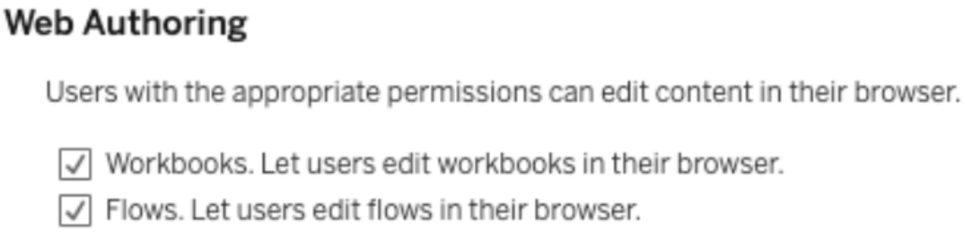
For information about how to enable authoring for flows on the web, see Create and Interact with Flows on the Web.

Turn web authoring on or off for a site

Note: This setting is only available for Tableau Server. Web authoring is enabled for Tableau Cloud and cannot be turned off.

1. In a web browser, sign in to the server as an administrator and go to the site in which you want web authoring to be enabled. In that site, click **Settings**.
2. In the **Web Authoring** section, select **Workbooks. Let users edit workbooks in their browser.** to enable the functionality.

   Clear the check box to turn off web authoring for that site.

   Web Authoring

   Users with the appropriate permissions can edit content in their browser.

   ☑ Workbooks. Let users edit workbooks in their browser.
   ☑ Flows. Let users edit flows in their browser.

3. If your site is already in production, and you want the change to take effect immediately, restart the server.

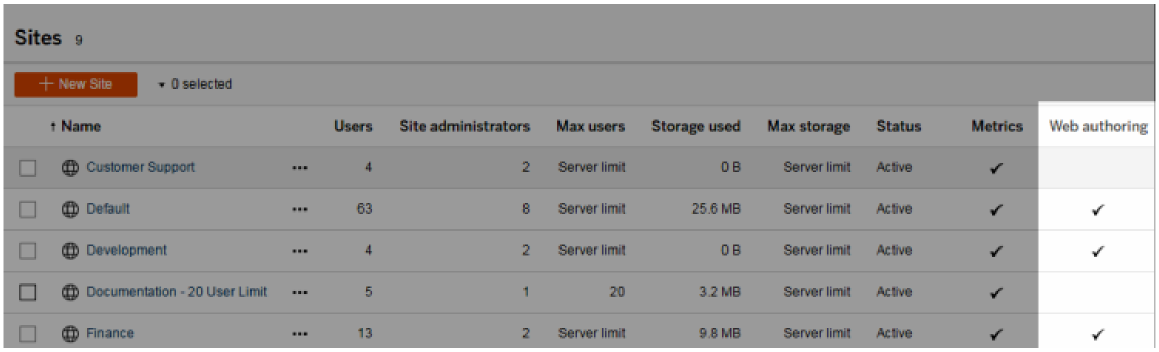
   Otherwise, the change takes effect after server session caching expires or the next time users sign in after signing out.

Notes

- When you enable web authoring, make sure that, on the appropriate workbooks or views, the permission rule for a user or group allows the **Web Edit** capability.
- If you turn off web authoring on a production site and do not complete the last step to restart the server, users might continue to have authoring access until their session caches expire or they sign out.

See which sites allow web authoring

To confirm which sites allow web authoring, on the site-selection menu at the top, select **Manage All Sites**, and then go to the **Sites** page.



Sites 9

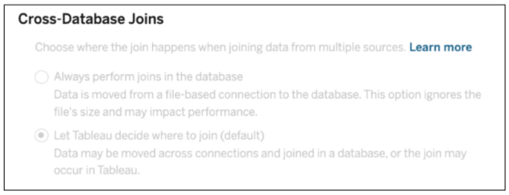
+ New Site ▾ 0 selected

	↑ Name		Users	Site administrators	Max users	Storage used	Max storage	Status	Metrics	Web authoring
☐	Customer Support	•••	4	2	Server limit	0 B	Server limit	Active	✓	
☐	Default	•••	63	8	Server limit	25.6 MB	Server limit	Active	✓	✓
☐	Development	•••	4	2	Server limit	0 B	Server limit	Active	✓	✓
☐	Documentation - 20 User Limit	•••	5	1	20	3.2 MB	Server limit	Active	✓	
☐	Finance	•••	13	2	Server limit	9.8 MB	Server limit	Active	✓	✓

About cross-database joins

To improve performance for cross-database joins, Tableau will now default to deciding whether it should perform joins within Tableau using Hyper, or move data into the connected live database as a temporary table and perform joins there.

The option in **Settings** for each site to configure cross-database joins is still visible, but it can no longer be changed from the default.



Cross-Database Joins

Choose where the join happens when joining data from multiple sources. Learn more

○ Always perform joins in the database
Data is moved from a file-based connection to the database. This option ignores the file's size and may impact performance.

● Let Tableau decide where to join (default)
Data may be moved across connections and joined in a database, or the join may occur in Tableau.

For more information, see Improve performance for cross-database joins.

Create and Edit Private Content in Personal Space

Personal Space is a private location for all Explorers and Creators to save content to when working in a Tableau Site. Content saved in Personal Space can’t be shared with other users but can be moved to a project when you’re ready for others to see it. Within Personal Space, you can create a new workbook or save a workbook to Personal Space as a separate copy. You can also move existing content you own into Personal Space for editing, then move it back to a project later. Explorers can download workbooks in Personal Space, including all data included in the workbook.

Privacy in Personal Space

Content saved to your Personal Space is only visible to you and site administrators. Site administrators can’t directly access any user’s Person Space or edit content in someone else's Personal Space, but they can view and manage Personal Space workbooks. Personal Space workbooks appear in administrator search results and as a workbook location on the Explore page. In addition, the permissions menu is unavailable when a workbook is in Personal Space because the workbook is private.

Tableau Catalog and Personal Space

> Starting in 2019.3, Tableau Catalog is available with Data Management in Tableau Server and Tableau Cloud. For more information, see "About Tableau Catalog" in the Tableau Server or Tableau Cloud Help.

When Tableau Catalog is enabled in your work environment, the information about workbooks you save in your Personal Space is indexed by Catalog. These workbooks are included in lineage counts, however, only you can see the workbooks. Furthermore, users who browse through the lineage tool see Permissions required instead of information about workbooks in your Personal Space.

Collaboration tools

When a workbook is in Personal Space, some functionality is disabled, including share, metrics, comments, alerts, and subscriptions. Existing alerts and subscriptions to you will continue running, but alerts and subscriptions to others will fail, since the content is now private. Metrics can’t be created in Personal Space but will continue to work if a connected workbook is moved there. (The legacy Metrics feature was retired in February 2024 for Tableau Cloud and in Tableau Server version 2024.2. For more information, see Create and Troubleshoot Metrics (Retired).)

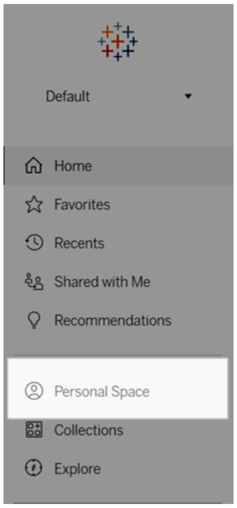
These limitations are removed when the workbook is moved or saved to another location. For example, if a workbook contains comments and moves to Personal Space, existing comments are hidden. Comments restore when the workbook is moved to another location.

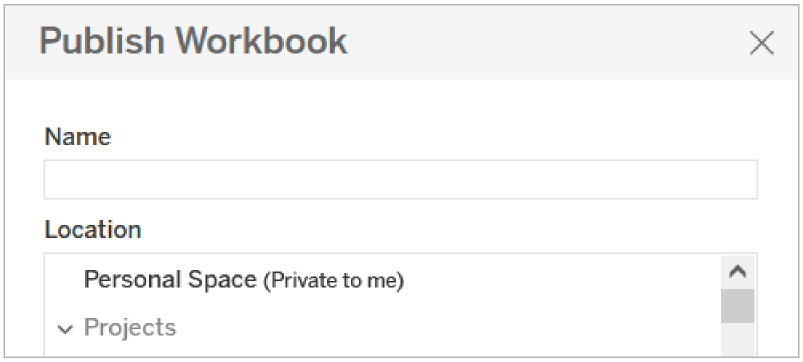
Extract refreshes in Personal Space

To limit resource consumption, existing extract refreshes continue to run if they’ve been scheduled, but new extract refreshes can't be scheduled while a workbook is in Personal Space.

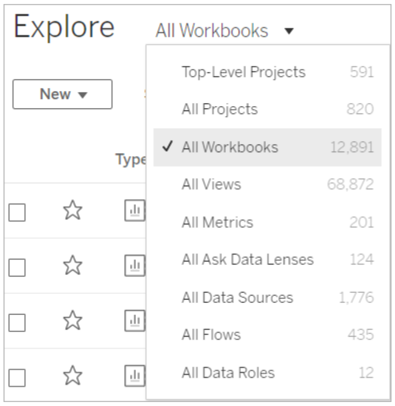
Find content in Personal Space

You can access Personal Space from the left navigation menu to see all your Personal Space content or create a new workbook, and you can save to Personal Space when creating or editing a workbook anywhere on the site.


Default
Home
Favorites
Recents
Shared with Me
Recommendations
Personal Space
Collections
Explore


Publish Workbook
Name
Location
Personal Space (Private to me)
Projects

You can also see workbooks in Personal Space from the Explore page when All Workbooks is selected, and you can filter down to Personal Space content.


Explore
All Workbooks
New
Type
Top-Level Projects 591
All Projects 820
✓ All Workbooks 12,891
All Views 68,872
All Metrics 201
All Ask Data Lenses 124
All Data Sources 1,776
All Flows 435
All Data Roles 12

Publish a workbook to Personal Space

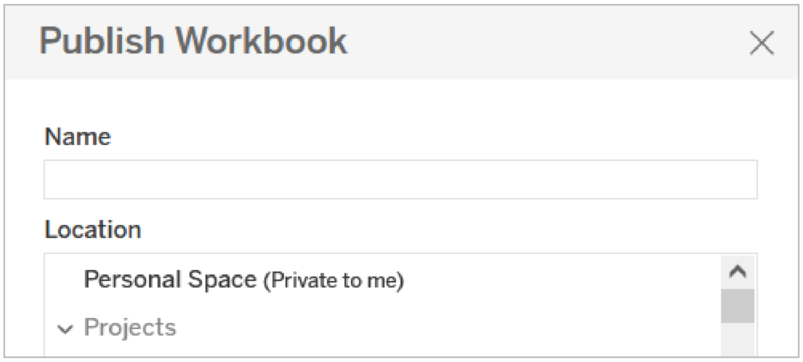
Personal Space works much like a private project for you to publish a new or existing workbook to from Tableau Cloud, Tableau Server, or Tableau Desktop.

If Personal Space is enabled, drafts are automatically saved in Personal Space regardless of which project the new workbook is created in.

If Personal Space is *not* enabled, drafts of new workbooks are saved within the project. However, if a new workbook is created at the top-level project, the draft isn't saved anywhere.

Publish a workbook to Personal Space on Tableau Server or Tableau Cloud

1. With the workbook open, select **File** > **Publish As**.
2. Under Location, select **Personal Space**.



Publish Workbook

Name

Location

Personal Space (Private to me)

Projects

Note: Explorers can only save workbooks to Personal Space and may not see a location selection dialog.

Publish a workbook to Personal Space from Tableau Desktop

Starting in 2023.1, you can publish a workbook to Personal Space from Tableau Desktop.

1. With the workbook you want to publish open in Tableau Desktop, select **Server** > **Publish Workbook**.

2. Under Project, select **Personal Space**.

3. Under Data Sources, select **Edit**.

4. In the Manage Data Sources popup under Publish type, select **Embedded in workbook** for all data sources. You must embed data sources when publishing from Tableau Desktop, because you can't publish data sources separately to Personal Space.

5. Fill out the remainder of the publishing options as usual. For more information, see Comprehensive Steps to Publish a Workbook.

Move workbooks to Personal Space

You can move an existing workbook to Personal Space if you are the owner of the workbook and there is room in your Personal Space. Personal Space storage limits are set by administrators.

To move a workbook to Personal Space:

- Select a workbook, then click the **Actions** drop-down menu.
- Select **Move**.
- Under Location, Select **Personal Space**.

> **Note:** Explorers can only save workbooks to Personal Space and may not see the move action or location selection dialog.

For more information, see Perform actions in the Manage Web Content help topic.

When you move an existing workbook or data source to Personal Space, tools like share, alerts, and subscriptions become hidden. Existing extract refreshes continue to run if they've been scheduled, but users can't schedule new extract refreshes within their Personal Space.

Existing subscriptions and alerts also continue but can’t be edited from Personal Space and will fail if other users are recipients. Existing connected metrics will continue to refresh, but the connected view will not be visible to other users.

Move workbooks from Personal Space

When you move a workbook out of Personal Space, collaboration tools like share, alerts, and subscriptions become visible, and any existing comments reappear.

Explore Your Data with Tableau Agent

Note: Einstein Copilot has been renamed Tableau Agent, as the platform expands to accommodate more AI agent functionality. Starting in October 2024, you'll see updates to page sections, field names, and other UI text throughout Tableau Prep, Tableau Catalog, Tableau Desktop, and Tableau Cloud Web Authoring. Help content and Trailhead modules are also being updated to reflect these changes.

Tableau Agent is a generative AI feature that helps you explore your data, create visualizations, and uncover insights with the help of a conversational assistant. Connect to a workbook or data source and use natural language to perform visual analysis. Use Tableau Agent and the Tableau UI together to get to insights faster. With Tableau Agent, staring at a blank canvas becomes a thing of the past.

In the Tableau authoring experience, you can open the Tableau Agent conversation pane in a worksheet. Tableau Agent can help with tasks like:

- **Jumpstart your analysis**: Tableau Agent can suggest analytical questions based on your data
- **Build a viz**: "How many action movies did each director make?"
- **Choose the best chart type for an analysis**: "Show me the distribution of student's grades"

- **Perform time series analysis**: "What month had the largest growth in number of donors compared to the previous month?"
- **Create calculated fields**: "Create a field that calculates the difference between case open and closed dates and round up to weeks"
- **Explain calculations**: "Explain the "Days to Ship Actual" calculation"
- **Filter and sort data**: "Only look at Saltwater and show me the fish with the smallest tank options"

Tableau Agent creates visualizations based on your data, just like **Show Me** in Tableau. Chart types that Tableau Agent can currently support include:

- Text
- Heatmap
- Bar
- Stacked bar
- Line
- Dual line
- Area
- Gantt
- Box plot
- Scatter plot
- Histogram
- Symbol map
- Filled map
- Tree map
- Pie
- Bullet
- Bubble

For more information about Tableau chart types, see Choose the Right Chart Type for Your Data.

Note: To use this feature you must sign into a Tableau Cloud site that has Tableau+ and AI in Tableau must be turned on in your site settings. If you don't have Tableau+, but want to try Tableau Agent features, you can sign up for a Tableau Cloud free trial which now includes Tableau Agent features. To start your trial, fill out this form, or contact your

Account Executive. For more information about the free trial or to configure AI in Tableau, see Turn on AI in Tableau for Your Site.

Tableau Agent and Trust

Tableau Agent is built on top of the Einstein Trust Layer and inherits all of its security, governance, and Trust capabilities. As you interact with Tableau Agent, neither your data nor your conversations that are sent to the Large Language Model (LLM) are saved to the LLM, and no customer data is ever used to train the model.

Tableau Agent only works with the data sources your workbook is connected to. It isn’t aware of any other Tableau data sources, so it can’t suggest relevant content, answer data lineage questions, or answer general-knowledge questions. User-defined policies for row and column level security are respected. The data a user has access to while using Tableau Agent conforms to any row or column-level security policies that you have in place.

When you first open Tableau Agent, it indexes your data to understand the context. This helps Tableau Agent return relevant results based on your questions and your data source. The information it indexes includes field metadata (field captions, field descriptions (comments), data roles, and data types) and it samples 1000 unique field values if the data type is string (text).

Tableau Agent uses the field caption or alias, not the original field name. For example, if you rename "Host" to "Owner", Tableau Agent will recognize "Owner" but might not recognize "Host". Similarly, if you create an alias like "Breakout"' for "SessionType1", it will recognize "Breakout" but not "SessionType". Tableau Agent can index field descriptions included as comments. For details on adding comments, see Add default comments for specific fields. Tableau Agent does not support reading field descriptions from Tableau Catalog.

The Einstein Trust Layer can be used to mask Personally Identifying Information (PII) before it is sent to the LLM using pattern-based data masking. Using machine learning and pattern matching techniques, PII in prompts are replaced with generic tokens and then unmasked with original values in the response. For more information about how to configure data masking, see Select What Data to Mask in the Salesforce help. For an additional layer of protection, the Einstein Trust Layer guarantees that after the prompt and response are processed by the LLM, the LLM forgets both the prompt and the response.

Tableau Agent billing considerations

When you use generative AI features in Tableau, it consumes Einstein Requests and possibly Data Cloud credits. Einstein Requests are a consumption metric for generative AI. For more information, see AI in Tableau Usage.

You can view your data usage consumption in your Salesforce org using pre-built dashboards and Digital Wallet, or connect to your Data Cloud data from Tableau and build visualizations using the data from Digital Wallet tables. For more information, see View Einstein Request Usage.

Get started with Tableau Agent

Tableau Agent is available through a new conversation pane in the web authoring environment of a Tableau Cloud site or in Tableau Desktop (version 2025.1 and later) when you are signed into a Tableau Cloud site that has Tableau+ and AI in Tableau turned on. It’s only available for worksheets, so you won’t see this option in dashboards or stories. In Tableau Cloud, you also must have the site role of Creator or Explorer to use this feature.

Starting in version 2025.1, Tableau Agent supports English (en_US) and a subset of other languages. If your Cloud site or Tableau Desktop application is set to a language that isn't supported, Tableau Agent responses will be in English (en_US). For more information about supported languages, see AI in Tableau supported languages and locales.

Start by creating a new workbook or opening an existing one. For new workbooks, you start by connecting to your data. For faster results, we recommend using Tableau Agent with extracts. However, you can also use Tableau Agent with live database connections, and uploaded files with the following file types:

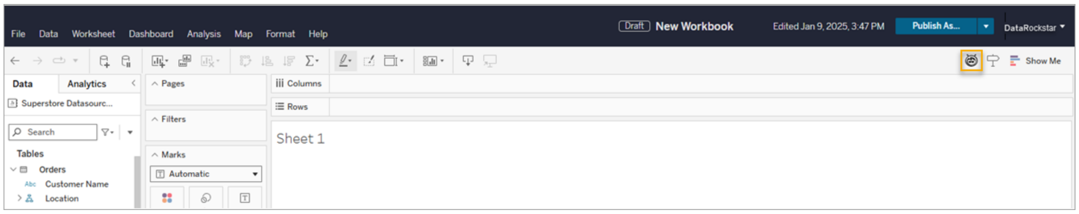
- .hyper
- .csv
- .txt
- .xlsx

Tableau Agent doesn't support cubes. Also, if you're using data blending, Tableau Agent can only be used with the primary data source.

Launch Tableau Agent

To open the Tableau Agent conversation pane, do the following:

1. Select the Tableau Agent icon in the toolbar next to **Show Me**.


File
Data
Worksheet
Dashboard
Analysis
Map
Format
Help
Draft
New Workbook
Edited Jan 9, 2025, 3:47 PM
Publish As...
DataRockstar
Show Me
Data
Analytics
Superstore Datasourc...
Search
Tables
Orders
Abc
Customer Name
Location
Pages
Filters
Marks
Automatic
Columns
Rows
Sheet 1

2. When the pane opens, select **Got It** to acknowledge the disclaimer and get started.

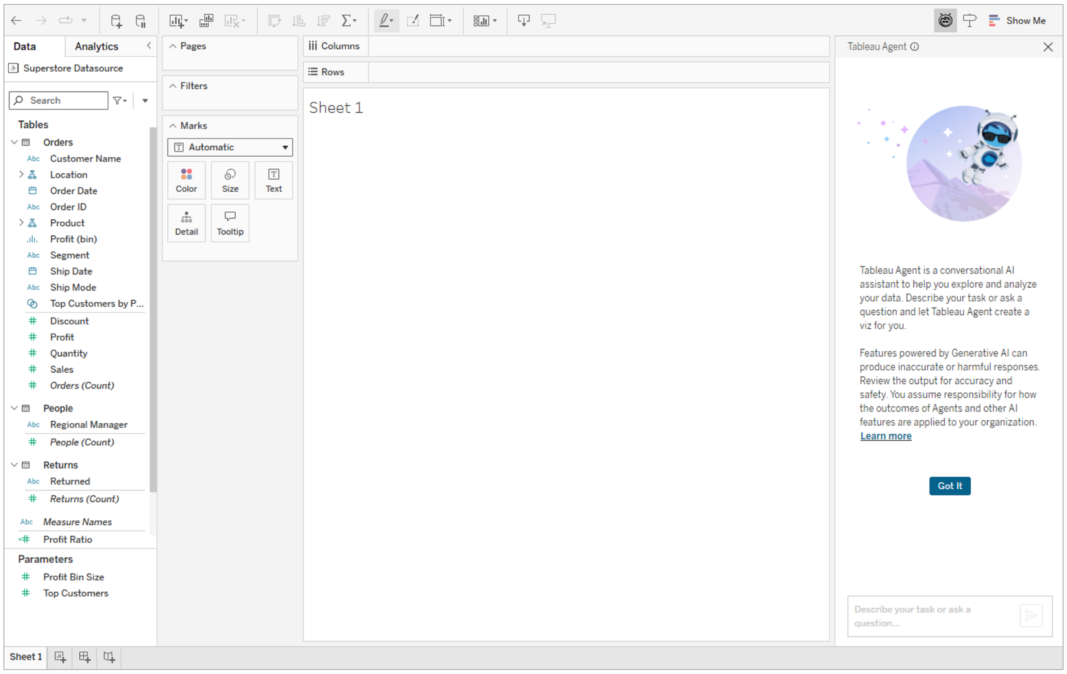

Data
Analytics
Superstore Datasource
Search
Tables
Orders
Customer Name
Location
Order Date
Order ID
Product
Profit (bin)
Segment
Ship Date
Ship Mode
Top Customers by P...
Discount
Profit
Quantity
Sales
Orders (Count)
People
Regional Manager
People (Count)
Returns
Returned
Returns (Count)
Measure Names
Profit Ratio
Parameters
Profit Bin Size
Top Customers
Pages
Filters
Marks
Automatic
Color
Size
Text
Detail
Tooltip
Columns
Rows
Sheet 1
Show Me
Tableau Agent
Sheet 1

Tableau Agent is a conversational AI assistant to help you explore and analyze your data. Describe your task or ask a question and let Tableau Agent create a viz for you.

Features powered by Generative AI can produce inaccurate or harmful responses. Review the output for accuracy and safety. You assume responsibility for how the outcomes of Agents and other AI features are applied to your organization. Learn more

Got It
Describe your task or ask a question...

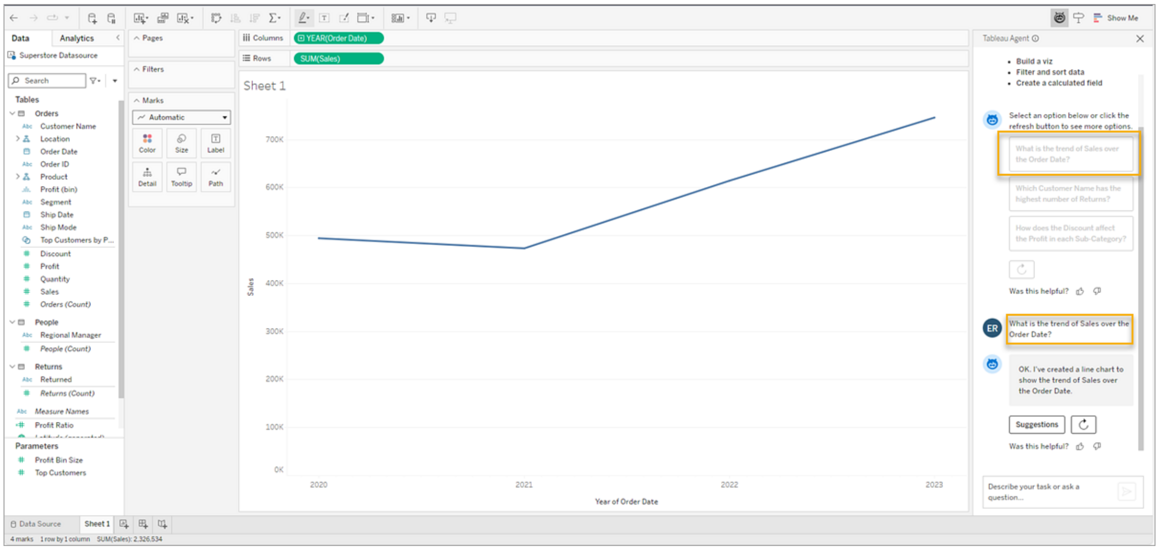
Build and change a viz

Tableau Agent isn't an open-ended chatbot. It can only work within your data set and perform a specific set of actions around analysis and viz creation. To understand your data, Tableau Agent starts by indexing the data set you're connected to. If you're connected to more than one data set, it will work with the selected data set shown in the Data pane. Tableau Agent only works with the primary data source in a data blend.

Note: If you switch to a different data source while Tableau Agent is processing your request, this can cause an error. Wait until Tableau Agent responds before changing data sources; then make a new request using that data source.

Indexing scans the field names, data types (such as dates, text, or number fields), and samples 1000 unique field values to get a sense of what kind of data is in that field. Re-indexing occurs periodically when a change is made, such as renaming a field or creating a new calculated field.

After indexing is complete, Tableau Agent provides some suggested questions you could ask about your data to help you get started, or type your own questions into the text box using natural language to describe what you want.



Data
Analytics
Superstore Datasource
Tables
Orders
Customer Name
Location
Order Date
Order ID
Product
Profit (bin)
Segment
Ship Date
Ship Mode
Top Customers by P...
Discount
Profit
Quantity
Sales
Orders (Count)
People
Regional Manager
People (Count)
Returns
Returned
Returns (Count)
Measure Names
Profit Ratio
Parameters
Profit Bin Size
Top Customers
Pages
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Path
Columns
YEAR(Order Date)
Rows
SUM(Sales)
Sheet 1
Sales
700K
600K
500K
400K
300K
200K
100K
0K
2020
2021
2022
2023
Year of Order Date
Show Me
Tableau Agent
Data Source
Sheet 1
4 marks 1 row by 1 column SUM(Sales): 2,326,534

- Build a viz
- Filter and sort data
- Create a calculated field

Select an option below or click the refresh button to see more options.

What is the trend of Sales over the Order Date?

Which Customer Name has the highest number of Returns?

How does the Discount affect the Profit in each Sub-Category?

Was this helpful?

ER What is the trend of Sales over the Order Date?

OK. I've created a line chart to show the trend of Sales over the Order Date.

Suggestions

Was this helpful?

Describe your task or ask a question...

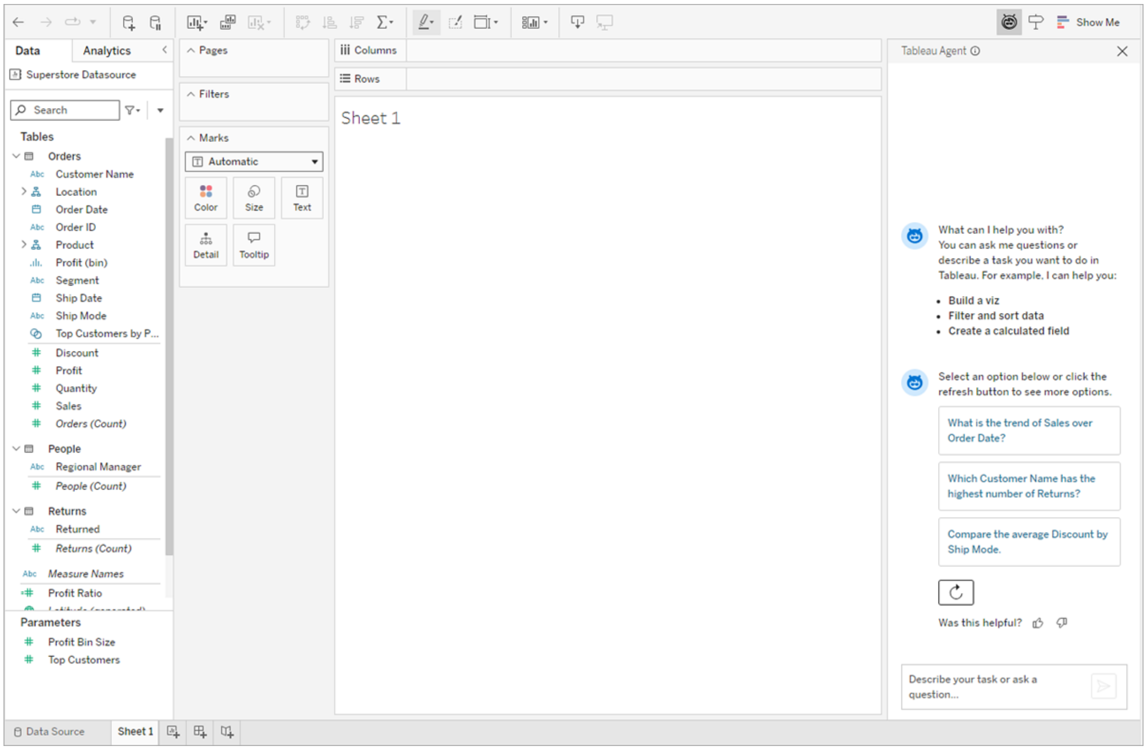
After Tableau Agent creates the viz, you can interact and modify it, just like if an analyst built and shared a viz with you. Ask more questions with Tableau Agent to iterate and explore your data further, use **Suggestions** to get more ideas about questions you can ask, or take the reins and continue your analysis on your own directly in the Tableau interface.

If the viz that Tableau Agent created isn't what you're expecting, you can either provide additional information by typing what you want in the text box, or try selecting the **Retry with Tableau Agent** ↻ and Tableau Agent will query the LLM again and provide a new response to your request.

Use suggestions to jump start your analysis

Whether you're facing a blank canvas or are deeper into your analysis, Tableau Agent can help by suggesting questions you can ask to dig deeper into your data. Before you begin, select the **Suggestions** button and Tableau Agent will create three questions you might ask based on your data source. To see more questions, select **Retry with Tableau Agent** ↻ .

Select a question, and Tableau Agent creates the corresponding viz for you.


Show Me
Data
Analytics
Superstore Datasource
Search
Tables
Orders
Customer Name
Location
Order Date
Order ID
Product
Profit (bin)
Segment
Ship Date
Ship Mode
Top Customers by P...
Discount
Profit
Quantity
Sales
Orders (Count)
People
Regional Manager
People (Count)
Returns
Returned
Returns (Count)
Measure Names
Profit Ratio
Parameters
Profit Bin Size
Top Customers
Pages
Filters
Marks
Automatic
Color
Size
Text
Detail
Tooltip
Columns
Rows
Sheet 1
Tableau Agent
Data Source
Sheet 1

What can I help you with? You can ask me questions or describe a task you want to do in Tableau. For example, I can help you:

- Build a viz
- Filter and sort data
- Create a calculated field

Select an option below or click the refresh button to see more options.

What is the trend of Sales over Order Date?

Which Customer Name has the highest number of Returns?

Compare the average Discount by Ship Mode.

Was this helpful?

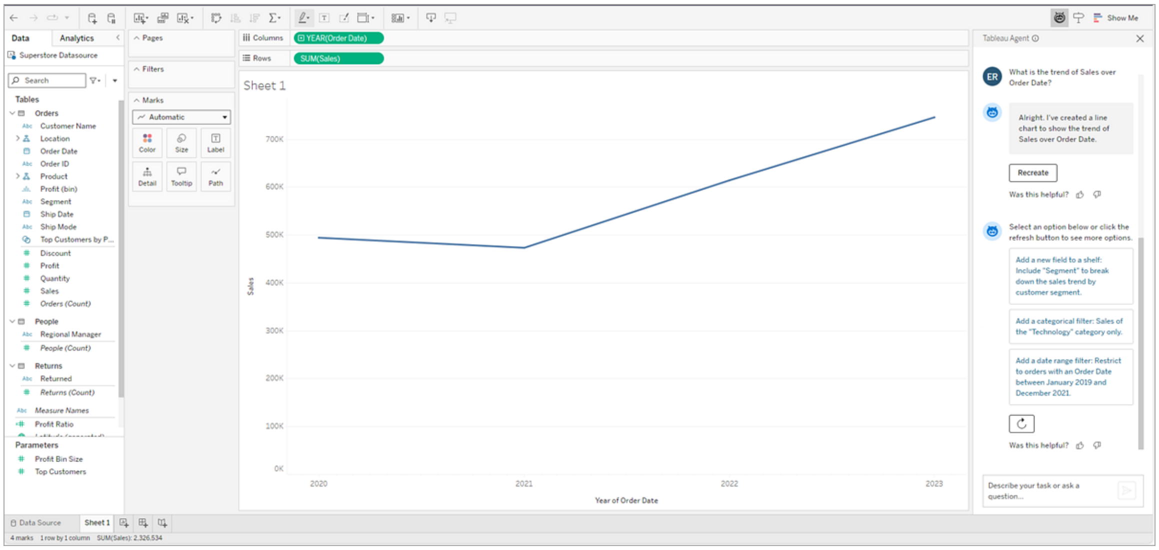
Describe your task or ask a question...

Use suggestions to dive deeper into your analysis as you interact with vizzes Tableau Agent has created.

Also, starting in version 2025.1, when you use Tableau Agent to create or modify a calculation and accept the calculation, Tableau Agent offers suggestions about how you might use the calculation in your analysis.

At the bottom of the confirmation response from Tableau Agent, select the **Suggestions** button and Tableau Agent will suggest some actions you might take to discover more insights about your data. When you do this, the **Suggestions** button is converted to a **Recreate** button so that you can go back and recreate the previous viz if needed.

Simply select an option to apply the suggested action to your viz. If you don't like those suggestions, just select **Retry with Tableau Agent** ↻ to see more options.


Show Me
Data
Analytics
Superstore Datasource
Tables
Orders
Customer Name
Location
Order Date
Order ID
Product
Profit (bin)
Segment
Ship Date
Ship Mode
Top Customers by P...
Discount
Profit
Quantity
Sales
Orders (Count)
People
Regional Manager
People (Count)
Returns
Returned
Returns (Count)
Measure Names
Profit Ratio
Parameters
Profit Bin Size
Top Customers
Pages
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Path
Columns
YEAR(Order Date)
Rows
SUM(Sales)
Sheet 1
Sales
700K
600K
500K
400K
300K
200K
100K
0K
2020
2021
2022
2023
Year of Order Date
Data Source
Sheet 1
4 marks 1 row by 1 column SUM(Sales): 2,326,534
Tableau Agent
Recreate
Was this helpful?
Describe your task or ask a question...

ER What is the trend of Sales over Order Date?

Alright. I've created a line chart to show the trend of Sales over Order Date.

Select an option below or click the refresh button to see more options.

Add a new field to a shelf: Include "Segment" to break down the sales trend by customer segment.

Add a categorical filter: Sales of the "Technology" category only.

Add a date range filter: Restrict to orders with an Order Date between January 2019 and December 2021.

Create calculations

Building calculations in Tableau can sometimes be tricky. If you're new to Tableau, you might not know the right syntax to use or how to properly format your calculation. Tableau Agent can do the heavy lifting for you, keeping you in the flow of your analysis.

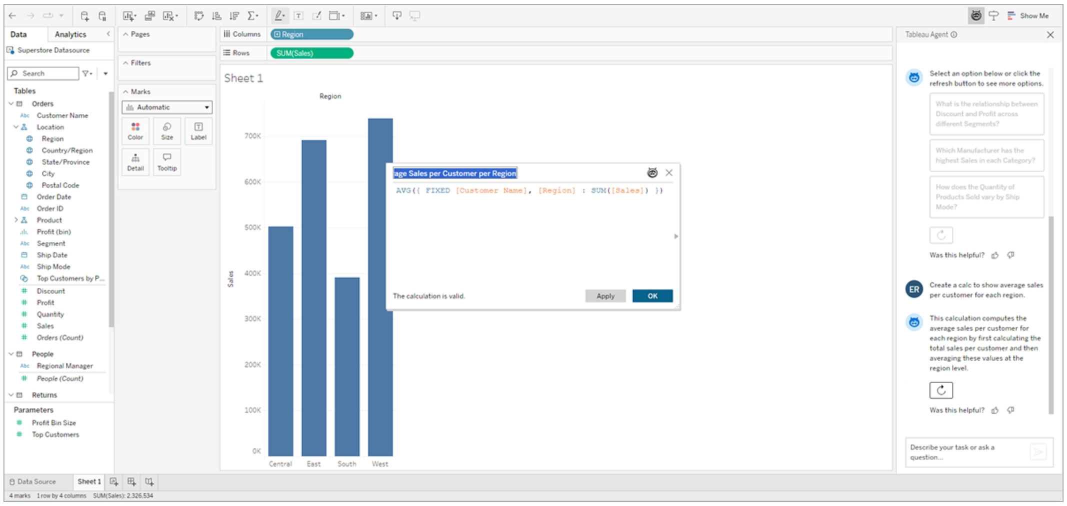
Simply ask Tableau Agent to help you create a calculation using natural language to describe what you want to do. Tableau Agent does the following:

- Opens the Calculation Editor
- Adds the suggested syntax
- Names the calculation
- Provides an explanation of the calculation in the Tableau Agent pane to help you evaluate it for accuracy and build proficiency

Review the calculation, edit it if needed, and accept it. Tableau Agent adds the new calculated field to the Data pane and it’s ready to use in your analysis.

There are two ways to ask for help with calculations:

1. **In the conversation pane**: Ask Tableau Agent to create calculations for you as part of the flow of your conversation. Just describe your calculation using natural language, and Tableau Agent does the rest.



age Sales per Customer per Region

```
AVG({ FIXED [Customer Name], [Region] : SUM([Sales]) })
```

The calculation is valid.

Select an option below or click the refresh button to see more options.

What is the relationship between Discount and Profit across different Segments?

Which Manufacturer has the highest Sales in each Category?

How does the Quantity of Products Sold vary by Ship Mode?

Was this helpful?

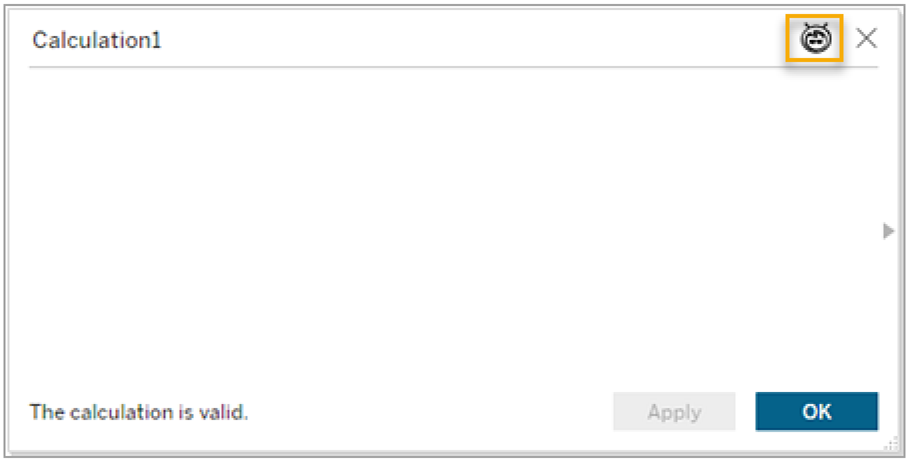
ER Create a calc to show average sales per customer for each region.

This calculation computes the average sales per customer for each region by first calculating the total sales per customer and then averaging these values at the region level.

Was this helpful?

Describe your task or ask a question...

2. **In the Calculation Editor**: Open the Calculation Editor and select the **Tableau Agent** icon. This opens the conversation pane if it isn't already open. If the conversation pane is open, just type your calculation description in the text box, and Tableau Agent adds the suggested syntax right into the open Calculation Editor.



Calculation1

The calculation is valid.

Tips for creating calculations

To get the best results when asking Tableau Agent to help you create a calculation, be specific. When your goal is to have Tableau Agent write a calculation for you, use that specific language. For example, “Create a calc…”, “Write a calc…”, “Create a calculated field…”, or simply just “Calculate…”

It's also important to avoid being too generic. For example, instead of saying “Identify my most profitable products”, try “Calculate the profit ratio by product name”.

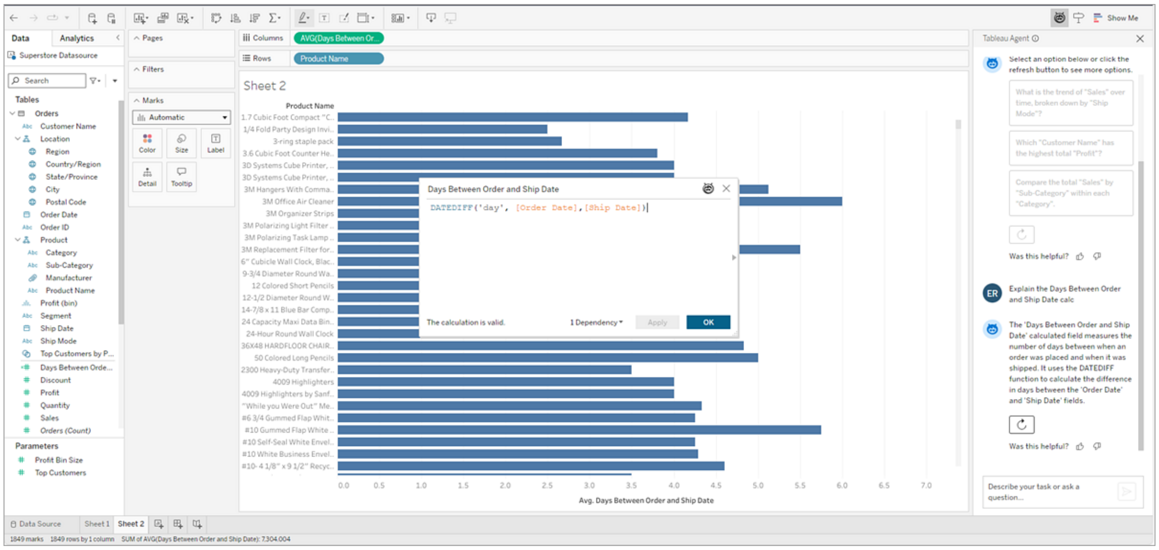
This helps Tableau Agent understand both your intent (to create a calculation) as well as what you mean by the fields you want to calculate.

Calculation Descriptions

Understanding what a calculation does is just as important as creating the calculation itself. Tableau Agent can help with that.

Whether it’s a calculation that Tableau Agent created for you or one that exists as part of your data set, you can ask Tableau Agent to explain the calculation. For example, “Explain the Business Days Between Order and Ship calculation.”

Not only can this help you verify that the calculation does what you need, this feature can also help you build proficiency in using calculated fields in your Tableau analysis.



Days Between Order and Ship Date

```
DATEDIFF('day', [Order Date],[Ship Date])
```

The calculation is valid.

1 Dependency

Apply

OK

Select an option below or click the refresh button to see more options.

What is the trend of "Sales" over time, broken down by "Ship Mode"?

Which "Customer Name" has the highest total "Profit"?

Compare the total "Sales" by "Sub-Category" within each "Category".

Was this helpful?

ER

Explain the Days Between Order and Ship Date calc

The 'Days Between Order and Ship Date' calculated field measures the number of days between when an order was placed and when it was shipped. It uses the DATEDIFF function to calculate the difference in days between the 'Order Date' and 'Ship Date' fields.

Was this helpful?

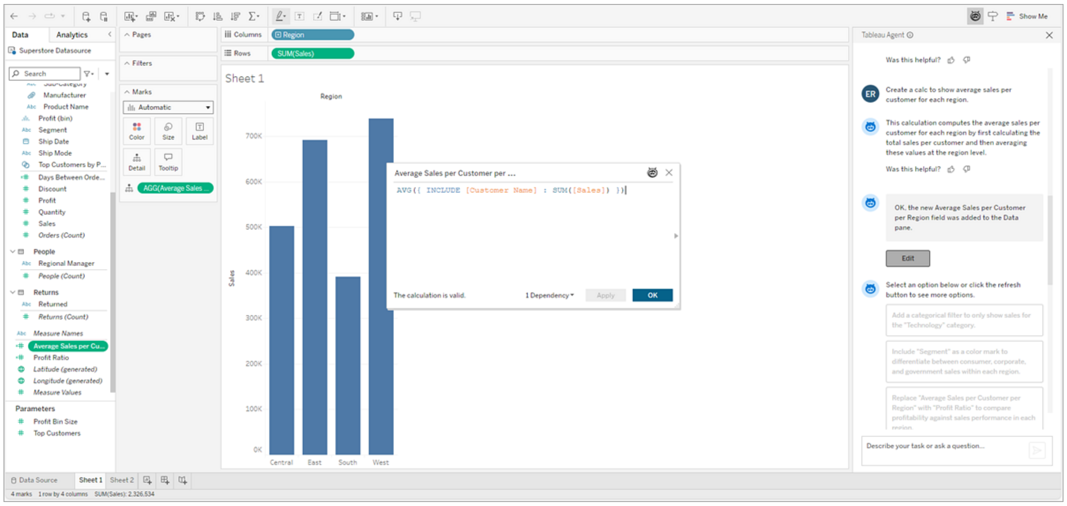
Describe your task or ask a question...

Edit calculations

You can edit any calculation that Tableau Agent created for you at any time. You can manually edit the calculation, or you can ask Tableau Agent to help you.

To edit a calculation, do the following:

1. In the conversation pane, find the calculation you want to edit.
2. Click **Edit**.
3. Manually make your changes in the Calculation Editor and click **OK** or describe the changes you want to make in the Tableau Agent conversation pane, and let Tableau Agent make the changes for you.



Average Sales per Customer per ...

```
AVG({ INCLUDE [Customer Name] : SUM([Sales]) })
```

The calculation is valid.

Tableau Agent

Was this helpful?

Create a calc to show average sales per customer for each region.

This calculation computes the average sales per customer for each region by first calculating the total sales per customer and then averaging these values at the region level.

Was this helpful?

OK, the new Average Sales per Customer per Region field was added to the Data pane.

Edit

Select an option below or click the refresh button to see more options.

Add a categorical filter to only show sales for the "Technology" category.

Include "Segment" as a color mark to differentiate between consumer, corporate, and government sales within each region.

Replace "Average Sales per Customer per Region" with "Profit Ratio" to compare profitability against sales performance in each region.

Describe your task or ask a question...

Show Me
Data
Analytics
Superstore Datasource
Columns
Region
Rows
SUM(Sales)
Pages
Filters
Marks
Automatic
AGG(Average Sales ...
Average Sales per Cu...
Sheet 1
Region
Sales
700K
600K
500K
400K
300K
200K
100K
0K
Central
East
South
West
1 Dependency
Apply
OK
Data Source
Sheet 1
Sheet 2

To ask Tableau Agent to update an existing calculation in the **Data** pane, open the calculation in the **Calculation Editor** first.

1. Right-click or Cmd+Click (MacOS) on the field in the **Data** pane.
2. Select **Edit…**
3. Manually make your changes in the Calculation Editor and click **OK** or describe the

changes you want to make in the Tableau Agent conversation pane, and let Tableau Agent make the changes for you.

Calculation limitations

When creating calculations using Tableau Agent, the following functionality is not yet supported:

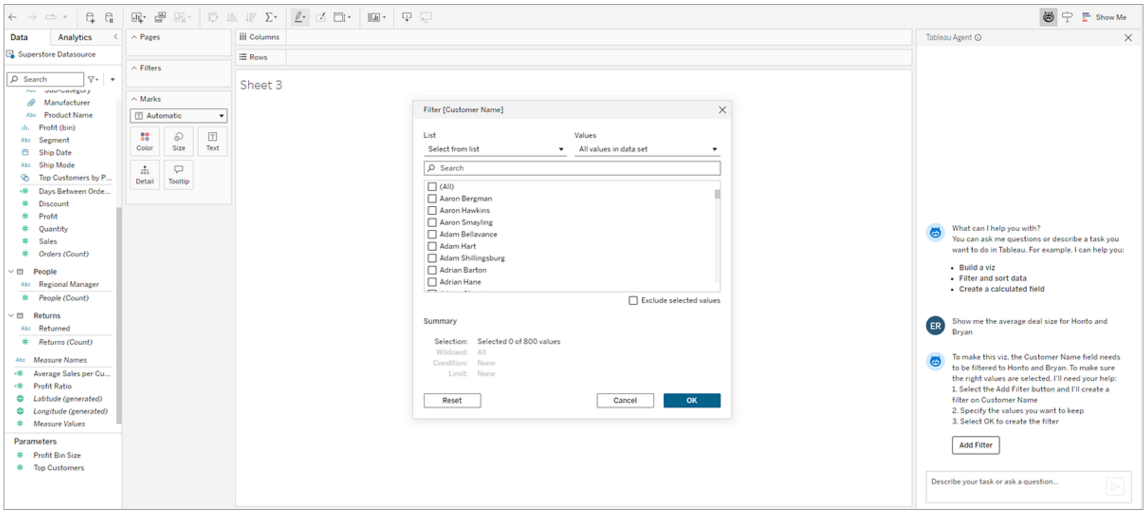
- When creating a calculation, Tableau Agent can't yet ask clarifying questions. You might need to be specific or iterate, such as specifying "change the field FIRST NAME into proper capitalization" if there is more than one field with the word "name" in its name.
- Available calculations can vary by connection type. For example, certain date functions such as DATEPARSE are only supported by data extracts and a subset of possible connectors.

  If your request involves a function that isn't supported by your live data connection, Tableau Agent may create the calculation for you but it will be in an error state. To use the calculation, you'll need to take an extract of your data source first. In some cases there may be alternative functions you can request, such as using DATE instead of DATEPARSE. For more information about these alternatives, see the functions documentation.
- Tableau Agent can’t create a calculation and then automatically use it in the viz. Instead do this as a two-step process. Ask for the calculation and add it to the Data pane; then ask for the viz and reference the new calculated field by name.

Working with filters

You can ask Tableau Agent to filter your viz using natural language. While Tableau Agent does its best to understand your request and return a solution, sometimes it might need your help to return the response that you're looking for. For example, if you have high cardinality fields, fields with a lot of values, Tableau Agent might ask you to select the values you want.

In cases like this, you can select **Add Filter** in the Tableau Agent pane, and Tableau Agent opens the **Filter** dialog for you. Just select the values you want and select **OK** to add your filter to the viz.


Data
Analytics
Superstore Datasource
Search
Manufacturer
Product Name
Profit (bin)
Segment
Ship Date
Ship Mode
Top Customers by P...
Days Between Orde...
Discount
Profit
Quantity
Sales
Orders (Count)
People
Regional Manager
People (Count)
Returns
Returned
Returns (Count)
Measure Names
Average Sales per Cu...
Profit Ratio
Latitude (generated)
Longitude (generated)
Measure Values
Parameters
Profit Bin Size
Top Customers
Pages
Filters
Marks
Automatic
Color
Size
Text
Detail
Tooltip
Columns
Rows
Sheet 3
Show Me
Tableau Agent

Filter [Customer Name]

List: Select from list

Values: All values in data set

Search

- ☐ (All)
- ☐ Aaron Bergman
- ☐ Aaron Hawkins
- ☐ Aaron Smayling
- ☐ Adam Bellavance
- ☐ Adam Hart
- ☐ Adam Shillingsburg
- ☐ Adrian Barton
- ☐ Adrian Hane

☐ Exclude selected values

Summary

Selection: Selected 0 of 800 values
Wildcard: All
Condition: None
Limit: None

Reset Cancel OK

What can I help you with?
You can ask me questions or describe a task you want to do in Tableau. For example, I can help you:

- Build a viz
- Filter and sort data
- Create a calculated field

ER Show me the average deal size for Honto and Bryan

To make this viz, the Customer Name field needs to be filtered to Honto and Bryan. To make sure the right values are selected, I'll need your help:
1. Select the Add Filter button and I'll create a filter on Customer Name
2. Specify the values you want to keep
3. Select OK to create the filter

Add Filter

Describe your task or ask a question...

Conversation history and viz recreation

You interact with Tableau Agent in the conversation pane. The pane is where Tableau Agent offers suggestions for analysis and maintains your conversation history for that session. If you ask a new question, the viz itself updates, but the conversation pane maintains a history of all your requests and Tableau Agent's responses.

It also has interactive elements such as **Retry with Tableau Agent** ↻ to ask Tableau Agent to query the LLM again with the same request and create another version of the viz or **Recreate** Recreate to go back to return to a previous viz without querying the LLM, maintaining the same results.

If you close and reopen the conversation pane while still in your same session, your conversation history persists. If you close your workbook, this clears the conversation with Tableau Agent. The conversation history isn't saved and doesn't appear the next time you open the published or saved workbook.

Tableau Agent is a per-sheet experience. There’s no awareness of other worksheets in your workbook and conversations can’t be shared between worksheets. If you change to a new sheet, this starts a new conversation.

If you want Tableau Agent to forget the context of what you’ve done so far, start a new sheet so there’s no history in the conversation pane.

Tips for getting the best results from Tableau Agent

Tableau Agent does its best to understand your intent and your data. But it’s still learning. Use the following tips to help Tableau Agent do its best and deliver great results for you.

Tip	Problem	What to Do
Use clean data	Messy data is hard to analyze and Tableau Agent won’t know how to clean and prep your data for you.	• Use certified data sources. The better the data quality, the better results Tableau Agent can return. • Clean and prep your messy data before analysis. • Make sure field names are descriptive and unique.
Hide irrelevant fields	Similarly named fields in your data set can be confusing to Tableau Agent.	Hide fields you don’t need and Tableau Agent won’t use these hidden fields.
Be careful with synonyms	Tableau Agent does a good job of understanding common synonyms. For example, it would know that “titles” and “films” could apply to a field called “movies.” However, it doesn’t know about any of your company specific terminology or acronyms that you may use.	Refer to the specific fields you’re interested in to help Tableau Agent be more accurate.

Be explicit with your intent	Tableau Agent does its best to infer your intent, but it might not always get it right.	If you know you want Tableau Agent to generate a viz, use clues in your request like “show me,” “create a viz,” “build a bar chart.” Alternatively, if you want Tableau Agent to create a calculation, try starting your request with the phrase “Create a calc that...”
Specify how to evaluate “top”	Requests like “top products,” “best salespeople,” “highest quarter” can be ambiguous to Tableau Agent and it might not know how to evaluate what “top,” “best,” or “highest is.”	State how “top” should be measured and displayed. For example, try asking Tableau Agent to show you the “top 10 products based on profit” or "top 3 products based on sales volume".
Use specific terminology in your requests	Tableau Agent can scan your data source for the field names and data in those fields, but it doesn't truly understand the data the way a human can.	The more descriptive you are in your request, the better Tableau Agent is at providing a relevant visualization. If you know your data should be evaluated with an aggregation of MEDIAN instead of AVERAGE, specify that.
Break down complex tasks	Tableau Agent can’t update the data model and generate a visualization as part of a single step.	Break down your tasks into parts and iterate. For example: • <Task 1> "Create a calc called profit" • <Task 2> "Show me how profit has varied over time"
Only asks questions about your	Tableau Agent isn’t a general-purpose chatbot. It can’t answer consulting questions like “how should I	Ask questions targeted at analyzing your data and iterating and digging deeper into the viz results.

data	analyze my data?” or general questions like “which cat breed makes the best pet?”

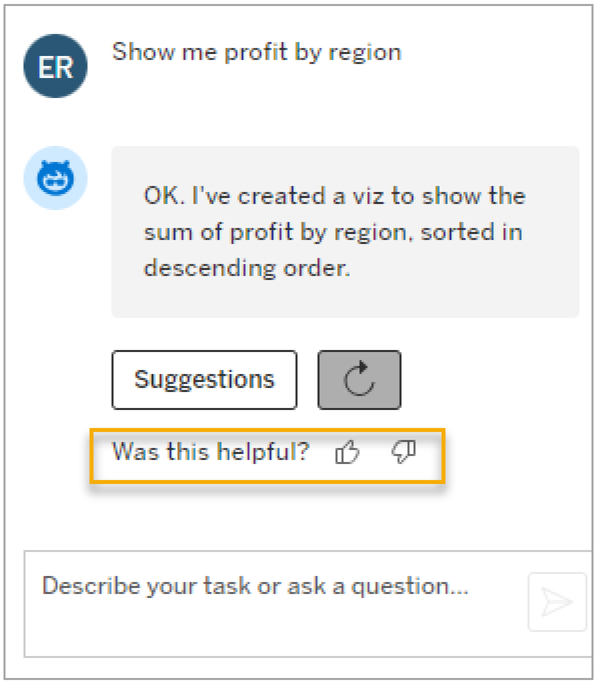
Be the human in the loop

As with all AI, its important to review the results you get when using Tableau Agent. Tableau Agent will do it’s best to understand your data and your intent when asking questions, but it might not always get it right.

For example, Tableau Agent tries to pick a default for things like date granularity (such as year, month, or day) or aggregation (such as median or average). If you know the aggregation you want, it's better to specify this in your request.

If Tableau Agent gets it wrong, you can either restate your request and clarify what you want, or you can interact directly with the viz. After all, you're in the standard authoring environment and have access to all of Tableau's functionality.

You can also provide feedback at any time on the results with the thumbs up or thumbs down buttons that show up with every Tableau Agent response.



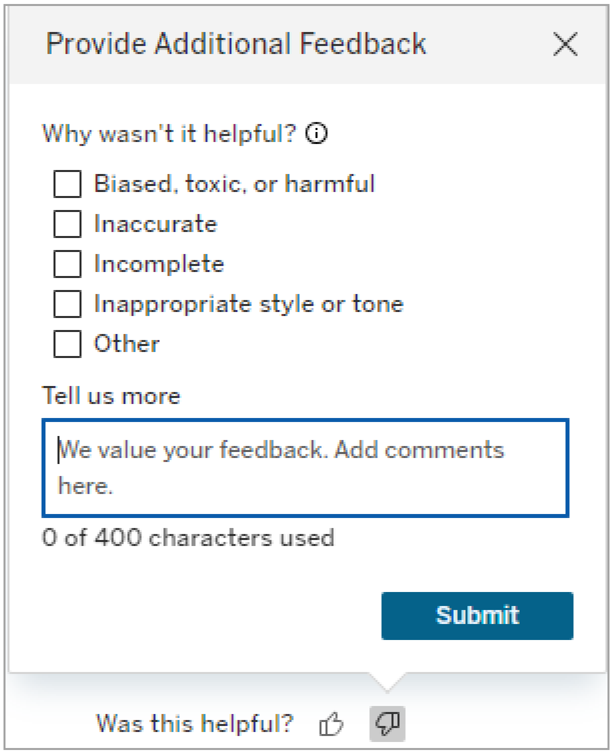
ER

Show me profit by region

OK. I've created a viz to show the sum of profit by region, sorted in descending order.

Suggestions
Was this helpful?
Describe your task or ask a question...

If you click the thumbs down option, provide additional feedback to help improve Tableau Agent’s responses.



Provide Additional Feedback

Why wasn't it helpful?

☐ Biased, toxic, or harmful
☐ Inaccurate
☐ Incomplete
☐ Inappropriate style or tone
☐ Other

Tell us more

We value your feedback. Add comments here.

0 of 400 characters used

Submit
Was this helpful?

Tableau Agent limitations

Tableau provides powerful tools for the human analyst, and Tableau Agent is no different. AI in Tableau isn't meant to replace analysts and data explorers; it's here to give you a boost. Your participation in the process is crucial.

Types of analysis

Tableau Agent can't yet manage consultative questions like "how should I analyze my data?" or "Is there seasonality in this data?". Instead, you need to specify what you'd like to see, such as "What are my sales over time?"

Unsupported features

Tableau Agent doesn't have access to all of Tableau's authoring features — yet. It is currently available in web authoring and Tableau Desktop (starting in version 2025.1) if you are connected to a Tableau Cloud site with Tableau+ and AI in Tableau turned on in site settings.

Some things that Tableau Agent is currently unable to do include:

- Choose a data source for you or do data modeling (such as creating joins or relationships)
- Change data types, field roles, or caption names
- Format a viz. Such as adding fields to the Marks card properties. For example detail or tooltips.
- Add reference lines
- Organize or customize fields using groups, sets, or parameters
- Create interactivity with elements such as filter controls, parameters, and actions
- Build dashboards

- Analyze large data sets. Tableau Agent will not work as well if you have hundreds or thousands of fields in your data set, especially if they are similarly named. If you try to filter against fields that are high-cardinality (many distinct values for a single field), Tableau Agent might need you to manually perform your filter operations.
- Block indexing refreshes after data model changes
- Support all languages. Tableau Agent supports English (en_US) and a subset of other languages. If your data source field names and values are not in the same language as your user language settings or not the same as the language you are interacting with Agent in, use the exact field name and values in your requests. For information about the languages Tableau Agent currently supports, see AI in Tableau supported languages and locales.

Tableau Agent FAQ

Note: Einstein Copilot has been renamed Tableau Agent, as the platform expands to accommodate more AI agent functionality. Starting in October 2024, you'll see updates to page sections, field names, and other UI text throughout Tableau Prep, Tableau Catalog, Tableau Desktop, and Tableau Cloud Web Authoring. Help content and Trailhead modules are also being updated to reflect these changes.

Find answers to commonly asked questions about using Tableau Agent in Tableau Desktop and Tableau Cloud web authoring. To learn more about Tableau Agent in Tableau Prep or Tableau Catalog, see Create Calculated Fields with Tableau Agent or Describe projects, workbooks, or data sources.

General Information

What is Tableau Agent?

Tableau Agent is a generative AI feature in Tableau that helps you explore data, create visualizations, and uncover insights using a conversational assistant. It allows you to interact with your data through natural language in a web authoring environment.

Is there a free trial?

Yes. You can sign up for a Tableau Cloud free trial which now includes Tableau Agent features. Simply fill out this form, or contact your Account Executive. You can currently try Tableau Agent in Tableau Desktop (starting in 2025.1), Tableau Cloud web authoring, Tableau Prep Builder (starting in 2025.2), and Tableau Prep on the web as part of a limited trial.

The trial gives you full access to Tableau Agent functionality but there are some restrictions on the overall experience.

- You can only trial in a new site, not add a trial of Tableau Agent to your existing production site.
- Tableau Agent in Tableau Catalog isn't included in the trial.
- Tableau Agent is free to use during the trial but limits may apply to the number of requests you can make per hour.

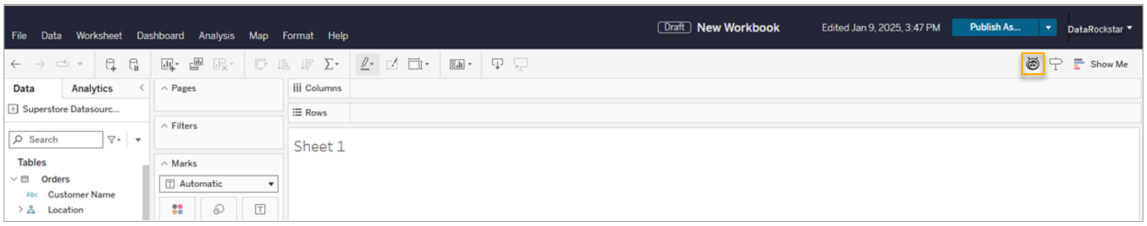
How do I access Tableau Agent?

You can find Tableau Agent in the web authoring environment of a Tableau Cloud site or in Tableau Desktop (starting in version 2025.1). Look for the Tableau Agent icon in the toolbar next to **Show Me**.

The icon is only active if the following conditions are met:

- **In Tableau Desktop**: When you are signed into a Tableau Cloud site that has Tableau+ and Tableau AI is turned on for web authoring.
- **In Tableau Web Authoring**: When Tableau AI is turned on for web authoring, and you are assigned the role of Creator or Explorer.

You must also be on a worksheet tab and connected to a data source. For more information about how to configure Tableau Agent in your Tableau Cloud site, see Turn on AI in Tableau for your Site.


File
Data
Worksheet
Dashboard
Analysis
Map
Format
Help
Draft
New Workbook
Edited Jan 9, 2025, 3:47 PM
Publish As...
DataRockstar
Show Me
Data
Analytics
Superstore Datasourc...
Search
Tables
Orders
Customer Name
Location
Pages
Filters
Marks
Automatic
Columns
Rows
Sheet 1

Why is the Tableau Agent button not available?

To use Tableau Agent, the following must be true:

- You must be connected to a Tableau Cloud site that has Tableau+ and AI in Tableau turned on. If you are using Tableau Desktop, you must be signed into the Tableau Cloud site.
- You must be on a worksheet
- You must be connected to a data source
- Tableau AI must be enabled for your site and the **Tableau Web Authoring: Builds visualizations or completes tasks for you using a conversational AI** check box is selected.

Usage and Capabilities

Can I use Tableau Agent on any type of data?

Tableau Agent is recommended for use on data extract or file-based data for improved performance, but Tableau Agent also works with live connections, or uploaded files with .hyper, .csv, .txt, and .xlsx file types. Cubes are not supported. Also, if you're using data blending, Tableau Agent can only be used with the primary data source.

Can I use Tableau Agent in my language?

Starting in version 2025.1, Tableau Agent supports English (United States) and the following languages:

- English (United Kingdom)
- French (Canada) - Available starting in 2025.2
- French (France)
- German
- Italian
- Japanese
- Korean - Available starting in 2025.2
- Portuguese (Brazil)
- Spanish

> **Note**: If your data source field names and values are not in the same language as your user language settings or not the same as the language you are interacting with Agent in, use the exact field name and values in your requests.

If your Tableau Cloud site or Tableau Desktop application is set to a language that isn't supported, Tableau Agent responses will be in English (en_US). For more information about supported languages, see AI in Tableau supported languages and locales.

Can I choose which Large Language model (LLM) I want to use?

No. Currently with Tableau Agent, choosing a Salesforce-managed Large Language Model (LLM) isn't supported. Instead, the development team at Tableau tests and selects the best model to use, based on performance, accuracy and cost. For more information, see Geo-aware LLM request routing.

What can I ask Tableau Agent to do?

Tableau Agent has two top level capabilities - viz generation and working with calculations.

Tableau Agent can help you build visualizations, choose the best chart types for your data, perform date-based analysis, and manage data filtering and sorting. For example, you can ask it to "show sales data for a specific region" or "compare sales to profit". For more information, see Build and change a viz.

Tableau Agent can also create calculations from natural language. Using the same conversation pane that you would use for generating a viz, you can ask Tableau Agent to create, update, or explain a calculation. For more information, see Create calculations.

Are there limitations to what Tableau Agent can do?

Yes, Tableau Agent has some limitations. For example, it can't pick a data source for you, do data modeling, build dashboards, suggest relevant content or answer data lineage questions, answer consulting questions (such as “How should I analyze my data?”), or create interactivity with elements like filter controls and parameters. It's primarily aimed at helping novice users and those exploring ad-hoc data questions. For more information, see Tableau Agent limitations.

What is the best way to use Tableau Agent effectively?

Start by working with clean data

- Make sure field names are descriptive and unique
- When you start an Tableau Agent session, if you see similarly named fields in a data source, hide the ones that aren't relevant. Tableau Agent won't ground its answers on hidden fields
- Specify the aggregation function for a measure if you know what you want
- Make sure fields have the correct field role (measure or dimension) and data type (location, string, boolean, etc.)
- Like traditional Tableau, Tableau Agent performs better with extracts. When using live data sources, the time it takes to initiate your Tableau Agent session might be longer and viz load time will be slower

Only ask about analyzing your data. Tableau Agent isn't a general-purpose chat-bot. When it comes time to ask questions, start each request as if Tableau Agent is only aware of the current state of the visualization. Ask questions about what you want to see. For example, “What are my sales over time in California?".

Be specific and descriptive in your requests to help Tableau Agent better understand and respond to your data analysis needs. Break your request into discrete tasks. For example, first request a calculation, then ask for a viz that uses that new field, instead of asking for a viz and a new calculated field at the same time. For more information, see Tips for getting the best results from Tableau Agent.

Can I use Tableau Agent for dashboards or stories?

No, currently Tableau Agent is only available for worksheets.

Technical Details

How does Tableau Agent handle data privacy and security?

Tableau Agent ensures data privacy and security by adhering to a zero data retention policy with third-party LLM providers. It respects all existing permissions and data policies within Tableau Cloud, ensuring only authorized users have access. Additionally, it can also employ pattern-based data masking techniques to protect personally identifiable information (PII) before it is processed by LLMs.

For more information, see Tableau AI and the Einstein Trust Layer and Select What Data to Mask in the Salesforce help.

How does Tableau Agent know what is in my data?

Tableau Agent indexes your data source at the start of each session to understand what data is present. Indexing takes in the data type, field name, and samples 1000 unique values for a field. This ensures responses are grounded in your data. Remember that Tableau Agent respects data masking if it is enabled, and might not be able to respond to requests that involve masked data.

If you have fields with high cardinality (many distinct values for a single field), Tableau Agent might not have indexed all the values. If you try to filter on a high cardinality field, Tableau Agent creates a filter for the field but might prompt you to select the values you want to include or exclude.

What if the viz created by Tableau Agent isn’t correct?

As with all AI, it's important to review the results you get when using Tableau Agent. Although Tableau Agent can scan your data source for the field names and data in those fields, it doesn't truly understand the data the way a human can. Always review the results from Tableau Agent. If a viz doesn't meet your expectations, try clarifying your request or asking Tableau Agent to recreate it. You can also interact directly with the viz to adjust the analysis to meet your needs. Think of the viz created by Tableau Agent as a starting point to jump start your analysis.

You can also always provide feedback using the thumbs up and thumbs down icon in the conversation pane.

Does Tableau Agent remember previous interactions?

Tableau Agent is a per-sheet experience, meaning it doesn't retain conversation history across different sheets. It has limited memory based on the information in the conversation pane of the current sheet. If you close and reopen the conversation pane while still in your same session, your conversation history persists. If you close your workbook, this clears the conversation with Tableau Agent. The conversation history isn’t saved and doesn’t appear the next time you open the published or saved workbook.

Create a Tableau Data Story (English Only)

Important changes for Tableau Data Stories

Tableau Data Stories were retired in Tableau Desktop, Tableau Cloud, and Tableau Server in January of 2025 (2025.1). With advances in natural language technologies, we're developing an improved interface that will make it easier to ask questions of your data and stay on top of changes. For more information, see How Tableau Pulse powered by Tableau AI is Reimagining the Data Experience.

If you've ever written an executive summary of your Tableau dashboard, then you know it can be time-consuming. It takes time to choose which insights to share, and you have to rewrite your summaries each time the data is updated. Tableau Data Stories automatically generates narrative insights within your dashboard, saving time and surfacing relevant insights. As you explore the vizzes in your dashboard, the stories written by Data Stories adjust, allowing you to dive deeper into data and identify key insights faster.

From where you're already working in Tableau, you can quickly add the **Data Story** object to your dashboard. And you can customize the terms and metrics used in your story, so Data Stories speaks the language used by your business.

Today, you can write and view a Tableau Data Story anywhere you use Tableau. After you create your story, you can also view your Data Story in Tableau Mobile. However, Data Stories aren't included if you export your dashboard, for example to a PDF.

Understand how Data Stories handles data

To write Data Stories, Tableau uses a service hosted in your Tableau Cloud or Tableau Server environment. When you Add a Tableau Data Story to a Dashboard or view a Data Story from a dashboard, Tableau sends associated worksheet data to the environment that you’re logged in to (i.e., your Tableau Cloud site or your Tableau Server instance), using the security standards outlined in Security in the Cloud and Security in Tableau Server. Data Stories can be written and viewed from anywhere you use Tableau.

Learn about how Data Stories are written

Tableau Data Stories is powered by rules-based templated natural language generation (NLG). Data Stories performs automated analytics to determine relevant and accurate facts about the underlying data–from basic calculations to more advanced statistics. To write a story, Data Stories uses a library of predefined language templates to synthesize these facts into natural language insights. Data Stories processes these templates at run-time, using the most up-to-date summary data from the Tableau worksheet it is connected to. You can leverage the custom language feature to generate your own language templates, add functions, and define business rules, helping you build a more relevant and contextual Data Story.

> **Note:** Data Stories doesn’t use generative AI, large language models (LLMs), or machine learning to write insights and stories.

Manage Data Stories for your site

Tableau administrators can choose whether Tableau Data Stories are available for their site. Data Stories are turned on by default.

1. Sign in to your Tableau site.
2. From the left pane, choose **Settings**.
3. From the **General** tab, scroll to the **Availability of Data Stories** section.
4. Choose whether you want to **Turn on** or **Turn off** Data Stories.

> **Note:** If Data Stories are turned off, then turning the feature back on restores Data Stories that were already in dashboards.

Add a Tableau Data Story to a Dashboard

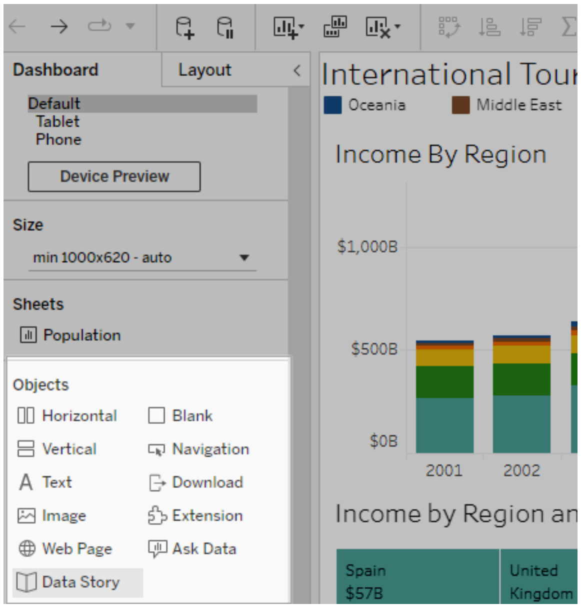
Important changes for Tableau Data Stories

Tableau Data Stories were retired in Tableau Desktop, Tableau Cloud, and Tableau Server in January of 2025 (2025.1). With advances in natural language technologies, we're developing an improved interface that will make it easier to ask questions of your data and stay on top of changes. For more information, see How Tableau Pulse powered by Tableau AI is Reimagining the Data Experience.

After you Create a Dashboard, you can add the **Data Story** object to your dashboard to display insights about your viz that are written in natural language. Today, Tableau Data Stories are written in English only and are available in Tableau Cloud, Tableau Server (version 2023.1 and later), and Tableau Desktop. There is no data size limit when creating **Data Stories**. However, story generation times out after 45 seconds if it's trying to analyze a lot of data. We recommend using **Data Stories** with visualizations that have 1,000 or fewer data points.

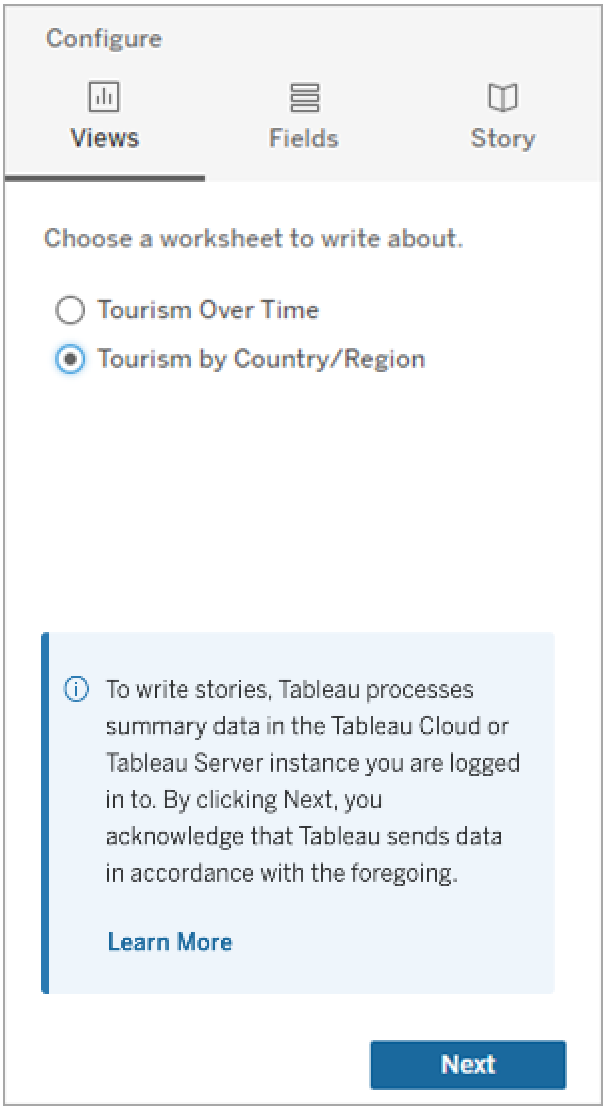
> **Note:** Tableau Data Stories opens in a pop-up window, so be sure to allow pop-ups. If you're using full screen mode, then Data Stories can open in a new tab.

1. Drag the **Data Story** object into your Tableau dashboard. If you haven't already, add a sheet to your dashboard to use Tableau Data Stories.


Dashboard
Layout
Default
Tablet
Phone
Device Preview
Size
min 1000x620 - auto
Sheets
Population
Objects
Horizontal
Blank
Vertical
Navigation
Text
Download
Image
Extension
Web Page
Ask Data
Data Story
International Tour
Oceania
Middle East
Income By Region
$1,000B
$500B
$0B
2001
2002
Income by Region an
Spain
$57B
United
Kingdom

2. In the Data Story dialog box, configure your story by first choosing the worksheet to write about. When you click **Next**, Tableau sends all associated workbook data to the

Tableau Cloud or Tableau Server instance that you are logged in to.


Configure
Views
Fields
Story

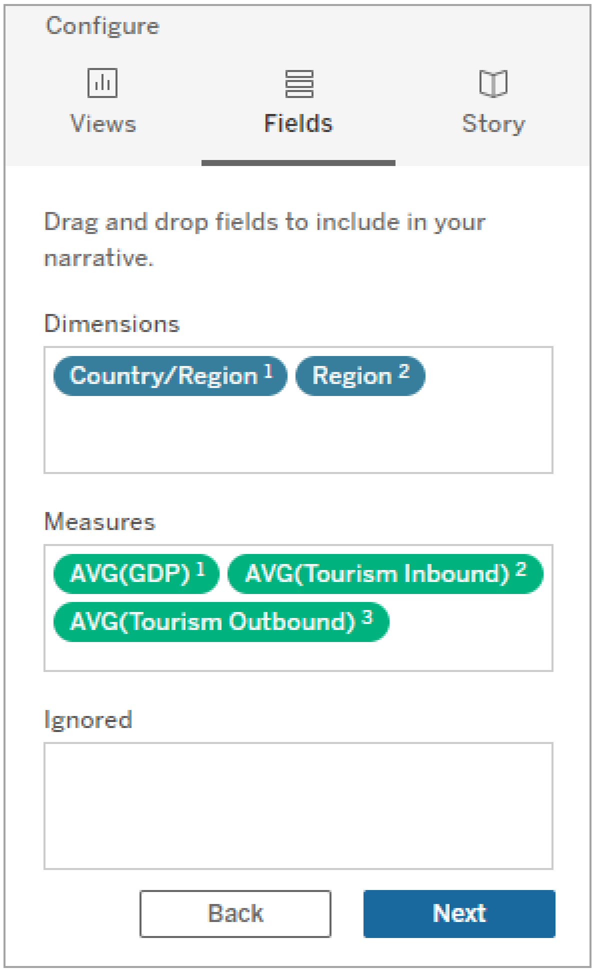
Choose a worksheet to write about.

○ Tourism Over Time
● Tourism by Country/Region

To write stories, Tableau processes summary data in the Tableau Cloud or Tableau Server instance you are logged in to. By clicking Next, you acknowledge that Tableau sends data in accordance with the foregoing.

Learn More
Next

3. Choose the dimensions and measures to include in your story.


Configure
Views
Fields
Story

Drag and drop fields to include in your narrative.

Dimensions

Country/Region 1, Region 2

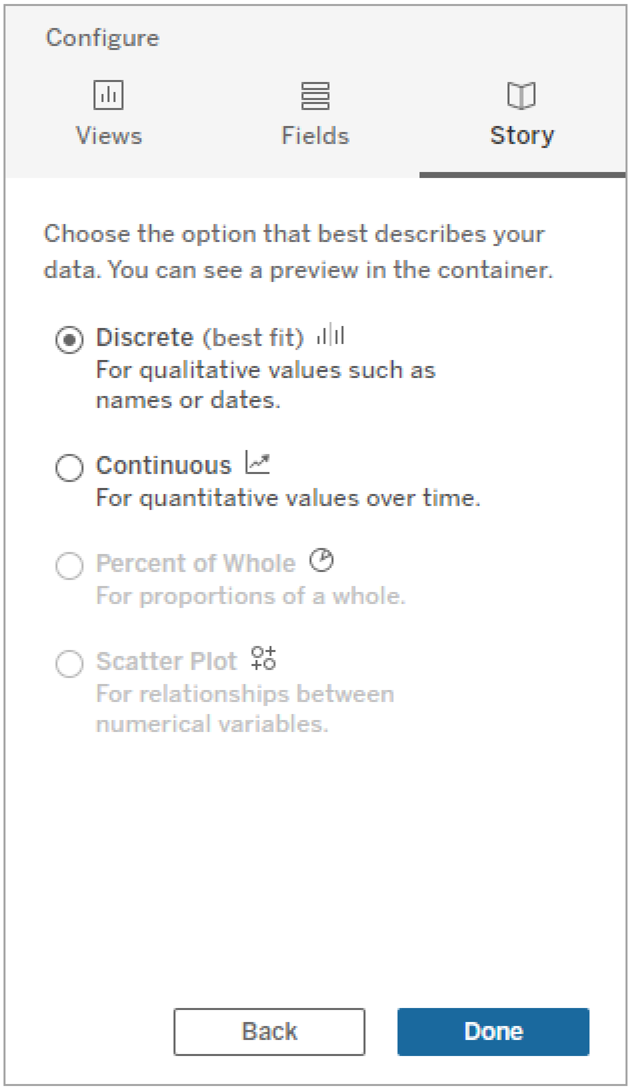
Measures

AVG(GDP) 1, AVG(Tourism Inbound) 2, AVG(Tourism Outbound) 3

Ignored

Back
Next

4. Choose the type of story that best describes your data:



Choose the option that best describes your data. You can see a preview in the container.

● Discrete (best fit)
For qualitative values such as names or dates.

○ Continuous
For quantitative values over time.

○ Percent of Whole
For proportions of a whole.

○ Scatter Plot
For relationships between numerical variables.

Discrete is best for qualitative values such as names or dates, such as in bar or column charts.
Continuous is best for quantitative values over time, such as a plotted in a line chart.
Percent of Whole is best for proportions of a whole, such as a pie chart.
Scatter Plot is best for relationships between numerical values, such as a scatter plot chart.

5. Click **Done**.

To filter your Data Story by clicking different sections on your visualization, open the menu on your visualization and click **Use as filter**.

After your story is generated, click **Settings** at the top of your **Data Story** object for a guided experience that helps you personalize and contextualize your story. For more information, see Configure Settings for a Tableau Data Story.

> **Note:** If you experience a discrepancy in your Tableau Data Story (for example, if the numbers in your story are different than in your visualization), it may be caused by way your visualization is set up. Try creating a new visualization on a different sheet, and then add a new Data Story with the Use a hidden sheet technique to uncover the underlying issue.

Choose the Right Story Type for Your Tableau Data Story

Important changes for Tableau Data Stories

Tableau Data Stories were retired in Tableau Desktop, Tableau Cloud, and Tableau Server in January of 2025 (2025.1). With advances in natural language technologies, we're developing an improved interface that will make it easier to ask questions of your data and stay on top of changes. For more information, see How Tableau Pulse powered by Tableau AI is Reimagining the Data Experience.

When you Add a Tableau Data Story to a Dashboard, it’s important to choose the right type of story for your data. Do you want your story about trends over time? Or do you want your story about two values that you’re comparing? To help you tell the right story, this topic describes the different types of stories, including an example of each story type.

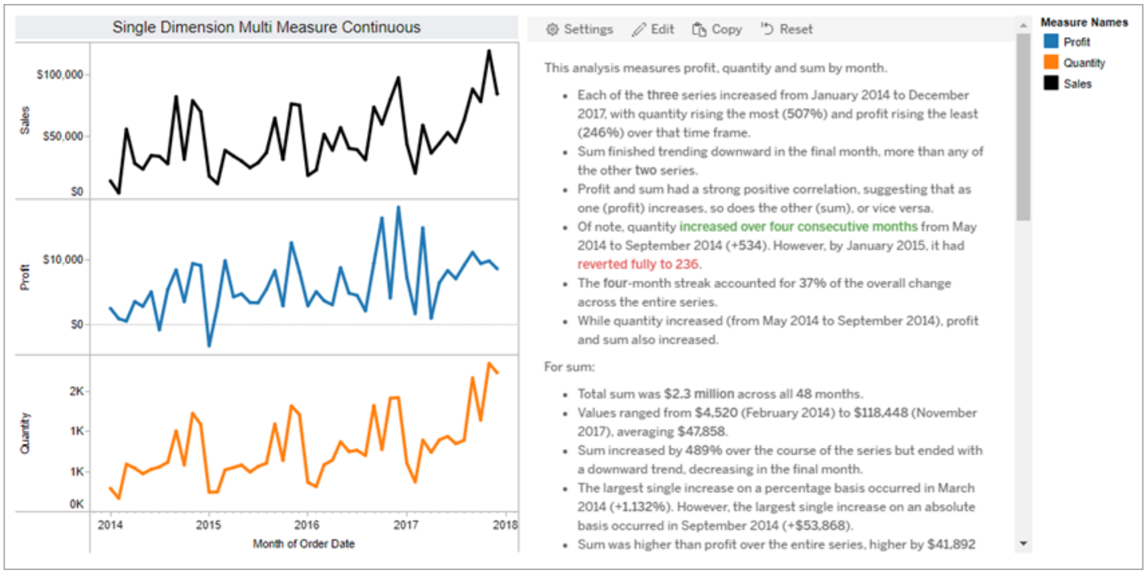
Continuous

Continuous stories are best for analyzing trends or progress over time.

When you create a continuous story, it includes content for performance, segments, volatility, and trend lines. The story also includes contribution analysis and correlation for stories that use more than one dimension. To use a continuous story, your worksheet must have:

- 1 dimension that has between 1-10 measures
- 2 dimensions and up to 3 measures

The following example is a continuous story for a line chart that has a single dimension and multiple measures:



This analysis measures profit, quantity and sum by month.

- Each of the **three** series increased from January 2014 to December 2017, with quantity rising the most (507%) and profit rising the least (246%) over that time frame.
- Sum finished trending downward in the final month, more than any of the other **two** series.
- Profit and sum had a strong positive correlation, suggesting that as one (profit) increases, so does the other (sum), or vice versa.
- Of note, quantity increased over four consecutive months from May 2014 to September 2014 (+534). However, by January 2015, it had reverted fully to 236.
- The **four**-month streak accounted for 37% of the overall change across the entire series.
- While quantity increased (from May 2014 to September 2014), profit and sum also increased.

For sum:

- Total sum was **$2.3 million** across all 48 months.
- Values ranged from **$4,520** (February 2014) to **$118,448** (November 2017), averaging **$47,858**.
- Sum increased by 489% over the course of the series but ended with a downward trend, decreasing in the final month.
- The largest single increase on a percentage basis occurred in March 2014 (+1,132%). However, the largest single increase on an absolute basis occurred in September 2014 (+$53,868).
- Sum was higher than profit over the entire series, higher by $41,892

Discrete

Discrete stories are best for comparing values and understanding the distribution of data in each value. When you create a discrete story, the story includes content about the distribution and groupings or clusters across the data. And the story includes contribution analysis for worksheets that use multiple dimensions.

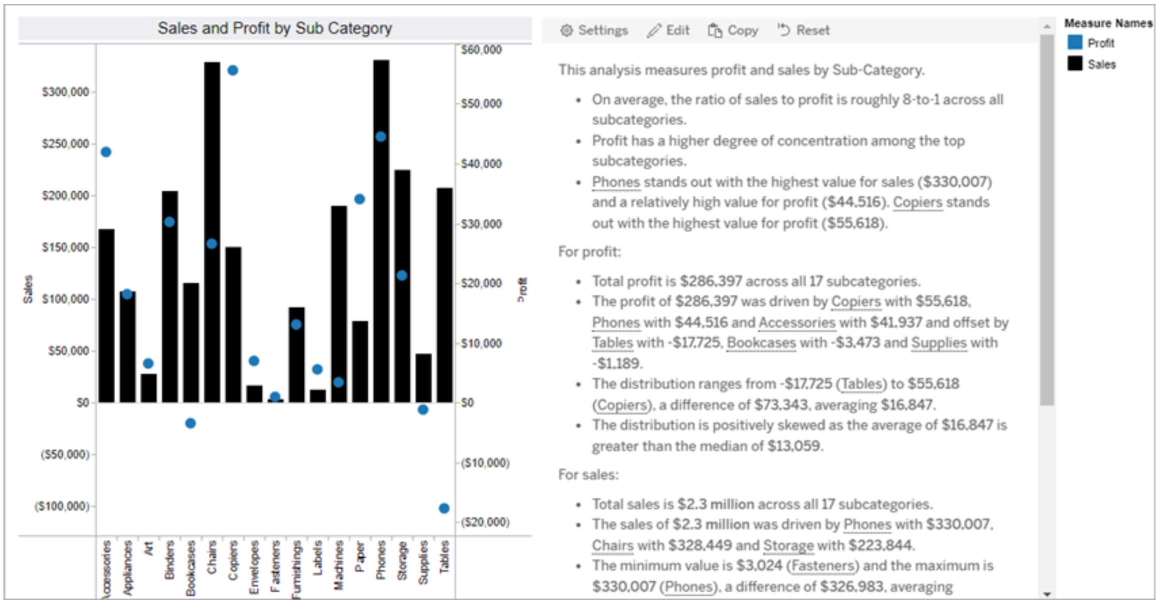
Consider using a discrete story when you want to:

- Understand drivers of your key performance indicators (KPIs) in sales reports.
- Identify and understand outliers quickly during data discovery.
- Identify trends that aren’t easily observable in the visual when performing an audit.
- Uncover complex utilization insights instantly for geographic analysis.
- Identify and call out key relationships, for example, between sales and profit.

To use a discrete story, your worksheet must have:

- 1 dimension that has between 1-10 measures
- 2 dimensions and up to 3 measures

The following example is a discrete story for a bar chart that has a single dimension and two measures:


Sales and Profit by Sub Category
$300,000
$250,000
$200,000
$150,000
$100,000
$50,000
$0
($50,000)
($100,000)
Sales
$60,000
$50,000
$40,000
$30,000
$20,000
$10,000
$0
($10,000)
($20,000)
Profit
Accessories
Appliances
Art
Binders
Bookcases
Chairs
Copiers
Envelopes
Fasteners
Furnishings
Labels
Machines
Paper
Phones
Storage
Supplies
Tables
Settings
Edit
Copy
Reset
Measure Names
Profit
Sales

This analysis measures profit and sales by Sub-Category.

- On average, the ratio of sales to profit is roughly 8-to-1 across all subcategories.
- Profit has a higher degree of concentration among the top subcategories.
- Phones stands out with the highest value for sales ($330,007) and a relatively high value for profit ($44,516). Copiers stands out with the highest value for profit ($55,618).

For profit:

- Total profit is $286,397 across all 17 subcategories.
- The profit of $286,397 was driven by Copiers with $55,618, Phones with $44,516 and Accessories with $41,937 and offset by Tables with -$17,725, Bookcases with -$3,473 and Supplies with -$1,189.
- The distribution ranges from -$17,725 (Tables) to $55,618 (Copiers), a difference of $73,343, averaging $16,847.
- The distribution is positively skewed as the average of $16,847 is greater than the median of $13,059.

For sales:

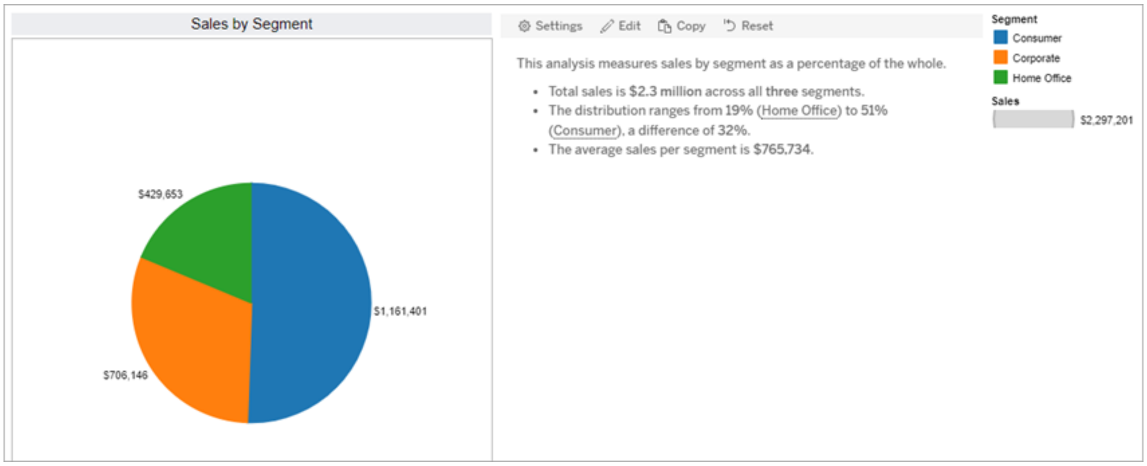
- Total sales is $2.3 million across all 17 subcategories.
- The sales of $2.3 million was driven by Phones with $330,007, Chairs with $328,449 and Storage with $223,844.
- The minimum value is $3,024 (Fasteners) and the maximum is $330,007 (Phones), a difference of $326,983, averaging

Percent of whole

Percent of whole stories are best for pie charts. To use a percent of whole story, your worksheet must have:

- 1 dimension
- 1 measure

The following example is a percent of whole story that uses a pie chart with a single dimension and a single measure:



This analysis measures sales by segment as a percentage of the whole.

- Total sales is $2.3 million across all three segments.
- The distribution ranges from 19% (Home Office) to 51% (Consumer), a difference of 32%.
- The average sales per segment is $765,734.

Scatter plot

Scatter plot stories are best for understanding the relationship between two measures. When you create a scatter plot story, the story includes content about the relationship (regression) between two measures. And the story includes content about groups (clusters) within the data, when they exist.

Consider using a scatter plot story when you want to:

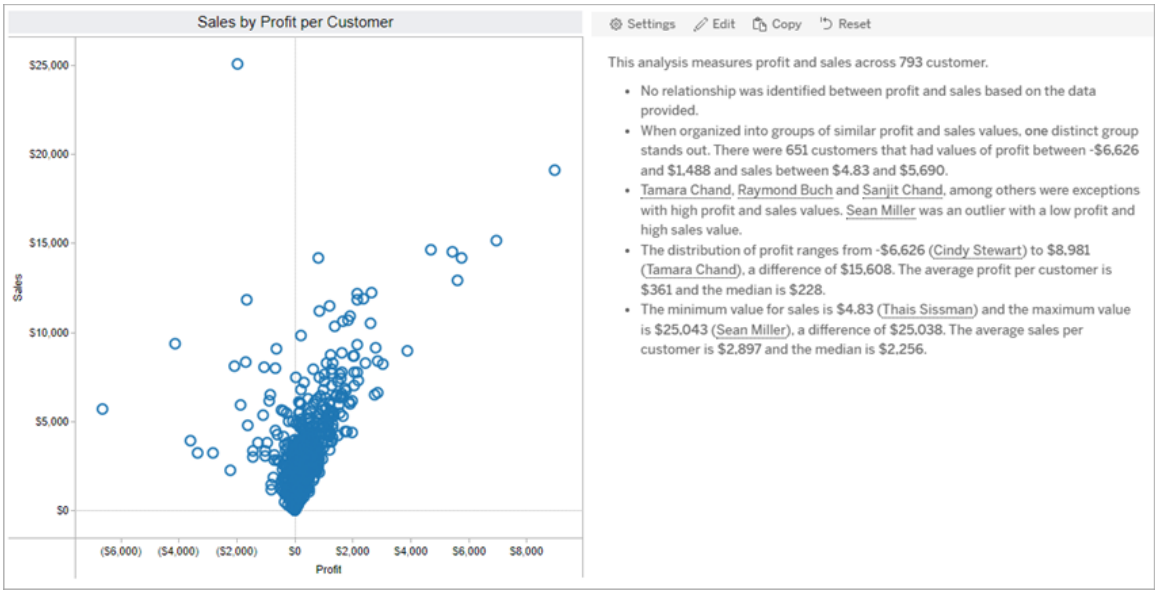
- Call out relationships between two measures to identify impact (regression analysis).
- Identify and understand outliers that are above or below defined thresholds.
- Analyze how your data is distributed.

To use a scatter plot story, your worksheet must have:

- 1 dimension
- 2 or 3 measures

Note: When you create your scatter plot story, the first measure you select is treated as the independent variable and the second measure is the dependent variable.

The following example is a scatter plot story that uses a scatter plot that has a single dimension and two measures:



This analysis measures profit and sales across 793 customer.

- No relationship was identified between profit and sales based on the data provided.
- When organized into groups of similar profit and sales values, one distinct group stands out. There were 651 customers that had values of profit between -$6,626 and $1,488 and sales between $4.83 and $5,690.
- Tamara Chand, Raymond Buch and Sanjit Chand, among others were exceptions with high profit and sales values. Sean Miller was an outlier with a low profit and high sales value.
- The distribution of profit ranges from -$6,626 (Cindy Stewart) to $8,981 (Tamara Chand), a difference of $15,608. The average profit per customer is $361 and the median is $228.
- The minimum value for sales is $4.83 (Thais Sissman) and the maximum value is $25,043 (Sean Miller), a difference of $25,038. The average sales per customer is $2,897 and the median is $2,256.

Configure Settings for a Tableau Data Story

Important changes for Tableau Data Stories

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After you Add a Tableau Data Story to a Dashboard, you can configure and edit your Tableau Data Story so it's tailored to your needs–use language specific to your data, specify which analytics are written about, and customize how your Tableau Data Story is displayed.

Configure Tableau Data Story Settings: Analytics

Important changes for Tableau Data Stories

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Within your Tableau Data Story, you can choose which analytics to write about and when those analytics are written about. Different types of analytics are available depending on your story type and how many dimensions and measures your story has. However, analytics aren't currently supported for scatter plot story types. For more information, see Choose the Right Story Type for Your Tableau Data Story.

Configure analytics for your story

1. Add a Tableau Data Story to a Dashboard.
2. From your dashboard, click the **Settings** icon at the top-left corner of your **Data Story** object.
3. In the Data Story dialog box, click the **Analytics** tab.
4. Click the switches to turn on different types of analytics.
5. For **Segments** and **Trend line**, expand **Settings** to set thresholds for performing those analytics.
6. Click **Save**.

Understand different types of analytics

Correlation

Use **Correlation** to identify true statistical correlations between two series. If you have more than two series, then all combinations are analyzed for correlations. For example, you might turn on **Correlation** to identify when two products are often purchased together.

Clustering

Use **Clustering** to identify distinct groups of data points (clusters) using a single statistical analysis. For example, you might turn on **Clustering** to identify when a product is very popular in a specific geographic region.

Distribution

Use **Distribution** to rank data points relative to each other using nonstatistical observations, such as mean, median, skew, etc. For example, you might turn on **Distribution** to identify which product has the highest profit ratio.

Segments

Use **Segments** to highlight noteworthy changes to data points within a series. First, set the minimum percentage of change that you want to be written about in a segment. Changes that fall below your defined threshold aren't written about. For example, if you set your segment threshold for changes that are greater than 60%, then your story doesn't write about a trough in a time series that features a 30% decrease.

After you’ve set your threshold, choose whether to **Apply formatting**, and set the minimum percentage of change that you want formatted.

Trend line

Use **Trend line** to calculate a linear best fit line and identify data that falls within a defined percentage of confidence. Data that has high variability has a lower confidence level than data that's more consistent, and that confidence level affects whether trend lines are written about. You can use trend lines for stories that have one dimension and one measure, or you can use trend lines in a drilldown. For more information about drilldowns, see Configure Tableau Data Story Settings: Narrative.

Set the minimum percentage of confidence for your trend line. If you set your threshold at 95%, but a trend line could be drawn at 90% confidence, then your story doesn't write about trend lines. After you’ve set your threshold, choose whether to **Apply formatting**. Then set the minimum percentage of change that you want formatted.

Tableau Data Stories about trend lines communicate the absolute change over a period. The story written about your trend line varies depending on the level of verbosity you set for your story. If your story uses high verbosity, then your story writes about the R-squared value, which is a statistical concept that quantifies how well your data fits the trend line. For more information about verbosity settings, see Configure Tableau Data Story Settings: Narrative.

Within the **Trend line** settings, you can also choose how many periods into the future for which you want your story to write predictions. When you use predictions, your story uses the slope and intercept of the trend line to calculate predicted values for future periods. The confidence of the prediction adds upper and lower bounds to the confidence threshold you set for trend lines. You can use predictions when your story has at least 30 data points that are linear.

Volatility

Use **Volatility** to analyze standard deviations over time. For example, use **Volatility** when you want your story to write about values that fall outside the average range for your data.

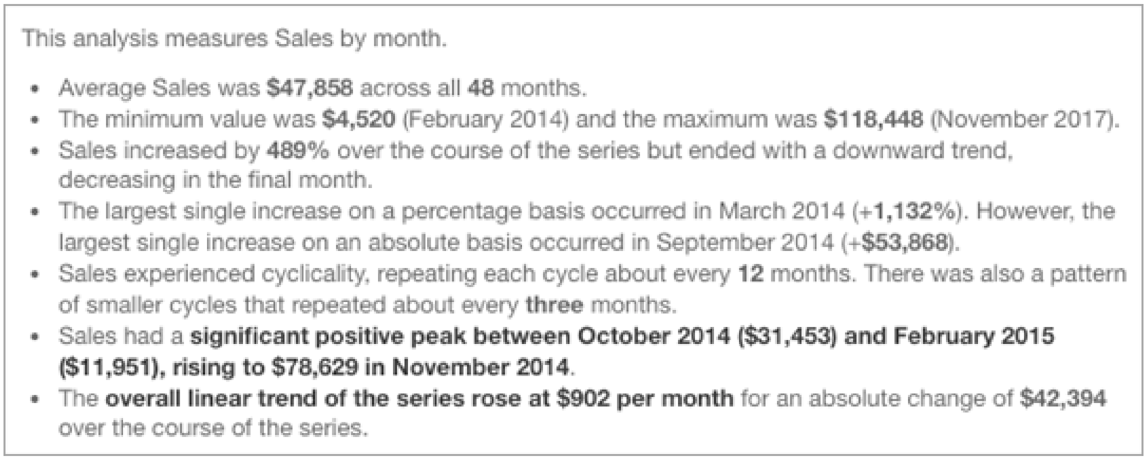
Break down how analytics are used to generate stories

At this point, you might be wondering how the analytics for different story types work. Let's take a look at an example for each story type and break down each sentence in the story.

Understand analytics for discrete stories

Because continuous stories measure trends over time, Data Stories writes about performance, progression, averages, totals, streaks, volatility, segments, and predictions.

The following example of a continuous story is about sales per month:



This analysis measures Sales by month.

- Average Sales was **$47,858** across all **48** months.
- The minimum value was **$4,520** (February 2014) and the maximum was **$118,448** (November 2017).
- Sales increased by **489%** over the course of the series but ended with a downward trend, decreasing in the final month.
- The largest single increase on a percentage basis occurred in March 2014 (+**1,132%**). However, the largest single increase on an absolute basis occurred in September 2014 (+**$53,868**).
- Sales experienced cyclicality, repeating each cycle about every **12** months. There was also a pattern of smaller cycles that repeated about every **three** months.
- Sales had a **significant positive peak between October 2014 ($31,453) and February 2015 ($11,951), rising to $78,629 in November 2014**.
- The **overall linear trend of the series rose at $902 per month** for an absolute change of **$42,394** over the course of the series.

Example story	Story breakdown
• Average Sales was **$47,858** across all **48** months. • The minimum value was **$4,520** (February 2014) and the maximum was **$118,448** (November 2017).	The first two sentences use average and range functions to write about the average, maximum, and minimum values across the period you're analyzing.

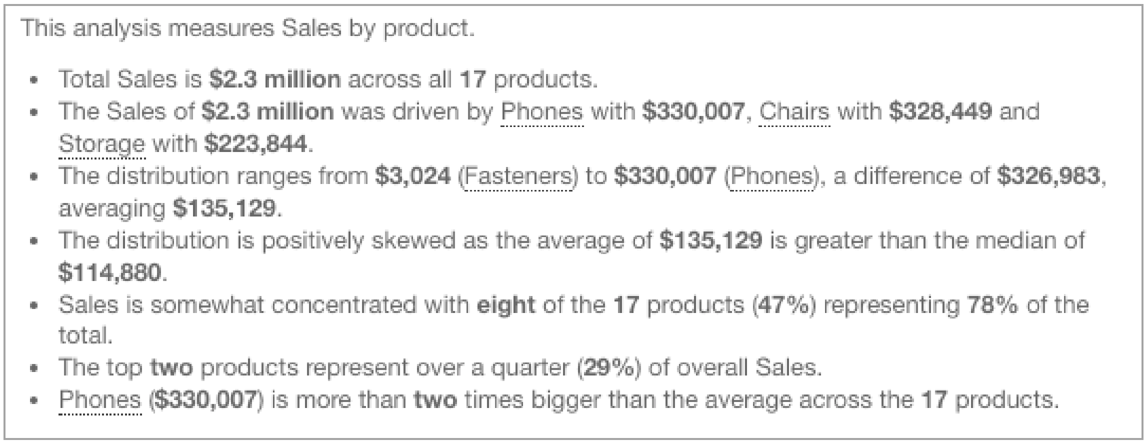
• Sales increased by **489%** over the course of the series but ended with a downward trend, decreasing in the final month.	The third sentence is about overall performance of the measure over the period. For example, a sentence can be about whether sales increased, decreased, or trended differently during a specific period.
• The largest single increase on a percentage basis occurred in March 2014 (**+1,132%**). However, the largest single increase on an absolute basis occurred in September 2014 (**+$53,868**).	The fourth sentence uses progression analysis. This sentence writes about the largest increase and decrease based on the measure during the period using both a percentage basis and absolute basis.
• Of the **three** series, the strongest relationship was between Corporate and Home Office, which had a moderate positive correlation, suggesting that as one (Corporate) increases, the other (Home Office) generally does too, or vice versa.	This sentence is a **Correlation** insight. This type of analytic insight writes about notable correlations between different series in your data.
• Sales experienced cyclicality, repeating each cycle about every **12** months. There was also a pattern of smaller cycles that repeated about every **three** months. • Sales had a **significant positive peak between October 2014 ($31,453) and February 2015 ($11,951), rising to $78,629 in November 2014**.	This sentence is a **Segment** insight. This type of analytic insight writes about noteworthy increases and decreases over time.
• The **overall linear trend of the series rose at $902 per month** for an absolute change of **$42,394** over the course of the series. If this trend continued for the next one month,	This sentence is a **Trend line** insight. This type of insight writes about how well trends fit your data with a certain percentage of confidence, and trend lines allow you to make predictions based on historic trends.

Sales is **predicted to be about $69,958**.	

Understand analytics for discrete stories

Because discrete stories allow you to compare values and understand the distribution of the data, the story writes about distribution, averages, totals, and groupings or clusters across the data.

The following example of a discrete story is about sales by product:



This analysis measures Sales by product.

- Total Sales is **$2.3 million** across all **17** products.
- The Sales of **$2.3 million** was driven by Phones with **$330,007**, Chairs with **$328,449** and Storage with **$223,844**.
- The distribution ranges from **$3,024** (Fasteners) to **$330,007** (Phones), a difference of **$326,983**, averaging **$135,129**.
- The distribution is positively skewed as the average of **$135,129** is greater than the median of **$114,880**.
- Sales is somewhat concentrated with **eight** of the **17** products (**47%**) representing **78%** of the total.
- The top **two** products represent over a quarter (**29%**) of overall Sales.
- Phones (**$330,007**) is more than **two** times bigger than the average across the **17** products.

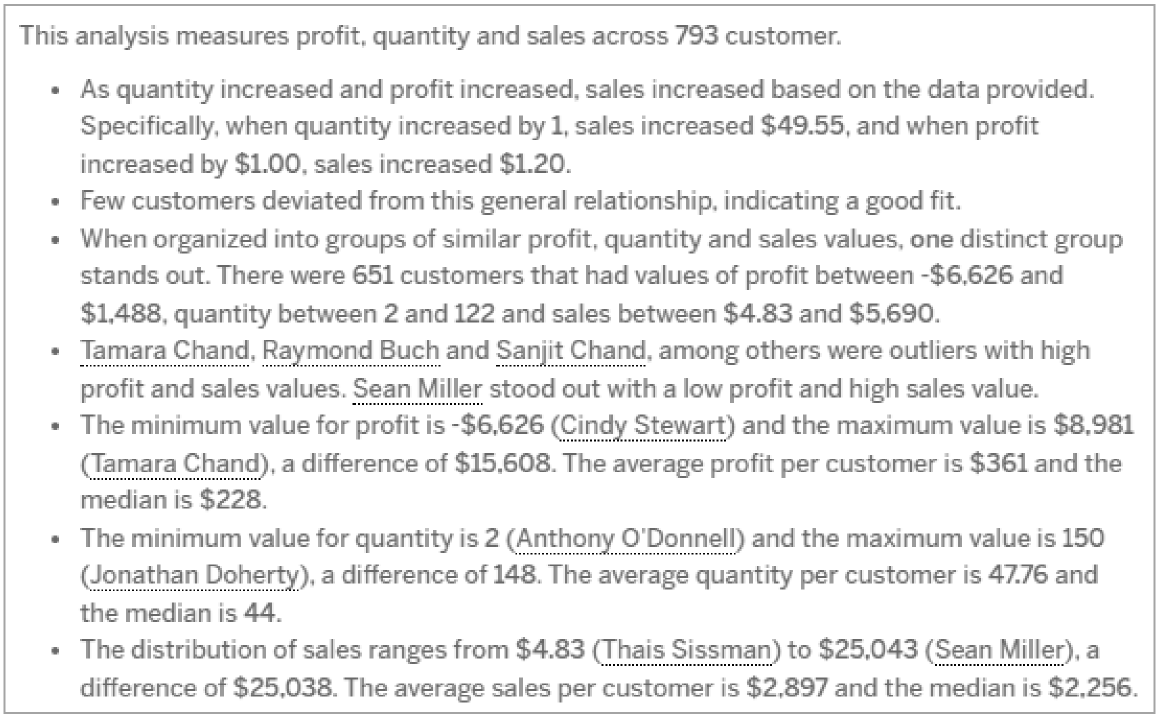
Example story	**Story breakdown**
• Total Sales is **$2.3** million across all **17** products.	The first sentence calculates the total value of your measure.
• The Sales of **$2.3** million was driven by Phones with **$330,007**, Chairs with **$328,449**, and Storage with **$223,844**.	The second sentence writes about the dimension drivers. In this example, the dimension drivers are the products that contributed the most to total sales.
• The distribution is positively skewed as the average of **$135,129** is greater than the median of **$114,880**. • Sales is relatively concentrated with **78%** of the total represented by **eight** of the **17** products (**47%**).	The third and fourth sentences analyze the distribution of the data. This analyzes the averages, medians, concentration of data (if any exist), and how the data is skewed. This helps identify how balanced these grouped variables are compared to one another.

• The top **two** products combine for over a quarter (**29%**) of overall Sales.	This sentence uses **Clustering** to write about measures that can be grouped. This helps identify whether there are distinct groups that stand out in the data.
• Phones (**$330,007**) is more than two times bigger than the average across the **17** products.	The final sentence writes about notable outliers.

Understand analytics for scatter plot stories

Scatter plot story types are best used to understand the relationship between two measures, and for that reason, scatter plot stories require 2–3 measures. The scatter plot analysis writes about the relationship (regression) between two measures, and it writes about groups (clusters) within the data, if they exist.

The following example of a scatter plot story is about profit and sales across a dimension:



This analysis measures profit, quantity and sales across 793 customer.

- As quantity increased and profit increased, sales increased based on the data provided. Specifically, when quantity increased by 1, sales increased $49.55, and when profit increased by $1.00, sales increased $1.20.
- Few customers deviated from this general relationship, indicating a good fit.
- When organized into groups of similar profit, quantity and sales values, one distinct group stands out. There were 651 customers that had values of profit between -$6,626 and $1,488, quantity between 2 and 122 and sales between $4.83 and $5,690.
- Tamara Chand, Raymond Buch and Sanjit Chand, among others were outliers with high profit and sales values. Sean Miller stood out with a low profit and high sales value.
- The minimum value for profit is -$6,626 (Cindy Stewart) and the maximum value is $8,981 (Tamara Chand), a difference of $15,608. The average profit per customer is $361 and the median is $228.
- The minimum value for quantity is 2 (Anthony O'Donnell) and the maximum value is 150 (Jonathan Doherty), a difference of 148. The average quantity per customer is 47.76 and the median is 44.
- The distribution of sales ranges from $4.83 (Thais Sissman) to $25,043 (Sean Miller), a difference of $25,038. The average sales per customer is $2,897 and the median is $2,256.

Example story	**Story breakdown**

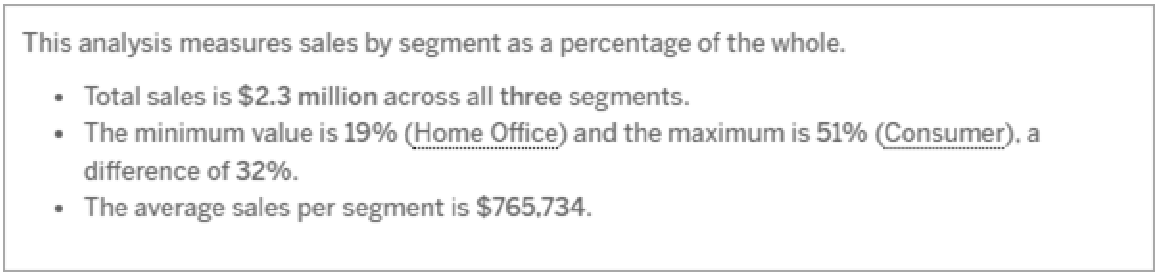
• As quantity increased and profit increased, sales increased based on the data provided. Specifically, when quantity increased by **1**, sales increased **$49.55**, and when profit increased by **$1.00**, sales increased **$1.20**. • Few customers deviated from this general relationship, indicating a good fit.	The first two sentences are powered by regression analytics. Regression shows how one measure affects another. Notice that in the first sentence, the story has identified a relationship between profit and sales.
• When organized into groups of similar profit, quantity and sales values, one distinct group stands out. There were **651** customers that had values of profit between **-$6,626** and **$1,488**, quantity between **2** and **122** and sales between **$4.83** and **$5,690**.	The third sentence is derived from clustering. Clustering analytics tries to identify key groups or clusters across all the variables in the data.
• Tamara Chand, Raymond Buch, and Sanjit Chand, among others were outliers with high profit and sales values. Sean Miller stood out with a low profit and high sales value.	The fourth sentence is written about outliers–values that fall significantly above or below the average.
• The minimum value for profit is **-$6,626** (Cindy Stewart) and the maximum value is **$8,981** (Tamara Chand), a difference of **$15,608**. The average profit per customer is **$361** and the median is **$228**. • The minimum value for quantity is **2** (Anthony O'Donnell) and the maximum value is **150** (Jonathan Doherty), a difference of **148**. The average quantity per customer is **47.76** and the median is **44**. • The distribution of sales ranges from	The remaining sentences for scatter plot stories use range and average analysis to write insights.

$4.83 (Thais Sissman) to **$25,043** (Sean Miller), a difference of **$25,038**. The average sales per customer is **$2,897** and the median is **$2,256**.	

Understand analytics for percent of whole stories

Percent of whole story types are best for understanding what part of a whole a dimension or measure represents.

The following example of a percent of whole story is about sales by segment:



This analysis measures sales by segment as a percentage of the whole.

- Total sales is **$2.3 million** across all **three** segments.
- The minimum value is 19% (Home Office) and the maximum is 51% (Consumer), a difference of 32%.
- The average sales per segment is $765,734.

Example story	**Story breakdown**
• Total SUM(Sales) is 2.3 million across all three entities.	The first sentence calculates the total value of your measure.
• The SUM(Sales) of 2.3 million was driven by Consumer with 1.2 million, Corporate with 706,146 and Home Office with 429,653.	The second sentence writes about drivers. In this example, the drivers are segments that contributed the most to total sales.
• The minimum value is 429,653 (Home Office) and the maximum is 1.2 million (Consumer), a difference of 731,748, averaging 765,734.	The final sentence analyzes the distribution of the data.

Configure Tableau Data Story Settings: Characteristics

Important changes for Tableau Data Stories

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Within your Tableau Data Story, you can configure the characteristics settings to give context to your data, so you get more insightful stories. For example, in your story you can specify that in the context of sales, a higher number is good. But in the context of customer complaints, a higher number is bad.

Use dimension and measure characteristics

Your story and number formatting adjusts based on what the measure is. By default, your story writers all measure values as numbers, and your story won't perform any additional calculations or apply any special rendering rules.

1. Add a Tableau Data Story to a Dashboard.
2. From your dashboard, click the **Settings** icon at the top-left corner of your Data Story object.
3. In the Data Story dialog box, click the **Characteristics** tab.
4. Configure your formatting, such as number type, decimal places, and negative values.
5. Click **Save**.

Learn more about measure characteristics

Formatting

If values are formatted as **Percentages**, then the story writes about percentage point differences, rather than percent changes as a story would for number values. When you format a number as a **Percentage** in the **Characteristics** tab, the **Data Story** multiplies the value of the number by 100 to create the percentage that shows in your story.

If values are formatted as **Currency**, then you can specify your preferred currency. You can also specify how you want large values (numbers greater than one million) formatted, for example $1.3 million instead of $1,300,000.00.

For both **Numbers** and **Currency**, you can specify how you want large values and negative values to be written about. If you choose to have negative values written about in parentheses, you might see nested parentheses in your story when the negative value is written about in a parenthetical phrase.

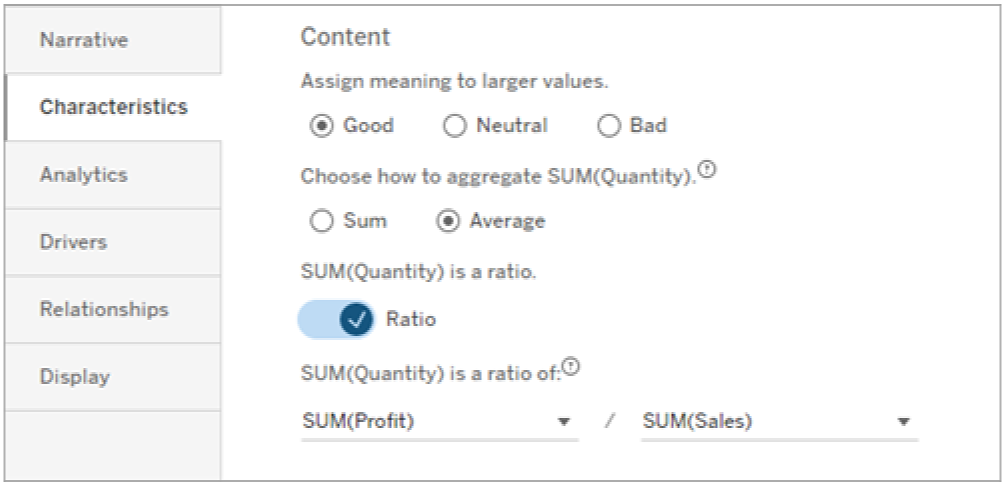
When you choose **Number** formatting, you can also specify whether you want numbers less than or equal to 10 to be spelled out (rather than using a numeral) in your story.

For decimal places, **Dynamic** is the default option. This means that the story rounds to different decimal places depending on how large or small the number is. If the percent value is less than 10, then the number has two decimal places. If the percent value is greater than 10, then the number rounds to the nearest whole number. You can also specify how many decimal places you want used, which is used consistently throughout your story.

Content

You can assign meaning to larger values. For example, larger values for sales are good, but larger values for losses are bad.

In addition, you can choose how to aggregate values by sum or average. It’s a best practice to choose the same aggregation method that you’re using in the viz. For ratio measures, choose **Average** and then define the ratio by selecting the component measures of that ratio measure. Measures that are components of a ratio must be summable.



Content

Assign meaning to larger values.

● Good ○ Neutral ○ Bad

Choose how to aggregate SUM(Quantity).

○ Sum ● Average

SUM(Quantity) is a ratio.

☑ Ratio

SUM(Quantity) is a ratio of:

SUM(Profit) / SUM(Sales)

For cumulative measures (available for continuous stories only), choose **Sum** and then specify that the measure is already cumulative. Continuous stories write about the total of the measure across the series.

Sorting

To sort dimension values, click the arrow up/down icon to sort based on the oldest or newest time values in your dimension.

> **Note:** Sorting dimension values is available for only continuous stories.

Configure Tableau Data Story Settings: Display

Important changes for Tableau Data Stories

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You can configure how the text in your Tableau Data Story is displayed, such as font color and size. You can also choose whether your story uses bulleted lists or paragraphs.

Configure the display for your story

1. Add a Tableau Data Story to a Dashboard.
2. From your dashboard, click the **Settings** icon at the top-left corner of your Data Story object.
3. In the Data Story dialog box, click the **Display** tab.
4. Choose whether you want your story structure to be **Bullets** or **Paragraphs**.
5. Choose your **Font Size**.
6. Pick colors to represent good and bad changes (available for continuous stories).
7. Choose whether to use **Dynamic Ordering**.
8. Choose whether to use a **Condensed View**.
9. Click **Save**.

Understand when to use story display settings

To use color, your story must be continuous. When using color, you can choose colors from the palette to represent good changes and bad changes. For your story to know whether a change is good or bad, you must assign meaning to larger values in the **Characteristics** tab. For more information, see Configure Tableau Data Story Settings: Characteristics. After you configure your display, the styles and colors are applied in your story based on thresholds for trend line or segment analytics.

If you turn on **Dynamic Ordering**, then the insights for measures in a story are dynamically ordered from the best to the worst average value. If you already have an order you want to maintain, turn off **Dynamic Ordering**.

If you turn on **Condensed View**, then additional space is removed from your story. This is helpful if you don’t have much extra space in your dashboard or when you have multiple Data Story objects in a dashboard.

Configure Tableau Data Story Settings: Drivers

Important changes for Tableau Data Stories

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Hypothetically, let’s say your month-over-month sales increased significantly. What drove that increase in sales? And what might have detracted from (offset) those increased sales? Setting up drivers in your Data Story can answer those questions.

In Data Stories, drivers contribute toward a total value. Offseters detract from a total value. You’ll find insights about drivers and offsetters in discrete and continuous stories. And these insights make it easy to understand exactly what's going on in the data and why.

Set dimension drivers

1. Add a Tableau Data Story to a Dashboard.
2. From your dashboard, click the **Settings** icon at the top-left corner of your Data Story object.
3. In the Data Story dialog box, click the **Drivers** tab.
4. From the **Dimension Drivers** section, select the type of driver that has the greatest impact on your analysis:
   For **Count**, set the maximum number of contributors and offsetters.
   For **Individual %**, set thresholds for writing about individual contributors and offsetters.
   For **Cumulative %**, set thresholds for writing about contributors and offsetters based on their collective value.
5. Click **Save**.

Understand dimension driver types

- **Count** specifies the number of entities (contributors and offsetters) called out in your story. For example, use **Count** to see the top three contributors and offsetters in your data.
- **Individual %** sets a threshold, and values higher than that threshold are included in your story. For example, use **Individual %** to specify that you want to write about only entities that represent more than 5% of the total value.
- **Cumulative %** sets a percentage threshold of the total value that included entities collectively account for. For example, use **Cumulative %** to specify that you want to write about the entities that contributed to at least 90% of that total value. In this example, entities are written about in order of magnitude until the cumulative value of those entities account for 90% of the total value.

Use secondary contributors

To use secondary contributors, you must have a second dimension that isn’t time. When you use secondary contributors, each driver that is written about also has details about and drivers for its secondary contributor. For example, if you are analyzing store sales, a secondary contributor would be a class within a department. Secondary contributors allow for deeper analysis. But secondary contributors can also contain a lot of information to fit into a single sentence in your story.

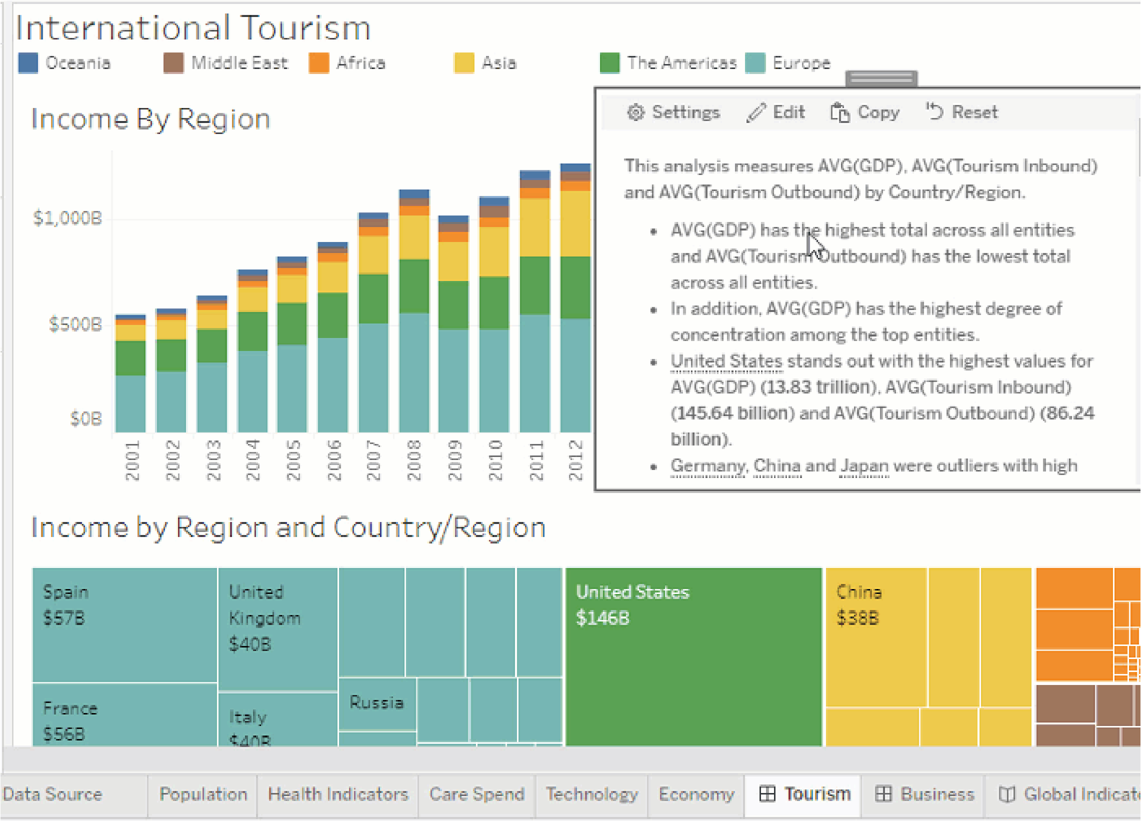
Set metric drivers

For measures that are composed of other subcategory measures, driver analysis can explain the impact that each measure had on the top-level value. For example, material costs and operating costs contribute to total cost.

To use metric drivers, you must have multiple measures for metric analysis. Then, you can specify the relationships between each measure.

1. Add a Tableau Data Story to a Dashboard.
2. From your dashboard, click the **Settings** icon at the top-left corner of your Data Story object.
3. In the Data Story dialog box, click the **Drivers** tab.
4. From the **Metric Drivers** section, first choose the measure that is a subcategory of another measure.
5. Then, choose the measure that is the primary category.
6. Click **Save**.

Tip: The verbosity setting also applies to drivers. By changing your story’s verbosity setting, you can adjust the way insights are written. If you use high verbosity, then you'll see more information in parentheses. If you use low verbosity, then you’ll get a more concisely written insight about your drivers. For more information, see Configure Tableau Data Story Settings: Narrative.


International Tourism
Oceania
Middle East
Africa
Asia
The Americas
Europe
Income By Region
$1,000B
$500B
$0B
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
Settings
Edit
Copy
Reset
Income by Region and Country/Region
Spain
$57B
United
Kingdom
$40B
United States
$146B
China
$38B
France
$56B
Italy
$40B
Russia
Data Source
Population
Health Indicators
Care Spend
Technology
Economy
Tourism
Business
Global Indicat

This analysis measures AVG(GDP), AVG(Tourism Inbound) and AVG(Tourism Outbound) by Country/Region.

- AVG(GDP) has the highest total across all entities and AVG(Tourism Outbound) has the lowest total across all entities.
- In addition, AVG(GDP) has the highest degree of concentration among the top entities.
- United States stands out with the highest values for AVG(GDP) (13.83 trillion), AVG(Tourism Inbound) (145.64 billion) and AVG(Tourism Outbound) (86.24 billion).
- Germany, China and Japan were outliers with high

Configure Tableau Data Story Settings: Narrative

Important changes for Tableau Data Stories

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You can customize the narrative settings of your Tableau Data Story. Specifically, you can specify the verbosity and level of analytical detail in your story, and you can add terms that are unique to your data. These settings help you write a story that uses the right language and speaks to the right level of detail for your dashboard.

Set verbosity

Verbosity specifies the length and analytical detail written in your story. If you choose high, then your story has longer insights with more analytic analysis. If you choose low, then your story is more concise with fewer details.

If you allow viewers to change verbosity, then viewers of published dashboards can change the level of verbosity in the Data Story object. This is helpful when your dashboard is used by a broader audience with viewers who want varying levels of detail from your story.

Set drilldowns

A drilldown includes two dimensions, and drilldowns describe figures associated with each dimension of your dashboard.

Let's say you have a dashboard that has monthly sales by product category. Your story is configured to write about both the **Time** and **Category** dimensions. In this case, this story includes an insight for each Category that describes its performance in and across the **Time** dimension.

By setting the maximum number of drilldowns, you can control how many insights are included in your story. Drilldown insights are also ranked based on the meaning assigned to the measure characteristics. As the number of drilldowns is reduced, the lowest performing measures (measures that are assigned a Bad meaning) are eliminated.

Add dimension terms

By adding terms, you can define the way each of your measures and dimensions are labeled and referenced in your story.

1. Add a Tableau Data Story to a Dashboard.
2. From your dashboard, click the **Settings** icon at the top-left corner of your Data Story object.
3. In the Data Story dialog box, click the **Narrative** tab.
4. Expand the dimension to see how it will be written about in both singular and plural form.
5. Click **Add Term** to add another variation for your story to use to describe your dimension.
6. Click **Save**.

Your story uses (at random) the terms you've added when writing about a dimension.

Manage measure labels

Similarly to dimensions, you can manage labels used for measures in your story.

1. From the **Narrative** tab, expand the measure to see its label.
2. Enter the new label that you want used for your measure.
3. Click **Save**.

Configure Tableau Data Story Settings: Relationships

Important changes for Tableau Data Stories

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The **Relationships** setting allows you to assign relationships between measures in a Tableau Data Story that has multiple measures. To configure Relationships, your story must have one dimension and multiple measures. For more information, see Create Custom Measure Relationships in Your Tableau Data Story.

There are two types of relationships:

- Actual vs. Benchmark
- Current/Most Recent vs Previous Period

Use **Actual vs. Benchmark** when you want to know if you're performing above or below your performance benchmarks, for example, when performing quota reporting. This type of relationship is also helpful for identifying data points that require additional analysis because they're significantly above or below your benchmark. To use **Actual vs. Benchmark**, the measures you're comparing must have the same value type.

Use **Current/Most Recent vs. Previous Period** when you want to see if your key performance indicators (KPIs) are increasing, decreasing, or remaining consistent over time. To use **Current/Most Recent vs. Previous Period**, you must use a discrete story type. For more information, see Choose the Right Story Type for Your Tableau Data Story.

Additionally, you can use **Actual vs. Benchmark** and **Current/Most Recent vs. Previous Period** relationships simultaneously. Measures in your viz that aren't part of the configured relationships are written about in separate paragraphs.

Create Actual vs. Benchmark relationship for continuous or discrete stories

Use the **Actual vs. Benchmark** relationship when one measure is a benchmark for other measures. For example, you could compare actual sales to a sales target, so your story writes insights about whether you outperformed or underperformed your goal. When you use this type of relationship, the story removes unnecessary content and focuses on what's most important–comparing a metric to its associated benchmark.

1. Add a Tableau Data Story to a Dashboard.
2. From your dashboard, click the **Settings** icon at the top-left corner of your Data Story object.
3. In the Data Story dialog box, click the **Relationships** tab.
4. Check the box for **Actual vs. Benchmark**.
5. First, select the measure that is the benchmark.
6. Then, select the measure that you want to compare against the benchmark.
7. Click **Save**.

Create Current/Most Recent vs. Previous Period relationship

Use the **Current/Most Recent vs. Previous Period** relationship to compare the performance of two measures over a period. For example, you could compare two products to see which product generated the most revenue over the last year.

1. Add a Tableau Data Story to a Dashboard.
2. From your dashboard, click the **Settings** icon at the top-left corner of your Data Story object.
3. In the Data Story dialog box, click the **Relationships** tab.
4. Check the box for **Current/Most Recent vs. Previous Period**.
5. First select the measure for the previous period.
6. Then, select the measure for the current period.
7. Enter the label for the period that you're measuring, for example, year.

8. Choose the number of periods to measure.
9. Click **Save**.

Customize Your Tableau Data Story

Important changes for Tableau Data Stories

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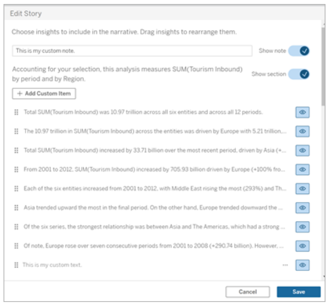
You can use custom language, tailored to your audience, to supplement your Tableau Data Stories with insights specific to your business. Identify the analytics and data from the Data Story that matters most to your audience, and use your own language to create the most impactful story. As with the overall Tableau Data Story, data and variables used in custom content are dynamic, adjusting along with the dashboard.

Add your own insights

1. In your **Data Story**, click **Edit** to open the Edit dialog box.
2. Find the section you want to write about and click **Add Custom Item.**



Choose insights to include in the narrative. Drag insights to rearrange them.

This is my custom note.

Accounting for your selection, this analysis measures SUM(Tourism Inbound) by period and by Region.

Total SUM(Tourism Inbound) was 10.97 trillion across all six entities and across all 12 periods.

The 10.97 trillion in SUM(Tourism Inbound) across the entities was driven by Europe with 5.21 trillion,...

Total SUM(Tourism Inbound) increased by 33.71 billion over the most recent period, driven by Asia (+...

From 2001 to 2012, SUM(Tourism Inbound) increased by 705.93 billion driven by Europe (+100% fro...

Each of the six entities increased from 2001 to 2012, with Middle East rising the most (293%) and Th...

Asia trended upward the most in the final period. On the other hand, Europe trended downward the ...

Of the six series, the strongest relationship was between Asia and The Americas, which had a strong ...

Of note, Europe rose over seven consecutive periods from 2001 to 2008 (+290.74 billion). However, ...

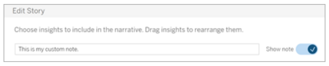
This is my custom text.

3. Enter your custom text in the field that appears.
4. Click **Save**.

Add headers and footers

You can insert custom text at the top and bottom of your **Data Story**. With headers and footers, you can add your own qualitative analysis to stories, include additional explanations of data trends, or append legal and privacy disclaimers.

1. In your **Data Story**, click **Edit** to open the Edit dialog box.
2. Click the **Show note** switch.
3. Enter your custom note.



Choose insights to include in the narrative. Drag insights to rearrange them.

This is my custom note.

4. Click **Save**.

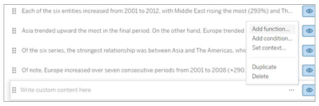
Your note now shows at the top or bottom of your **Data Story**.

Add functions

Using a function in your Data Story is a great way to customize your story and find the insights that are most important to you and your business.

For example, if you want to know the average sum of tourism revenue over a period, select Average as your function and then designate the measure as SUM(Tourism Inbound). This returns the average sum of inbound tourism.

1. In your **Data Story**, click **Edit** to open the Edit dialog box.
2. Click the menu in the right side of the box and select **Add Function**.


Each of the six entities increased from 2001 to 2012, with Middle East rising the most (293%) and Th...

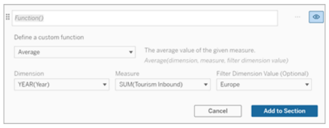
Asia trended upward the most in the final period. On the other hand, Europe trended

Of the six series, the strongest relationship was between Asia and The Americas, whic

Of note, Europe increased over seven consecutive periods from 2001 to 2008 (+290.

Write custom content here

3. Select a Data Story Function and fill in the required fields.



Function()

Define a custom function

Average

The average value of the given measure.

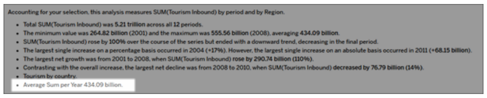
Average(dimension, measure, filter dimension value)

Dimension: YEAR(Year)

Measure: SUM(Tourism Inbound)

Filter Dimension Value (Optional): Europe

4. Click **Add to Section**.
5. Click **Save**.



Accounting for your selection, this analysis measures SUM(Tourism Inbound) by period and by Region.

- Total SUM(Tourism Inbound) was **5.21 trillion** across all **12** periods.
- The minimum value was **264.82 billion** (2001) and the maximum was **555.56 billion** (2008), averaging **434.09 billion**.
- SUM(Tourism Inbound) rose by **100%** over the course of the series but ended with a downward trend, decreasing in the final period.
- The largest single increase on a percentage basis occurred in 2004 (+17%). However, the largest single increase on an absolute basis occurred in 2011 (**+68.15 billion**).
- The largest net growth was from 2001 to 2008, when SUM(Tourism Inbound) **rose by 290.74 billion (110%)**.
- Contrasting with the overall increase, the largest net decline was from 2008 to 2010, when SUM(Tourism Inbound) **decreased by 76.79 billion (14%)**.
- Tourism by country.
- Average Sum per Year 434.09 billion.

The custom content now shows in your Data Story.

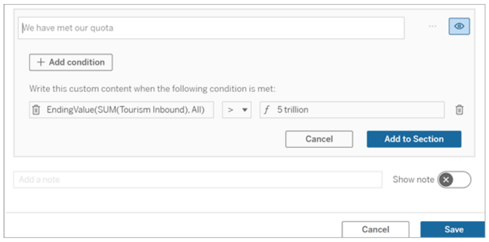
Add conditions

For each custom sentence you write, you can add a condition that determines whether the sentence renders in your **Data Story**. If the condition is met, the custom sentence appears in your story. If the condition isn't met, the custom sentence doesn't appear.

You can apply multiple conditions to each custom sentence, and the conditions can be combined using the **Any** or **All** buttons within the Add a condition dialog box.

Conditional statements are most often used with numerical comparisons, but the function also supports string matching using the equal (=) or not equal (!=) symbols.

1. In your Data Story, click **Edit** to open the Edit dialog box.
2. Enter your custom sentence.
3. Click the menu on the right side of the box and select **Add Condition**.
4. Define the custom function to be used to inform the conditional logic. In this example, the sentence "We have met our quota" shows if the Sum of Tourism Inbound is greater than 5 trillion.



We have met our quota

Write this custom content when the following condition is met:

EndingValue(SUM(Tourism Inbound), All) > 5 trillion

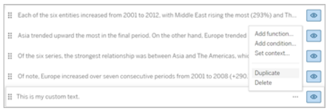
5. Click **Add to Section**.
6. Click **Save**.

The custom sentence now appears in your Data Story only if the conditions are met.

Duplicate custom content

You can easily duplicate custom content added to your Data Story, making it easier to build different variations of a sentence. We recommend copying a fully built custom sentence when applying thresholds, building in language variation, and creating different logical variations.

1. In your Data Story, click **Edit** to open the Edit dialog box.
2. Create a custom sentence, complete with functions and conditions, if desired.
3. In the completed sentence box, Click the menu in the right side of the box and select **Duplicate**.



Each of the six entities increased from 2001 to 2012, with Middle East rising the most (293%) and Th...

Asia trended upward the most in the final period. On the other hand, Europe trended

Of the six series, the strongest relationship was between Asia and The Americas, whic

Of note, Europe increased over seven consecutive periods from 2001 to 2008 (+290.

This is my custom text.

4. Click into your duplicated sentence, update as desired, and click **Add to Section**.
5. Click **Save**.

When you copy a sentence, all functions and conditional statements also copy over. The copied bullet appears directly below the original bullet in the same section.

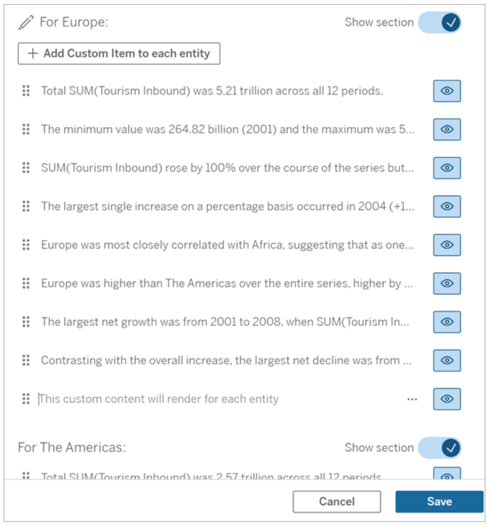
Note: Copied bullets can only be added to the section that the original bullet is in.

Add custom content in drilldown sections

For stories that have two dimensions, each section after the first section is called a drilldown section. Drilldown sections focus on an individual primary dimension entity (i.e. The Americas in the following example).

Because the drilldown sections have the same content structure, custom content added in the first section (i.e., Europe) are applied to each additional section (i.e., The Americas). You can only create or edit content in the first drilldown section.

1. In your Data Story, click **Edit** to open the Edit dialog box.
2. In the first drilldown section, click **Add Custom Item** to each entity.
3. Enter your custom content.
4. Click **Save**.



Total SUM(Tourism Inbound) was 5.21 trillion across all 12 periods.

The minimum value was 264.82 billion (2001) and the maximum was 5...

SUM(Tourism Inbound) rose by 100% over the course of the series but...

The largest single increase on a percentage basis occurred in 2004 (+1...

Europe was most closely correlated with Africa, suggesting that as one...

Europe was higher than The Americas over the entire series, higher by ...

The largest net growth was from 2001 to 2008, when SUM(Tourism In...

Contrasting with the overall increase, the largest net decline was from ...

This custom content will render for each entity

Total SUM(Tourism Inbound) was 2.57 trillion across all 12 periods.

Custom content in drilldown sections already has a context variable called Current Category value (dynamic). This creates a dimension value option called Current Category value (dynamic) which always represents the section that the drilldown section is about.

Tip: To create content that only appears in a single specific drilldown section, you can use conditional logic to ensure it only writes where appropriate.

Customize Your Tableau Data Story: Context Variables

Important changes for Tableau Data Stories

Tableau Data Stories were retired in Tableau Desktop, Tableau Cloud, and Tableau Server in January of 2025 (2025.1). With advances in natural language technologies, we're developing an improved interface that will make it easier to ask questions of your data and stay on top of changes. For more information, see How Tableau Pulse powered by Tableau AI is Reimagining the Data Experience.

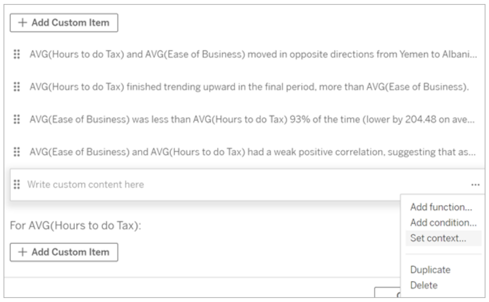
Context variables are functions that can be referenced by other functions. In other words, you can use context variables to nest functions within other functions.

After you define your context variable, it appears as a function that you can use when adding new functions to your Tableau Data Story.

Note: You can have multiple context variables set for each custom sentence, but you must define each context variable separately for each piece of custom content.

Set a context variable

1. In your **Data Story**, click **Edit** to open the Edit dialog box.
2. Click **Add Custom Item.**
3. Click the menu in the right side of your custom content box and select **Set context**.



AVG(Hours to do Tax) and AVG(Ease of Business) moved in opposite directions from Yemen to Albani...

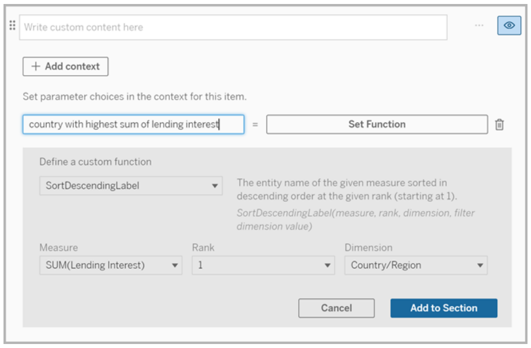
AVG(Hours to do Tax) finished trending upward in the final period, more than AVG(Ease of Business).

AVG(Ease of Business) was less than AVG(Hours to do Tax) 93% of the time (lower by 204.48 on ave...

AVG(Ease of Business) and AVG(Hours to do Tax) had a weak positive correlation, suggesting that as...

4. Click **Add context**.
5. Name the context variable and click **Set Function**.

6. Define your custom function and choose a dimension.


Write custom content here
+ Add context
Set Function
Cancel
Add to Section

Set parameter choices in the context for this item.

country with highest sum of lending interest = Set Function

Define a custom function: SortDescendingLabel

The entity name of the given measure sorted in descending order at the given rank (starting at 1).

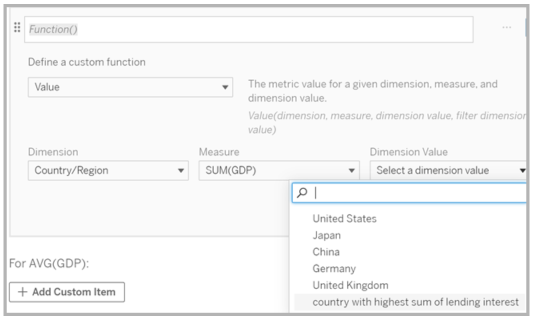
SortDescendingLabel(measure, rank, dimension, filter dimension value)

Measure: SUM(Lending Interest)

Rank: 1

Dimension: Country/Region

7. Click **Add to Section.**
8. Click back into the sentence where you set your context variable.
9. Follow the steps to Add functions.


Function()
United States
Japan
China
Germany
United Kingdom
country with highest sum of lending interest
For AVG(GDP):
+ Add Custom Item

Define a custom function: Value

The metric value for a given dimension, measure, and dimension value.

Value(dimension, measure, dimension value, filter dimension value)

Dimension: Country/Region

Measure: SUM(GDP)

Dimension Value: Select a dimension value

Now, your context variable is listed as an option in the **Dimension Value** drop-down list when adding your function.

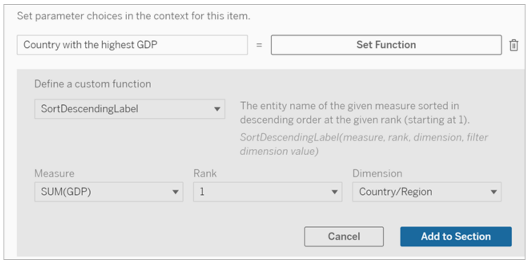
When to use a context variable: reference two or more measures

Let’s say that you want to refer to two or more measures in one analytical sentence in your **Data Story**. Without a context variable, we can write a sentence for only one measure at a time. But if we use a context variable, we can reference more than one measure in one sentence.

To reference two or more measures with a context variable, your **Data Story** must have:

- 1 dimension
- 2 or more measures

1. In your **Data Story**, click **Edit** to open the Edit dialog box.
2. Click **Add Custom Item**.
3. Click the menu in the right side of your custom content box and select **Set context**.
4. Click **Add context**.
5. Name the context variable and click **Set Function.**
6. Define your custom function and choose a dimension.
7. Click **Add to Section**.



Set parameter choices in the context for this item.

Country with the highest GDP = Set Function

Define a custom function

SortDescendingLabel

The entity name of the given measure sorted in descending order at the given rank (starting at 1).

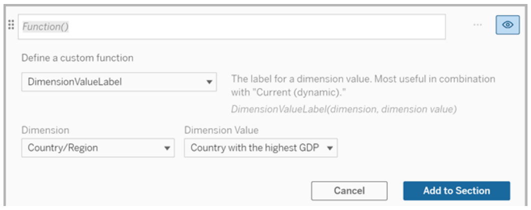
SortDescendingLabel(measure, rank, dimension, filter dimension value)

Measure: SUM(GDP)

Rank: 1

Dimension: Country/Region

8. Click back into the sentence where you set your context variable.
9. Add your first function and fill in the required fields. In this example, we selected **DimensionValueLabel**, and then chose Country/Region from **Dimension**, and then country with the highest GDP (our context variable) from **Dimension Value**.



Function()

Define a custom function

DimensionValueLabel

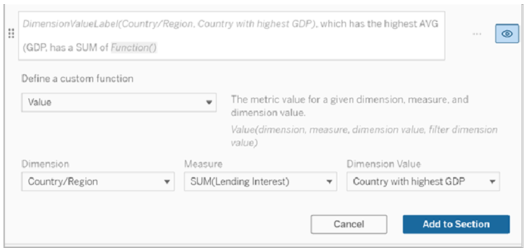
The label for a dimension value. Most useful in combination with "Current (dynamic)."

DimensionValueLabel(dimension, dimension value)

Dimension: Country/Region

Dimension Value: Country with the highest GDP

10. Click **Add to Section**.
11. Add your second function and fill in the required fields. In this example, we selected **Value**, and then chose Country/Region from **Dimension**, SUM(Lending Interest) from **Measure**, and country with the highest GDP (our context variable) from **Dimension Value**.



DimensionValueLabel(Country/Region, Country with highest GDP), which has the highest AVG (GDP, has a SUM of *Function()*

Define a custom function

Value

The metric value for a given dimension, measure, and dimension value.

Value(dimension, measure, dimension value, filter dimension value)

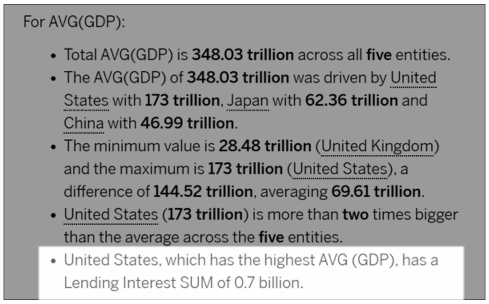
Dimension: Country/Region

Measure: SUM(Lending Interest)

Dimension Value: Country with highest GDP

12. Click **Add to Section.**
13. Click **Save.**

Your **Data Story** writes a sentence that gives us insight into a secondary measure (Lending Interest) for the country that we're interested in (the country with the highest GDP).



For AVG(GDP):

- Total AVG(GDP) is **348.03 trillion** across all **five** entities.
- The AVG(GDP) of **348.03 trillion** was driven by United States with **173 trillion**, Japan with **62.36 trillion** and China with **46.99 trillion**.
- The minimum value is **28.48 trillion** (United Kingdom) and the maximum is **173 trillion** (United States), a difference of **144.52 trillion**, averaging **69.61 trillion**.
- United States (**173 trillion**) is more than **two** times bigger than the average across the **five** entities.
- United States, which has the highest AVG (GDP), has a Lending Interest SUM of 0.7 billion.

When to use a context variable: period-over-period analysis

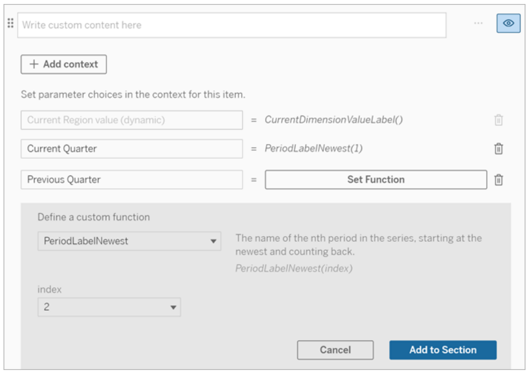
A context variable is helpful when you want to analyze performance over two different periods in your **Data Story**. You can create a custom sentence that writes about a measure displayed in your drilldown section and compares the measure against different periods, such as year over year or month over month.

To set up a period-over-period analysis, your Data Story must have:

- 2 dimensions: 1 time period dimension (primary) and 1 non-time period dimension (secondary)
- 1–3 measures

1. Create your **Data Story**.
2. In the Fields dialog box, make sure your time period dimension is ordered first and click **Next**.

3. In the Story dialog box, select **Continuous** and click **Done**.
4. Open the Edit dialog box, and select **Add Custom Item** in the first drilldown area.
5. Create two context variables that represent your time periods. For example, "Current Quarter" and "Previous Quarter."



Set parameter choices in the context for this item.

Current Region value (dynamic) = *CurrentDimensionValueLabel()*

Current Quarter = *PeriodLabelNewest(1)*

Previous Quarter =

Define a custom function

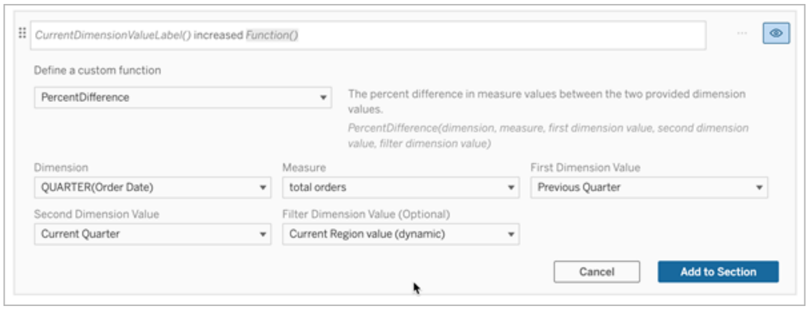
PeriodLabelNewest

The name of the nth period in the series, starting at the newest and counting back.

PeriodLabelNewest(index)

index: 2

6. Create an *increased* sentence by adding custom language and functions. The content of this sentence results in "[CurrentDimensionValueLabel] increased [X%] over the quarter."
7. Type in the function followed by the word "increased" in the custom text box.
8. Add the function that returns the percent change of your measurement during your time period.



CurrentDimensionValueLabel() increased *Function()*

Define a custom function

PercentDifference

The percent difference in measure values between the two provided dimension values.

PercentDifference(dimension, measure, first dimension value, second dimension value, filter dimension value)

Dimension: QUARTER(Order Date)

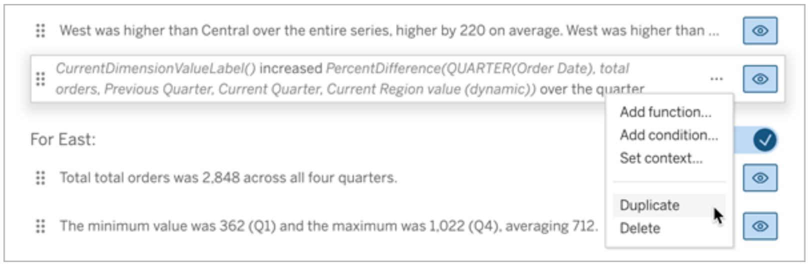
Measure: total orders

First Dimension Value: Previous Quarter

Second Dimension Value: Current Quarter

Filter Dimension Value (Optional): Current Region value (dynamic)

9. Click **Add to Section**.
10. Duplicate custom content and create a *decreased* version by replacing the word "increased" with "decreased." The functions stay the same.



West was higher than Central over the entire series, higher by 220 on average. West was higher than ...

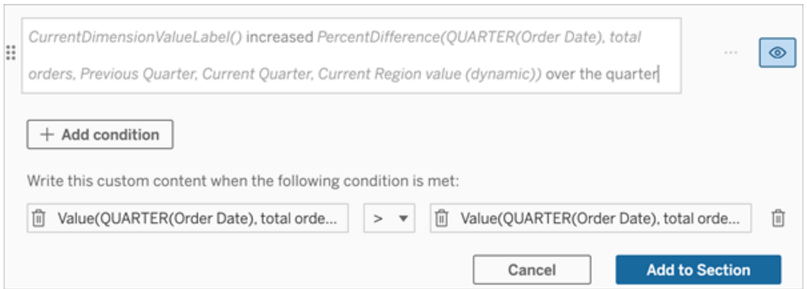
CurrentDimensionValueLabel() increased *PercentDifference(QUARTER(Order Date), total orders, Previous Quarter, Current Quarter, Current Region value (dynamic))* over the quarter

For East:

Total total orders was 2,848 across all four quarters.

The minimum value was 362 (Q1) and the maximum value was 1,022 (Q4), averaging 712.

11. Add conditions for each sentence so that only one is written, depending on the data.



CurrentDimensionValueLabel() increased *PercentDifference(QUARTER(Order Date), total orders, Previous Quarter, Current Quarter, Current Region value (dynamic))* over the quarter

Write this custom content when the following condition is met:

Value(QUARTER(Order Date), total orde... > Value(QUARTER(Order Date), total orde...

12. For the *increased* sentence, set conditions in line with the following example:

Left Argument = Value function

Dimension = Quarter(OrderDate). Select your time period dimension

Measure = SUM(Total Orders). Select the measure you used for the calculation

Dimension Value = Current Quarter. One of the context variables

Filter Dimension Value = Current Region value (dynamic). This is the preset context variable

Middle Argument = > (greater than)

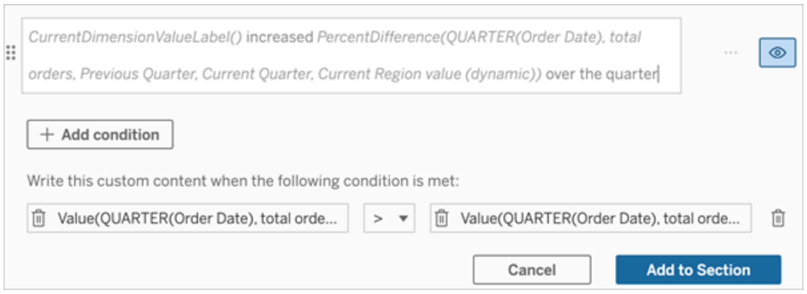
Right Argument = Value function

Dimension= Quarter(OrderDate). Select your time period dimension

Measure = Total(Total Orders). Select the measure you used for the calculation

Dimension Value = Previous Quarter. One of the context variables

Filter Dimension Value = Current Region value (dynamic). This is the preset context variable



CurrentDimensionValueLabel() increased *PercentDifference(QUARTER(Order Date), total orders, Previous Quarter, Current Quarter, Current Region value (dynamic))* over the quarter

Write this custom content when the following condition is met:

Value(QUARTER(Order Date), total orde... > Value(QUARTER(Order Date), total orde...

13. For the *decreased* sentence, set the same conditions, but replace the > (greater than) sign with the < (less than) sign. The right and left arguments remain the same.
14. Click **Save**, and your **Data Story** writes a sentence that includes the insights from analyzing the two time periods.

Customize Your Tableau Data Story: Functions

Important changes for Tableau Data Stories

Tableau Data Stories were retired in Tableau Desktop, Tableau Cloud, and Tableau Server in January of 2025 (2025.1). With advances in natural language technologies, we're developing an improved interface that will make it easier to ask questions of your data and stay on top of changes. For more information, see How Tableau Pulse powered by Tableau AI is Reimagining the Data Experience.

If you’d like to customize your Tableau Data Story with a function, it helps to know what functions you can use, what each function does, and what dimensions and measures you’ll need for each function.

Learn how to Add functions to your Data Story.

Click a letter to see functions that begin with that letter. If no functions start with that letter, the functions that start with the next letter in the alphabet are shown. You can also press Ctrl+F (Command-F on a Mac) to open a search box that you can use to search the page for a specific function.

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

Average

Description: The average value of the given measure.

Syntax: Average(dimension, measure, filterDimensionValue)

Count

Description: The number of dimension values within a given dimension.

Syntax: Count(dimension)

Difference

Description: The difference in measure values between the two provided dimension values.

Syntax: Difference(dimension, measure, firstDimensionValue, secondDimensionValue, filterDimensionValue)

DifferenceFromMean

Description: The difference between the mean and the measure value for the given dimension value.

Syntax: DifferenceFromMean(dimension, measure, firstDimensionValue, filterDimensionValue)

Direction

Description: Language describing the direction (e.g., increase or decrease) between measure values for the two provided dimension values.

Syntax: Direction(dimension, measure, firstDimensionValue, secondDimensionValue, filterDimensionValue, phrase)

Ending Label

Description: The name of the last period in the series.

Syntax: Label(measure)

EndingValue

Description: The value at the last period in the series for the given measure.

Syntax: EndingValue(measure, filterDimensionValue)

Label

Description: The label for the given measure.

Syntax: Label(measure)

LargestNegativeChangeDifference

Description: The value of the largest negative period-over-period difference, on an absolute basis, in the given series.

Syntax: LargestNegativeChangeDifference(measure, filterDimensionValue)

LargestNegativeChangeEndingLabel

Description: The name of the ending period for the largest negative period-over-period difference, on an absolute basis, in the given series.

Syntax: LargestNegativeChangeEndingLabel(measure, filterDimensionValue)

LargestNegativeChangeEndingValue

Description: The ending value of the largest negative period-over-period difference, on an absolute basis, in the given series.

Syntax: LargestNegativeChangeEndingValue(measure, filterDimensionValue)

LargestNegativeChangePercentDifference

Description: The percent change of the largest negative period-over-period difference, on an absolute basis, in the given series.

Syntax: LargestNegativeChangePercentDifference(measure, filterDimensionValue)

LargestNegativeChangeStartingLabel

Description: The name of the starting period for the largest negative period-over-period difference, on an absolute basis, in the given series.

Syntax: LargestNegativeChangeStartingLabel(measure, filterDimensionValue)

LargestNegativeChangeStartingValue

Description: The starting value of the largest negative period-over-period difference, on an absolute basis, in the given series.

Syntax: LargestNegativeChangeStartingValue(measure, filterDimensionValue)

LargestNegativePercentChangeDifference

Description: The value of the largest negative period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestNegativePercentChangeDifference(measure, filterDimensionValue)

LargestNegativePercentChangeEndingLabel

Description: The name of the ending period for the largest negative period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestNegativePercentChangeEndingLabel(measure, filterDimensionValue)

LargestNegativePercentChangeEndingValue

Description: The ending value of the largest negative period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestNegativePercentChangeEndingValue(measure, filterDimensionValue)

LargestNegativePercentChangePercentDifference

Description: The percent change of the largest negative period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestNegativePercentChangePercentDifference(measure, filterDimensionValue)

LargestNegativePercentChangeStartingLabel

Description: The name of the starting period for the largest negative period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestNegativePercentChangeStartingLabel(measure, filterDimensionValue)

LargestNegativePercentChangeStartingValue

Description: The starting value of the largest negative period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestNegativePercentChangeStartingValue(measure, filterDimensionValue)

LargestPositiveChangeDifference

Description: The value of the largest positive period-over-period difference, on an absolute basis, in the given series.

Syntax: LargestPositiveChangeDifference(measure, filterDimensionValue)

LargestPositiveChangeEndingLabel

Description: The name of the ending period for the largest positive period-over-period difference, on a absolute basis, in the given series.

Syntax: LargestPositiveChangeEndingLabel(measure, filterDimensionValue)

LargestPositiveChangeEndingValue

Description: The ending value of the largest positive period-over-period difference, on an absolute basis, in the given series.

Syntax: LargestPositiveChangeEndingValue(measure, filterDimensionValue)

LargestPositiveChangePercentDifference

Description: The percent change of the largest positive period-over-period difference, on an absolute basis, in the given series.

Syntax: LargestPositiveChangePercentDifference(measure, filterDimensionValue)

LargestPositiveChangeStartingLabel

Description: The name of the starting period for the largest positive period-over-period difference, on an absolute basis, in the given series.

Syntax: LargestPositiveChangeStartingLabel(measure, filterDimensionValue)

LargestPositiveChangeStartingValue

Description: The starting value of the largest positive period-over-period difference, on an absolute basis, in the given series.

Syntax: LargestPositiveChangeStartingValue(measure, filterDimensionValue)

LargestPositivePercentChangeDifference

Description: The value of the largest positive period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestPositivePercentChangeDifference(measure, filterDimensionValue)

LargestPositivePercentChangeEndingLabel

Description: The name of the ending period for the largest positive period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestPositivePercentChangeEndingLabel(measure, filterDimensionValue)

LargestPositivePercentChangeEndingValue

Description: The ending value of the largest positive period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestPositivePercentChangeEndingValue(measure, filterDimensionValue)

LargestPositivePercentChangePercentDifference

Description: The percent change of the largest positive period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestPositivePercentChangePercentDifference(measure, filterDimensionValue)

LargestPositivePercentChangeStartingLabel

Description: The name of the starting period for the largest positive period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestPositivePercentChangeStartingLabel(measure, filterDimensionValue)

LargestPositivePercentChangeStartingValue

Description: The starting value of the largest positive period-over-period difference, on a percentage basis, in the given series.

Syntax: LargestPositivePercentChangeStartingValue(measure, filterDimensionValue)

LongestStreakDifference

Description: The difference over the longest streak of consecutive increases or decreases for the given series.

Syntax: LongestStreakDifference(measure, filterDimensionValue)

LongestStreakDirection

Description: The direction (positive or negative) of the longest streak of consecutive increases or decreases for the given series.

Syntax: LongestStreakDirection(measure, filterDimensionValue)

LongestStreakEndingLabel

Description: The name of the ending period for the longest streak of consecutive increases or decreases for the given series.

Syntax: LongestStreakEndingLabel(measure, filterDimensionValue)

LongestStreakEndingValue

Description: The ending value of the longest streak of consecutive increases or decreases for the given series.

Syntax: LongestStreakEndingValue(measure, filterDimensionValue)

LongestStreakLength

Description: The largest number of periods of consecutive increase or decrease for the given series.

Syntax: LongestStreakLength(measure, filterDimensionValue)

LongestStreakPercentDifference

Description: The percent difference over the longest streak of consecutive increases or decreases for the given series.

Syntax: LongestStreakPercentDifference(measure, filterDimensionValue)

LongestStreakStartingLabel

Description: The name of the starting period for the longest streak of consecutive increases or decreases for the given series.

Syntax: LongestStreakStartingLabel(measure, filterDimensionValue)

LongestStreakStartingValue

Description: The starting value of the longest streak of consecutive increases or decreases for the given series.

Syntax: LongestStreakStartingValue(measure, filterDimensionValue)

MaxLabel

Description: The name of the entity with the maximum value for the given measure.

Syntax: MaxLabel(dimension, measure, filterDimensionValue)

MaxValue

Description: The maximum value for the given measure.

Syntax: MaxValue(measure)

Median

Description: The median value for the given measure.

Syntax: Median(dimension, measure, filterDimensionValue)

MinLabel

Description: The name of the entity with the minimum value for the given measure. Syntax: MinLabel(dimension, measure, filterDimensionValue)

MinValue

Description: The minimum value for the given measure.

Syntax: MinValue(dimension, measure, filterDimensionValue)

PercentDifference

Description: The percent difference in measure values between the two provided dimension values.

Syntax: PercentDifference(dimension, measure, firstDimensionValue, secondDimensionValue, filterDimensionValue)

PercentOfWhole

Description: The percent in measure values for a given dimension value over the total measure values for that dimension.

Syntax: PercentOfWhole(dimension, measure, dimensionvalue, filterDimensionValue)

PeriodLabel

Description: The name of the nth period in the series, starting at 1.

Syntax: PeriodLabel(index)

PeriodLabelNewest

Description: The name of the nth period in the series, starting at the newest and counting back.

Syntax: PeriodLabelNewest(index)

PeriodValue

Description: The value of the given measure at the nth period in the series, starting at 1.

Syntax: PeriodValue(measure, index, filterDimensionValue)

PeriodValueNewest

Description: The value of the given measure at the nth period in the series, starting at the newest and counting back.

Syntax: PeriodValueNewest(measure, index)

Range

Description: The difference between the maximum and minimum values for the given measure.

Syntax: Range(dimension, measure, filterDimensionValue)

SortAscendingLabel

Description: The entity name of the given measure sorted in descending order at the given rank (starting at 1).

Syntax: SortAscendingLabel(measure, rank, dimension, filterDimensionValue)

SortAscendingValue

Description: The value of the given measure sorted in ascending order at the given rank (starting at 1).

Syntax: SortAscendingValue(measure, rank, dimension, filterDimensionValue)

SortDescendingLabel

Description: The entity name of the given measure sorted in descending order at the given rank (starting at 1).

Syntax: SortDescendingLabel(measure, rank, dimension, filterDimensionValue)

SortDescendingValue

Description: The value of the given measure sorted in descending order at the given rank (starting at 1).

Syntax: SortDescendingValue(measure, rank, dimension, filterDimensionValue)

StartingLabel

Description: The name of the first period in the series.

Syntax: StartingLabel()

StartingValue

Description: The value at the first period in the series for the given measure.

Syntax: StartingValue(measure, filterDimensionValue)

StartToFinishDifference

Description: The difference between the values for the first and last periods in the given series.

Syntax: StartToFinishDifference(measure, filterDimensionValue)

StartToFinishPercentDifference

Description: The percent difference between the values for the first and last periods in the given series.

Syntax: StartToFinishPercentDifference(measure, filterDimensionValue)

StdDev

Description: The standard deviation value for the given measure.

Syntax: StdDev(dimension, measure, filterDimensionValue)

Sum

Description: The sum of measure values for the two provided dimension values.

Syntax: Sum(dimension, measure, firstDimensionValue, secondDimensionValue, filterDimensionValue)

Total

Description: The sum total value for the given measure.

Syntax: Total(dimension, measure, filterDimensionValue)

Value

Description: The metric value for a given dimension, measure, and dimension value.

Syntax: Value(dimension, measure, dimension value, filterDimensionValue)

Z-Score

Description: The z-score for the given measure.

Syntax: Z-Score(dimension, measure, firstDimensionValue, filterDimensionValue)

Customize Your Tableau Data Story: Hide and Reorder Content

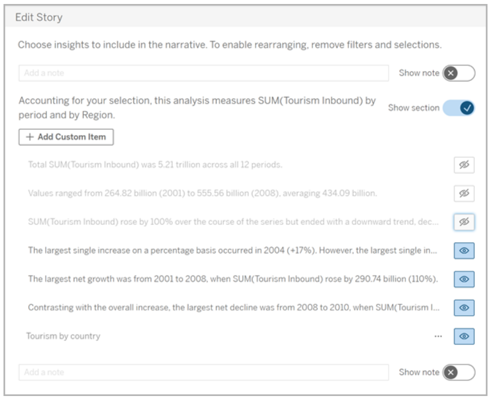
Important changes for Tableau Data Stories

Tableau Data Stories were retired in Tableau Desktop, Tableau Cloud, and Tableau Server in January of 2025 (2025.1). With advances in natural language technologies, we're developing an improved interface that will make it easier to ask questions of your data and stay on top of changes. For more information, see How Tableau Pulse powered by Tableau AI is Reimagining the Data Experience.

Customize your Tableau Data Story with the content that is most important to you and your audience by hiding or reordering content within your story.

Hide content and sections

1. Create your **Data Story** and click **Edit** to open the Edit dialog box.
2. Set sections to show or hide by clicking the **Show section** switch to the on or off position.
3. Hover over the blue box to the right of each individual sentence, and click the box to show or hide from view.
4. Click **Save**.



Edit Story

Choose insights to include in the narrative. To enable rearranging, remove filters and selections.

Add a note — Show note ⊗

Accounting for your selection, this analysis measures SUM(Tourism Inbound) by period and by Region. — Show section ✓

+ Add Custom Item

Total SUM(Tourism Inbound) was 5.21 trillion across all 12 periods.

Values ranged from 264.82 billion (2001) to 555.56 billion (2008), averaging 434.09 billion.

SUM(Tourism Inbound) rose by 100% over the course of the series but ended with a downward trend, dec...

The largest single increase on a percentage basis occurred in 2004 (+17%). However, the largest single in...

The largest net growth was from 2001 to 2008, when SUM(Tourism Inbound) rose by 290.74 billion (110%).

Contrasting with the overall increase, the largest net decline was from 2008 to 2010, when SUM(Tourism I...

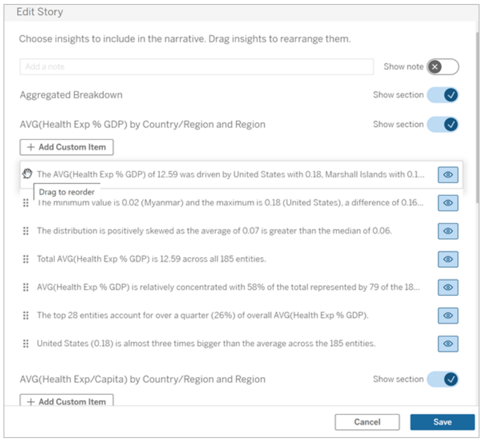
Tourism by country ···

Add a note — Show note ⊗

Now, only the sentences and sections that are set to **Show** appear in your Data Story.

Reorder content within a section

1. Create your **Data Story** and click **Edit** to open the Edit dialog box.
2. Hover over the left-side menu of the content you want to reorder. Your cursor turns into a hand icon.
3. Click the item with your cursor and drag it anywhere within the same section.
4. Click **Save**.



Choose insights to include in the narrative. Drag insights to rearrange them.

Aggregated Breakdown

AVG(Health Exp % GDP) by Country/Region and Region

The AVG(Health Exp % GDP) of 12.59 was driven by United States with 0.18, Marshall Islands with 0.1...

The minimum value is 0.02 (Myanmar) and the maximum is 0.18 (United States), a difference of 0.16...

The distribution is positively skewed as the average of 0.07 is greater than the median of 0.06.

Total AVG(Health Exp % GDP) is 12.59 across all 185 entities.

AVG(Health Exp % GDP) is relatively concentrated with 58% of the total represented by 79 of the 18...

The top 28 entities account for over a quarter (26%) of overall AVG(Health Exp % GDP).

United States (0.18) is almost three times bigger than the average across the 185 entities.

AVG(Health Exp/Capita) by Country/Region and Region

Now, the sentences appear in your **Data Story** in the order that you set them to.

Note: Currently, content can only be moved within the same section. Moving entire sections isn't yet supported.

Add More Data to Your Tableau Data Story

Important changes for Tableau Data Stories

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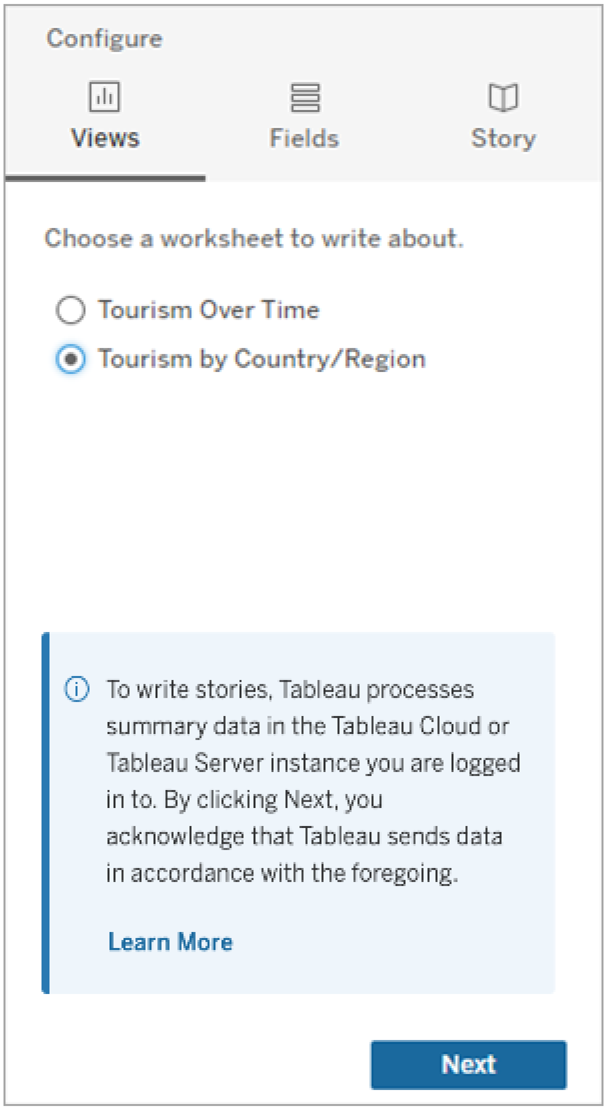
Data Stories currently supports stories with two dimensions and one measure, or one dimension and up to 10 measures. If you'd like to write about data that you don't need to show on your dashboard, then use a hidden sheet to simplify your dashboard. If you'd like to add more than two dimensions to your story, then concatenate dimensions or create multiple data stories and stack them.

Use a hidden sheet

If you have data that you want to include in a Tableau Data Story and don't need to show all the data that drove the insight, you can use a hidden sheet to bring additional measures and dimensions into your story without cluttering the dashboard.

1. Drag the **Data Story** object to your dashboard to see which worksheets you can write about in the Data Story dialog box. In this example, there are two worksheets available to write about.



Configure
Views
Fields
Story

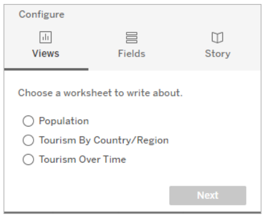
Choose a worksheet to write about.

○ Tourism Over Time
● Tourism by Country/Region

To write stories, Tableau processes summary data in the Tableau Cloud or Tableau Server instance you are logged in to. By clicking Next, you acknowledge that Tableau sends data in accordance with the foregoing.

Learn More
Next

2. Bring in another data source, such as "Population," by navigating to the left-hand menu, selecting **Floating**, and dragging that sheet onto your dashboard.



Configure
Views
Fields
Story

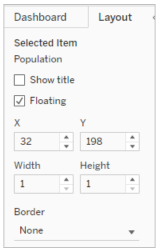
Choose a worksheet to write about.

○ Population
○ Tourism By Country/Region
○ Tourism Over Time

Next

The Data Story dialog box updates with the new available data source.

3. Click into **Layout** and adjust the size to 1 x 1 to hide the sheet but keep the underlying data in your story.



Selected Item
Population
☐ Show title
☑ Floating
X: 32
Y: 198
Width: 1
Height: 1
Border: None

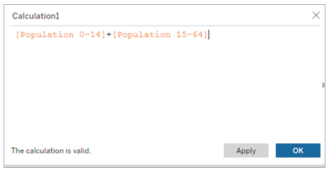
You can now configure your stories using this hidden sheet.

Note: You may need to deselect additional legend elements to keep the sheet hidden.

Concatenate dimensions

If your data contains three dimensions and one measure and is a **Discrete Story**, you can concatenate (link together) two of those dimensions by creating a calculated field.

1. From the worksheet you want to use in your story, click **Analysis** and select **Create Calculated Field**.
2. Name the calculated field and use the following formula to create your calculation, using the + sign to join the dimensions.
   [Dimension 1] + [Dimension 2]



```
[Population 0-14]+[Population 15-64]
```

The calculation is valid.

Tip: Drag your dimensions into the **Calculated Field** box and place them in the formula.

3. Click **OK**.
4. Drag your new calculated field into the **Detail** pane to make it accessible in your data story.

Stack multiple data stories

Write about more measures and dimensions by creating multiple **Data Stories** and stacking them vertically or horizontally on your dashboard.

For example, if you wanted to create a story about actual revenue vs benchmark revenue, you could create two different stories—one with the actual revenue and the first benchmark, and another with the actual revenue and the second benchmark—and compare them.

Add a Pop-Up Tableau Data Story to Your Dashboard

Important changes for Tableau Data Stories

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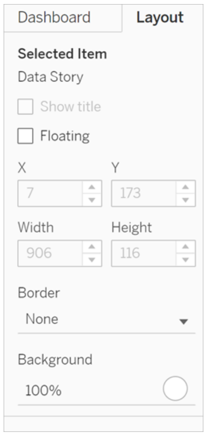
You can place a Tableau Data Story in a pop-up window that allows your users to open a story, read it, and then close it when they're done. This is a great way to save space being used by already-established dashboards or to reduce the amount of clutter and information on a dashboard.

1. Add a Tableau Data Story to a Dashboard.
2. Set the container to **Floating** by clicking the menu and selecting **Floating**.

Tip: Another way to set the container to **Floating** is by holding the shift key while dragging the container onto your dashboard.

3. Navigate to the **Layout** tab in the left-hand column and set the background color to white.



Selected Item

Data Story

☐ Show title

☐ Floating

X 7

Y 173

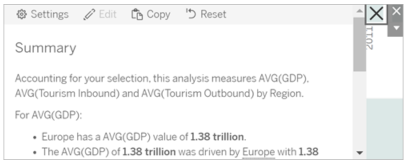
Width 906

Height 116

Border None

Background 100%

4. Click the menu that is associated with your floating container to show its settings, and select **Add Show/Hide** Button. This creates an "X" icon that allows you to show or hide your story.



Summary

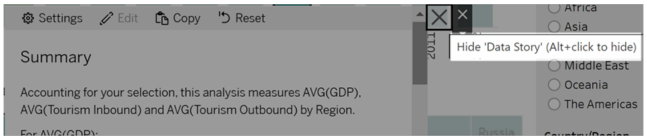
Accounting for your selection, this analysis measures AVG(GDP), AVG(Tourism Inbound) and AVG(Tourism Outbound) by Region.

For AVG(GDP):

- Europe has a AVG(GDP) value of **1.38 trillion**.
- The AVG(GDP) of **1.38 trillion** was driven by Europe with **1.38**

Note: If your story is selected, then your button is partially obscured by the sidebar options that are part of the Data Story object. Click anywhere outside of the story to reveal the button.

5. Hover over the "X" icon to show instructions for opening or closing the story. In this example, you're being prompted to press the Alt key at the same time you click the "X" icon.



Hide 'Data Story' (Alt+click to hide)

Summary

Accounting for your selection, this analysis measures AVG(GDP), AVG(Tourism Inbound) and AVG(Tourism Outbound) by Region.

6. Collapse the story by clicking the "X" icon at the same time as pressing the key indicated in your prompt.

The story collapses, but the menu remains on the dashboard so that the user can expand the story when needed. You can move your collapsible, floating story around your dashboard as desired.

Create Custom Measure Relationships in Your Tableau Data Story

Important changes for Tableau Data Stories

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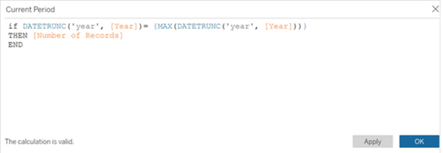
You can create a relationship story in your Tableau Data Story to see how data compares to another set of data. To build a relationship story, you must have at least two measures and one dimension. Data that you'd like to compare is often grouped into one column of data named something such as "Year" or "Month," with values such as "2022" or "March."

You can Create a Simple Calculated Field to separate "2022" from "2021" (or March from February), so that you can compare the two time periods in a relationship story.

1. Start in the sheet that you want to use in your **Data Story**.
2. Click **Analysis**, and select **Create a Calculated Field**.
3. Create a calculated field such as "Current Period."

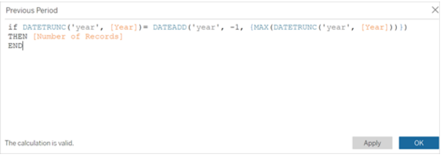


```
if DATETRUNC('year', [Year])= {MAX(DATETRUNC('year', [Year]))}
THEN [Number of Records]
END
```

The calculation is valid.

Tip: Follow the structure of the calculated field shown here, but substitute your own dimension or measure names (orange text).

4. Create a calculated field such as "Previous Period."

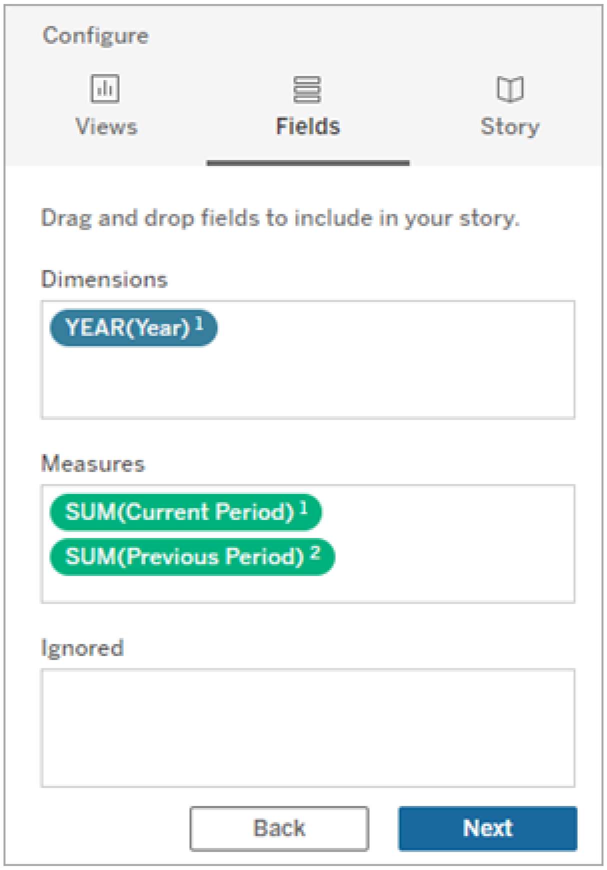


Previous Period

```
if DATETRUNC('year', [Year])= DATEADD('year', -1, {MAX(DATETRUNC('year', [Year]))})
THEN [Number of Records]
END
```

The calculation is valid.

5. Drag the new measures onto the **Detail** mark.
6. From your dashboard, click the story and add the two new measures into your **Data Story**.



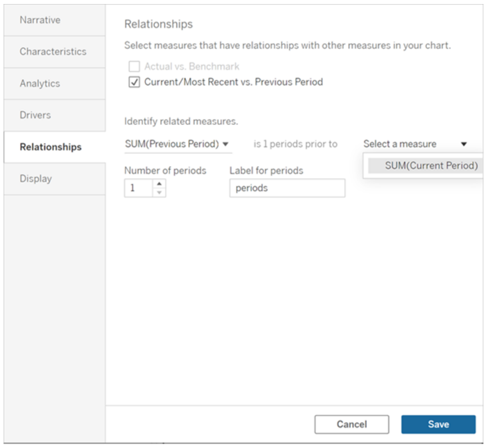
Drag and drop fields to include in your story.

Dimensions: YEAR(Year) 1

Measures: SUM(Current Period) 1, SUM(Previous Period) 2

Ignored

7. From your dashboard, click the **Settings** icon at the top-left corner of your Data Story object.
8. In the Data Story dialog box, click the **Relationships** tab.
9. Set up a relationship story with the two custom measures.



Relationships

Select measures that have relationships with other measures in your chart.

☐ Actual vs. Benchmark
☑ Current/Most Recent vs. Previous Period

Identify related measures.

SUM(Previous Period) is 1 periods prior to Select a measure: SUM(Current Period)

Number of periods: 1

Label for periods: periods

10. Click **Save**.

Your story now writes sentences that compare the custom measures.

Refresh Parameters in a Tableau Data Story

Important changes for Tableau Data Stories

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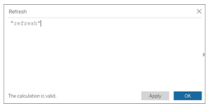
If you’ve added a parameter to your dashboard and are using Data Stories, you’ll notice that clicking the parameter refreshes your visualization, but not the story. This happens because the parameter doesn’t refresh the underlying data like a filter does.

To refresh your Tableau Data Story with the parameter data, add a "refresh" button to your dashboard that updates your story to align with your parameter.

1. Create a new sheet in your workbook.
2. Create a **Calculated Field** in the new sheet with the following info:

   Name: Refresh

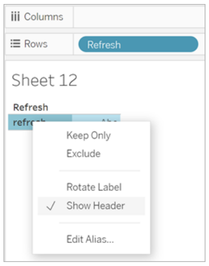
   Contents: "refresh"


Refresh
Apply
OK

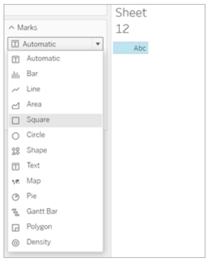
```
"refresh"
```

The calculation is valid.

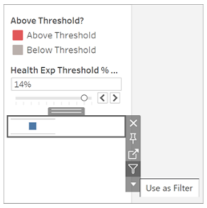
3. Click **OK**, and then drag the new calculated field (Refresh) onto your new sheet.
4. Right-click the field and click **Show Header** to hide the header.


Columns
Rows
Refresh
Sheet 12
Refresh
Keep Only
Exclude
Rotate Label
✓ Show Header
Edit Alias...

5. Choose a shape for your button.


Marks
Automatic
Automatic
Bar
Line
Area
Square
Circle
Shape
Text
Map
Pie
Gantt Bar
Polygon
Density
Sheet 12
Abc

6. Return to your dashboard and drag the sheet containing the refresh button onto your dashboard next to the parameter.
7. Hover over the button, select **More Options,** and click **Title** to hide the title.
8. Hover over the button and click **Use as Filter**.


Above Threshold?
🟥 Above Threshold
▨ Below Threshold
Use as Filter

Health Exp Threshold % ...
14%

9. Adjust your parameter and then click on the new refresh button. The button updates your story to align with the parameter.

Use a Table Calculation in a Tableau Data Story

Important changes for Tableau Data Stories

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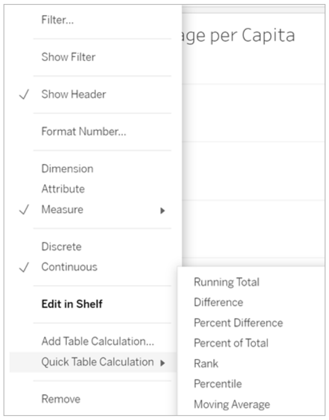
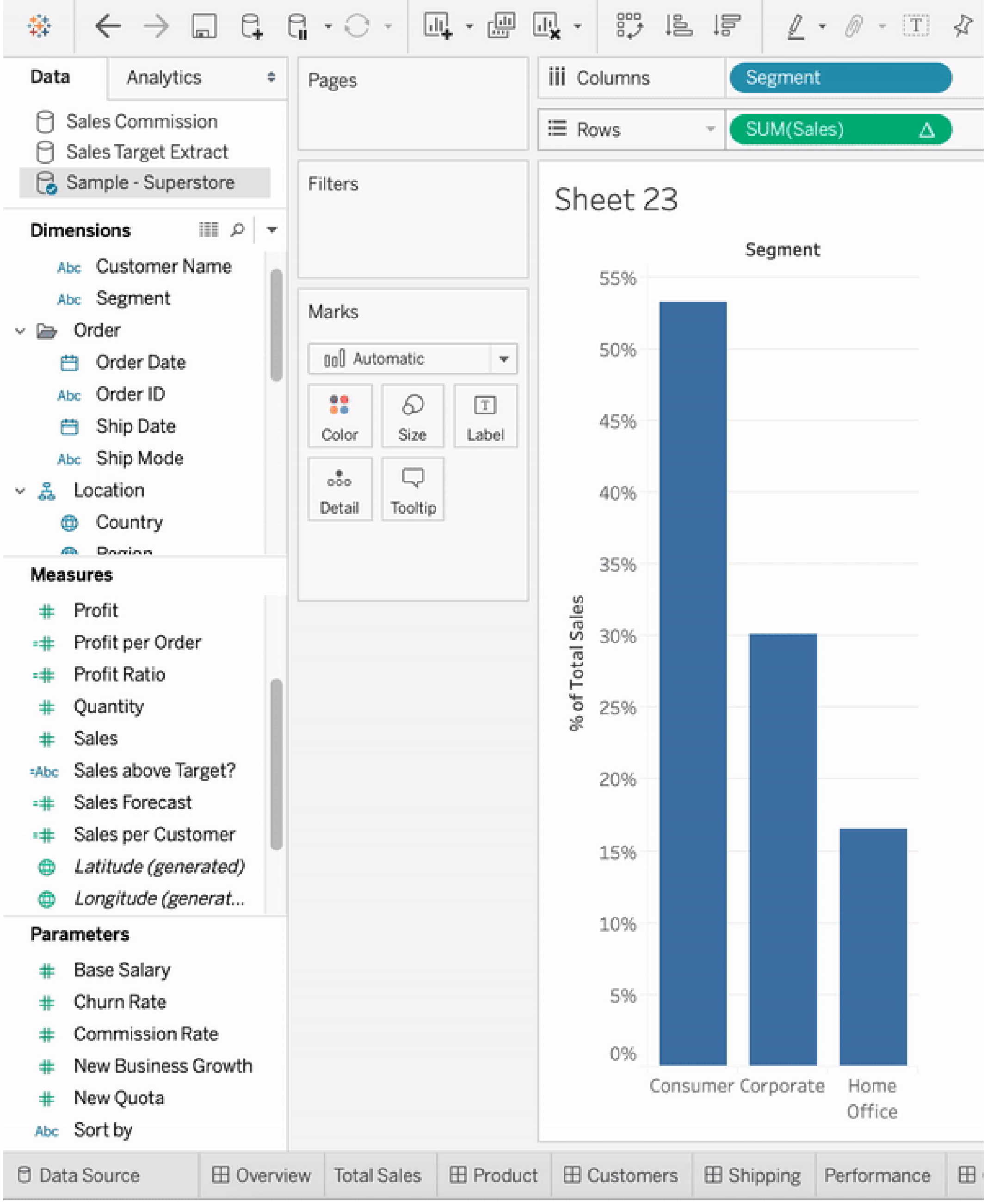
You can use a **Table Calculation** as a measure in a Tableau Data Story in addition to the measure that you used to create the table calculation.

1. From the **Marks** card, click the right side of your field to open a menu, and click **Quick Table Calculation.**

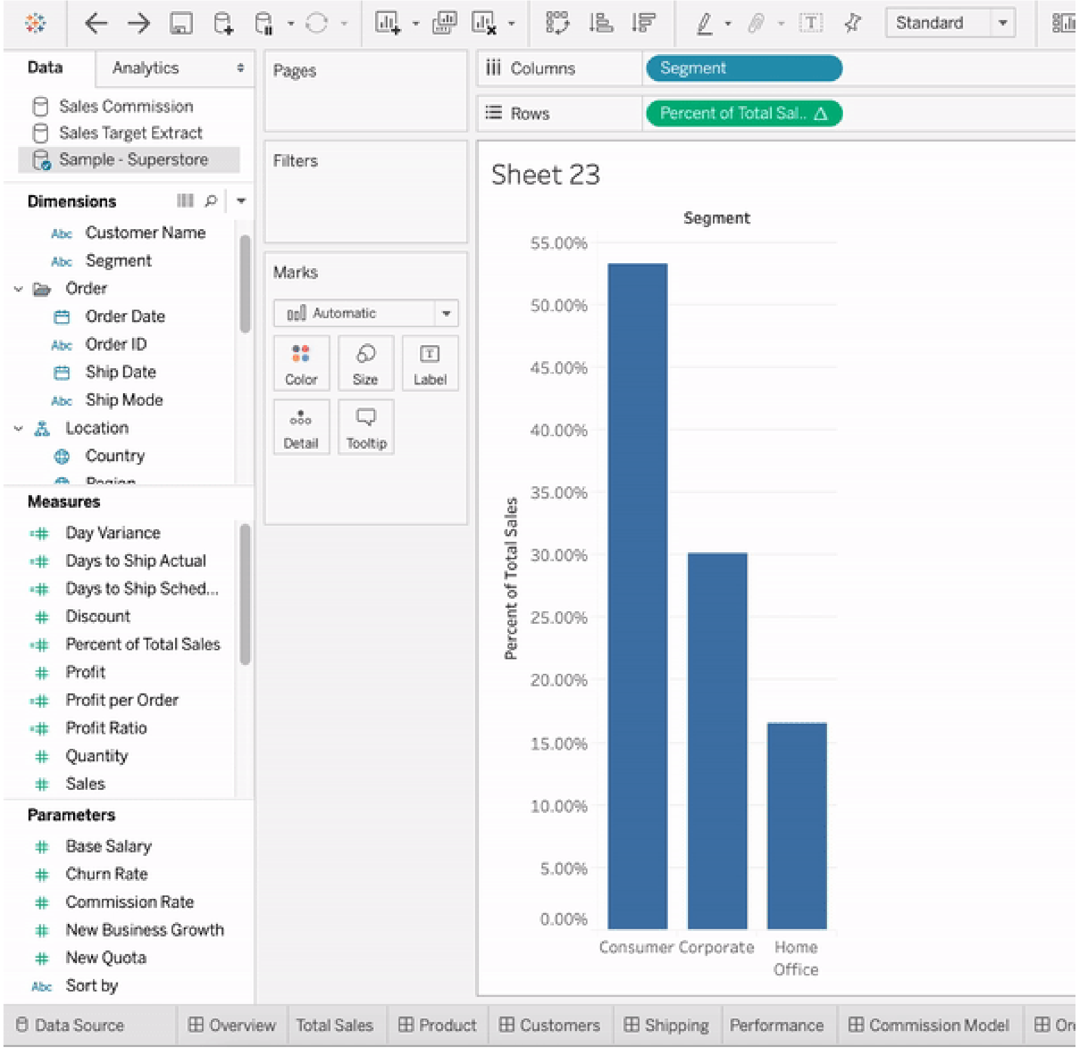

Filter...
Show Filter
✓ Show Header
Format Number...
Dimension
Attribute
✓ Measure
Discrete
✓ Continuous
Edit in Shelf
Add Table Calculation...
Quick Table Calculation
Remove
age per Capita
Running Total
Difference
Percent Difference
Percent of Total
Rank
Percentile
Moving Average

2. After you create your table calculation, drag it to **Measures** in the **Data** pane and rename it.


Data
Analytics
Sales Commission
Sales Target Extract
Sample - Superstore
Dimensions
Customer Name
Segment
Order
Order Date
Order ID
Ship Date
Ship Mode
Location
Country
Region
Measures
Profit
Profit per Order
Profit Ratio
Quantity
Sales
Sales above Target?
Sales Forecast
Sales per Customer
Latitude (generated)
Longitude (generat...
Parameters
Base Salary
Churn Rate
Commission Rate
New Business Growth
New Quota
Sort by
Pages
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Columns
Segment
Rows
SUM(Sales) △
Sheet 23
Segment
% of Total Sales
55%
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
Consumer
Corporate
Home Office
Data Source
Overview
Total Sales
Product
Customers
Shipping
Performance

3. Drag your original measure (e.g., Sales) back to the **Rows** shelf, and then drag your new calculation (e.g., Sum of Sales) into the **Tooltip.** Your visualization may remain

the same, but you now have access to the new measure.



Columns Segment

Rows Percent of Total Sal.. Δ

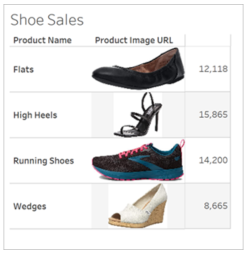
Standard
Data
Analytics
Sales Commission
Sales Target Extract
Sample - Superstore
Dimensions
Customer Name
Segment
Order
Order Date
Order ID
Ship Date
Ship Mode
Location
Country
Measures
Day Variance
Days to Ship Actual
Days to Ship Sched...
Discount
Percent of Total Sales
Profit
Profit per Order
Profit Ratio
Quantity
Sales
Parameters
Base Salary
Churn Rate
Commission Rate
New Business Growth
New Quota
Sort by
Pages
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Sheet 23
Segment
Percent of Total Sales
55.00%
50.00%
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
Consumer
Corporate
Home Office
Data Source
Overview
Total Sales
Product
Customers
Shipping
Performance
Commission Model

4. Go to your dashboard and drag the **Data Story** object onto the dashboard. Both measures appear when creating your story.

Add Web Images Dynamically to Worksheets

At Tableau, we know that images are a powerful tool when analyzing data. Imagine that you're looking at a viz of monthly shoe sales. The data is telling you that you sold more high heels than wedges, but you can't picture the difference in the two types of shoe. That's where Image

Role comes in. You can dynamically add web images to your worksheets and use them in your headers to add visual detail.



Shoe Sales

Product Name	Product Image URL	
Flats		12,118
High Heels		15,865
Running Shoes		14,200
Wedges		8,665

Prepare your data source

Image Role can be assigned to discrete dimension fields that contain URLs that point to web images. To prepare your data, be sure that your image fields meet the requirements set by Tableau to be assigned an image role:

- Make sure your URLs navigate to .png, .jpeg, .jpg, .svg, .webp, .jfif, .ico, or .gif image files.
- Verify that each URL begins with http or https. If a transport protocol isn’t included, Tableau assumes https.
- Optimize the number of images used in your data set. Usually, you can load up to 500 images per field.
- Ensure that each image file is smaller than 200 kb.

Note: If you're using Tableau 23.1 or earlier, your URLs must navigate to image files with .jpg, .jpeg, or .png file extensions.

In Tableau 23.2 and later, .gif files are supported, but .gif *animations* will only show on Tableau Cloud and Tableau Server with a client-side render. In Tableau Desktop and Tableau Server with a server-side render, the .gif file will show as a static image.

Depending on the complexity of your viz, Tableau may default to a server-side render, which limits the number of images to 100 per field. To learn more about complexity settings and server-side rendering, see Configure Client-Side Rendering.

Example data set:

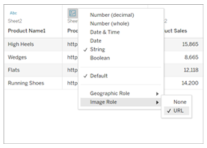
Product Name	Product Image URL	Product Sales
Flats	https://img.example.com/flats.png	12,118
High Heels	https://img.example.com/highheels.png	15,865
Running Shoes	https://img.example.com/runningshoes.png	14,200
Wedges	https://img.example.com/wedges.png	8,665

Assign an image role to your URLs

After you’ve connected to your data source, you can assign an Image Role to your URLs from either the Data Source page or on the Data pane in a worksheet.

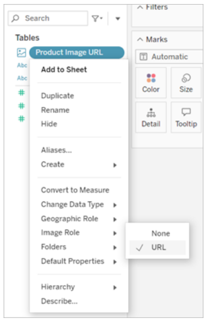
From the Data Source page:

1. Locate the column that has image URLs.
2. Right-click (control click on Mac) the icon on the top left of the column and select **Image Role** > **URL**.
   The icon changes to an image icon, and your images are ready to use.


Abc
Sheet2
Product Name1
Proc
uct Sales
High Heels
Wedges
Flats
Running Shoes
http
15,865
8,665
12,118
14,200
Number (decimal)
Number (whole)
Date & Time
Date
✓ String
Boolean
✓ Default
Geographic Role
Image Role
None
✓ URL

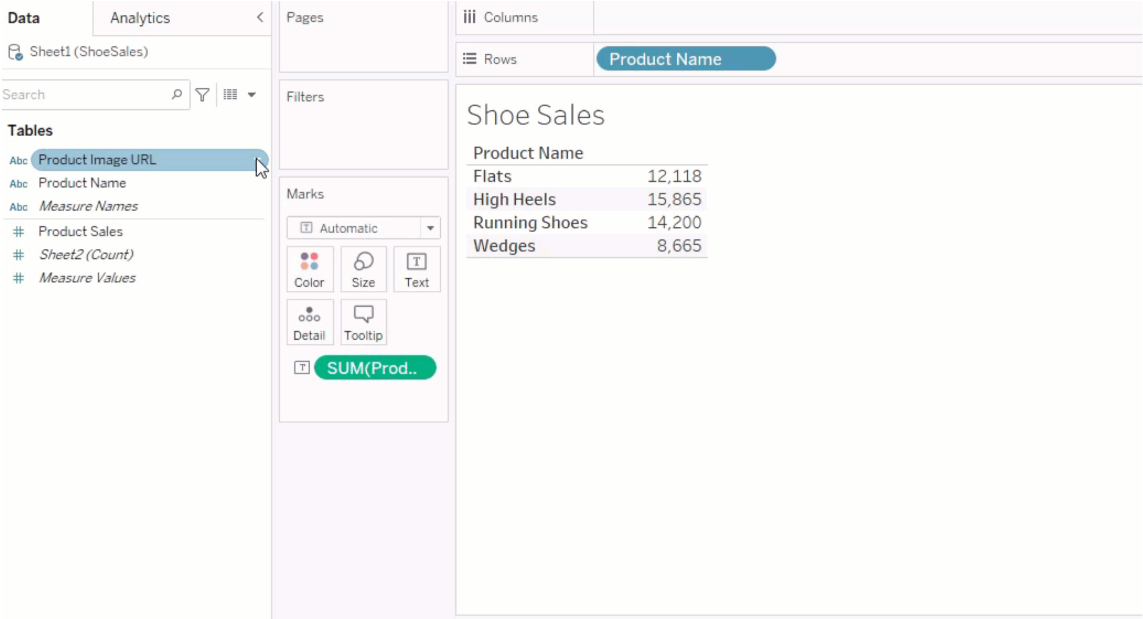
From a worksheet:

1. Open a new worksheet.
2. Locate a discrete dimension field that has image URLs.
3. Right-click (control click on Mac) the dimension field and select **Image Role** > **URL**.
   The icon changes to an image icon, and your images are ready to use.


Filters
Search
Tables
Product Image URL
Add to Sheet
Duplicate
Rename
Hide
Aliases...
Create
Convert to Measure
Change Data Type
Geographic Role
Image Role
Folders
Default Properties
Hierarchy
Describe...
Marks
Automatic
Color
Size
Detail
Tooltip
None
✓ URL

Add images to your visualizations

From your worksheet, drag the Image Role field onto the Rows or Columns shelf. You can now see images along with their associated data on your viz.


Data
Analytics
Sheet1 (ShoeSales)
Search
Tables
Product Image URL
Product Name
Measure Names
Product Sales
Sheet2 (Count)
Measure Values
Pages
Filters
Marks
Automatic
Color
Size
Text
Detail
Tooltip
SUM(Prod..
Columns
Rows
Product Name

Shoe Sales

Product Name	
Flats	12,118
High Heels	15,865
Running Shoes	14,200
Wedges	8,665

Share your visualizations

You can export your workbooks with images and share them. Be sure that the images used in your vizzes are available to be viewed by everyone you share your vizzes with. For example, if you're using images that are hosted on an internal server behind a firewall, be sure that everyone you share the viz with has sufficient permissions to access the images. In this example, users who view the viz while connected to the same server shouldn’t have any issues seeing the images. But users who export the viz to a pdf on a Tableau Cloud server may not be able to see the images.

If you export your workbook and your viewer attempts to open it in Tableau 2022.3 or earlier, your viewer won’t be able to see the images.

Note: It’s a best practice to always align an Image Role field with a text description to make the content accessible for screen readers and other accessibility software.

Troubleshoot image connections

Sometimes images won't display if you exceed the number of images allowed per field, have large image files on a complex viz, or are viewing the viz on a mobile device. This section helps you troubleshoot those errors.

None of the images are displaying in my viz

There are too many images in the viz

Depending on the complexity of your viz, you can typically load 500 images per field. If you have a complex viz, it may default to server-side rendering. With server-side rendering, you can load 100 images per field.

If you get an error message that there are too many images in the viz, filter out images and try again.

Tableau couldn't access the images

If you receive broken image icons instead of your images, first confirm that you have sufficient permissions to view the images (or if, for example, they're behind a firewall). Tableau must be able to access the images, and the images can't require a separate authentication to view them.

If you're sure that you have permission to view the images and they're within the size requirements, check that web images are enabled on your settings page.

In Tableau Desktop:

1. From your workbook, click **Help** in the toolbar.
2. Select **Settings and Performance** > **Set Dashboard Web View Security**.
3. Make sure that **Enable Web Page Objects and Web Images** is checked.

In Tableau Cloud:

1. From the home page, click **Settings**.
2. Under general, scroll down and locate **Web Page Objects and Web Images**.
3. Make sure that **Enable Web Page Objects and Web Images** is checked.

Some of the images aren't displaying in my viz

The image file is too large

Each image file must be smaller than 200 kb to render. Check your image file size and try again.

You're using an earlier version of Tableau

If you’re using Tableau 23.1 or earlier, only .png, .jpeg, and .jpg image files are supported. Upgrade your version of Tableau or use a supported file type for the version of Tableau you're using.

The image URL must begin with http or https

Each image URL must begin with either http or https. Tableau doesn't currently support FTP/SMTP calls. Verify your URL format and try again.

The image file must be a URL

An Image Role can be assigned to only URLs that navigate to .png, .jpeg, or .jpg, .svg, .webp, .jfif, .ico, .bmp, or .gif image files. Verify your URL format and try again.

The image file type isn’t supported

An Image Role can be assigned to only URLs that navigate to .png, .jpeg, or .jpg, .svg, .webp, .jfif, .ico, .bmp, or .gif image files. Verify your URL format and try again.

If you’re using Tableau 23.1 or earlier, only .png, .jpeg, and .jpg image files are supported. Upgrade your version of Tableau or use a supported file type for the version of Tableau you're using.
In Tableau 23.2 and later, .gif files are supported, but .gif *animations* will only show on Tableau Cloud and Tableau Server with a client-side render. In Tableau Desktop and Tableau Server with a server-side render, the .gif file will show as a static image.

The image file contains bad characters

An Image Role can't be assigned to URLs that have the following characters:

```
< > & \ ^ '
```

or the following character sequences:

```
.. \\. \r \n \t
```

Verify that your URL doesn't contain any of these characters or character sequences and try again.

The images aren't displaying outside of my worksheet

The images aren't displaying in Viz in Tooltip

Viz in Tooltip is processed with server-side rendering, which allows you to load up to 100 images per field. Verify that you have fewer than 100 images per field and try again.

For more about server and client-side rendering, see Configure Client-Side Rendering.

For more about using Viz in Tooltip, see Create Views in Tooltips (Viz in Tooltip).

The images aren't displaying in View in Thumbnail

View Thumbnail is processed with server-side rendering, which allows you to load up to 100 images per field. Verify that you have fewer than 100 images per field and try again.

For more about server and client-side rendering, see Configure Client-Side Rendering.

The images aren't displaying when I export my workbook

All exports and export-related features are processed with server-side rendering, which allows you to load up to 100 images per field. Verify that you have fewer than 100 images per field and try again.

The images aren't displaying on a mobile device

Mobile devices have a lower complexity threshold than computers, so the processing is completed through server-side rendering, which allows you to load up to 100 images per field.

Verify that you have fewer than 100 images per field and try again.

You can change the complexity settings on your mobile device. For more info on complexity thresholds, see Configure the complexity threshold for computers and mobile devices.

Connect to Published Data Sources in Web Authoring

The steps below describe how to connect to published data sources when you're signed in to Tableau Server or Tableau Cloud. For details on how to edit workbooks and view on the web, see Build Views on the Web and Using Tableau on the Web.

For information about how to connect to a published data source from Tableau Desktop, see Tableau Server or Tableau Cloud in the Connector Example reference in this help system.

Connect to a published data source in the web authoring environment

You can connect to data if you have permissions to create and edit views.

1. While you’re signed in to your Tableau Server or Tableau Cloud site, select a view to edit.
2. In editing mode, click the **New Data Source** icon.
3. In the **Connect to Data** dialog box, search for and select a published data source, and then click **Connect**.

You can also connect to a published data source when you're creating a new workbook directly on Tableau Server or Tableau Cloud.

1. When you're signed in to your site, navigate to the **Explore** page and select **All Data Sources**.

2. In the list of data sources, select the check box next to the one you want to use, and then click **Actions** and select **New Workbook**.

Set Credentials for Accessing Your Published Data

When you publish a workbook to Tableau Cloud or Tableau Server, you can publish the data source it connects to as part of the workbook (*embedded* into the workbook), or as a separate, standalone data source. In addition, if the data source you're publishing requires authentication, you can customize how credentials are obtained.

The type of authentication to your data source is independent of how people sign in to your Tableau Cloud or Tableau Server site. For example, to give people direct access to the data in a workbook, you would embed a database user's credentials into the data source's connection. But anyone viewing the workbook would still need to be able to sign in to the site on Tableau Cloud or Tableau Server to open your workbook.

This topic describes how to set authentication on data connections as part of the publishing process.

> **Note:** This topic doesn't apply to connections to that don't require authentication, such as text files or Excel files.

Set the authentication type

For many types of connection you can embed a database user's name and password, or use single sign-on (SSO). Specific exceptions are described later in this topic.

The following steps describe how to set authentication as part of publishing a data source or workbook. You can do this for each connection in the data source.

1. In the Publish Workbook dialog box, go to the **Data Sources** area, which lists the workbook's connections, and select **Edit**.
2. In the **Manage Data Sources** popup, after you decide whether to publish the data source separately or as part of the workbook, select an authentication type for each

connection in the data source. The available authentication types depend on the connection type, and they can include one or more of the following:

- **Prompt user**: Users must enter their own database credentials to access the published data when the view or workbook loads.
- **Embedded password**: The credentials you used to connect to the data will be saved with the connection and used by everyone who accesses the data source or workbook you publish.
- **Server run as account**: A single Kerberos service account is used to authenticate the user. On Windows this is the account that Tableau Server runs as. On Linux it can be any Kerberos account.
- **Viewer credentials**: The viewer's credentials are passed through to the database using SSO (usually Kerberos).
- **Impersonate with embedded account** or **Impersonate with server Run As service account**: Impersonation using embedded credentials connects with the embedded credentials and then switches to the viewer's identity (only for databases that support this). Impersonation using the Run As service account is similar but first, connects with the Kerberos service account before switching to the viewer's identity.
- **Refresh not enabled** or **Allow refresh access**: These options appear when you publish an extract of cloud data such as from Salesforce, and database credentials are needed to access the underlying data. **Allow refresh access** embeds the credentials in the connection, so that you can set up refreshes of that extract on a regular schedule.

Important: How you want to keep extracted data fresh is also a factor:

- If you want to set up an automatic refresh schedule, you must embed the password in the connection.
- If you're publishing a cloud data connection to Tableau Cloud, the publishing steps alert you if you must add Tableau Cloud to the data provider's authorized list.
- You can't publish an extract that's created from a Kerberos-delegated, row-level-secure data source.

Dropbox, OneDrive connections

For Dropbox and OneDrive, when you publish a data source or workbook and select **Embedded password**, Tableau creates a saved credential and embeds it in the data source or workbook.

Workbook connections to Tableau data sources

When you publish a workbook that connects to a Tableau Cloud or Tableau Server data source, rather than setting the credentials to access the underlying data, you set whether the workbook can access the published data source it connects to. Regardless of the original data type, the choice for server data sources is always **Embedded password** or **Prompt users**.

If you select to prompt users, a user who opens the workbook must have **View** and **Connect** permissions on the data source to see the data. If you select embed password, users can see the information in the workbook even if they don’t have View or Connect permissions.

Virtual connections

As of Tableau Cloud and Tableau Server 2022.3 and Tableau Desktop Current, when you publish Tableau content like a data source or workbook that uses a virtual connection and select **Embed password** or **Embed credentials**, the viewer of the content will have your permissions to connect to and query the virtual connection. However, any data policies associated with the virtual connection are always evaluated using the viewer’s identity–not yours.

For example, you publish a workbook that uses a virtual connection. To let viewers of the workbook connect to and query data by way of the virtual connection, you embed your permissions to connect to and query the virtual connection. Then, any data policies associated with the virtual connection prevent the viewers of the workbook from accessing any sensitive data.

When evaluating whether the tables in a virtual connection can be viewed and accessed, the identity of the content creator is used. However, when evaluating any data policies associated with the tables in a virtual connection, the viewer’s identity is used. And the content creator can only ever embed connect permissions to the virtual connection–not edit permissions.

If you choose not to embed permissions, then only users with permissions to access the workbook or data source and with connect permissions to the virtual connection can access the workbook or data source.

The embed password and embed credentials options for virtual connections don't work in Tableau Cloud 2022.2, Tableau Server 2022.1, and Tableau Desktop 2022.3 and earlier. If you select these options before you upgrade to 2022.3 (for Tableau Cloud and Tableau Server) or Current (for Tableau Desktop), the options will work as expected after you upgrade. Then, you're able to embed your permissions for querying a virtual connection.

See also

- If you publish to Tableau Server, see Edit Connections in the Tableau Server Help.
- If you publish to Tableau Cloud and the workbook connects to Salesforce, Google Analytics, Google Sheets, Google BigQuery, OneDrive, Dropbox, and QuickBooks Online data, see Refresh Data Using Saved Credentials in the Tableau Cloud Help.
- If you're a Tableau Server administrator looking for more information about authentication, see the Tableau Server help topics, "Authentication" (Windows | Linux) and "Data Connection Authentication" (Windows | Linux).

Edit a Published Data Source

Imagine that you've published a data source, and your team is using the data source across a number of workbooks. This is a good start, but you have some changes in mind that will make your data source great. Before you implement these changes, you want to see how your proposed changes look in Tableau. And most importantly, you need to test your changes to ensure they won't negatively impact any existing workbooks that use the data source.

Editing a published data source allows you to test changes and make improvements to your data source while maintaining it as a single source of data.

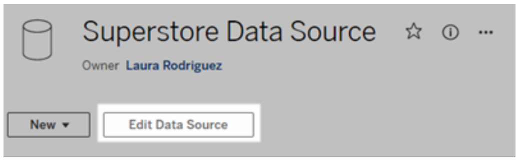
Note: Only users with a site role of Creator can edit publish data sources in the browser.

Edit and test changes

Whether you're creating a new published data source or editing an existing published data source, you can create joins and edit the schema from the Data Source page without leaving your browser. Then use the Scratchpad to test your changes, create folders, organize hierarchies, and rename fields and aliases before publishing your data source. While editing your data source, you'll have all the same features and functionality that you have when authoring in Tableau Cloud. For more information, see Web Authoring and Tableau Desktop Feature Comparison.

To edit a published data source:

1. From the Start or Explore page, navigate to the data source you want to edit.
2. Click **Edit Data Source**.



3. Click the **Data Source** page to make joins or edit the schema.
4. Click the **Scratchpad** sheet.
5. From the **Data** pane, create folders, organize hierarchies, rename fields and their aliases, or update metadata that are saved with the published data source.
6. Drag and drop fields onto the scratchpad to make sure your changes are working as expected.
7. Click **Publish**.

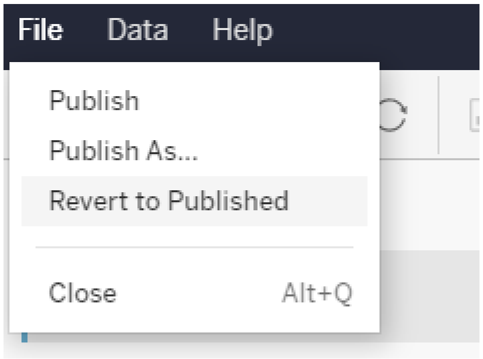
Just like you can with workbooks, you can also **Publish As** if you want to make a copy of the data source.

Note: Personal Spaces don't support published data sources.

Roll back changes

To revert to the last version of the published data source:

1. Navigate to the data source that you want to revert.
2. Click **File**.
3. Choose **Revert to Published**.



This reverts to the latest published version of that data source.

Understand supported connections

Editing published data sources doesn’t support:

- Tableau Bridge connectors in Tableau Cloud.
- Data sources that use embedded passwords in Tableau Cloud and Tableau Server.

Also, the Data Source page isn’t available for published data source connection types that aren’t supported, including but not limited to .hyper file types. To see which connection types are supported, see Creators: Connect to Data on the Web.

Learn about permissions

To edit a published data source, you’ll need a Creator license that has Save or Save As permissions for data sources in the respective folder. For more information, see Permissions.

Edit data sources published by a flow

If you make edits to a data source that was published by a flow, the changes will be overwritten during the next scheduled flow. Instead, edit the data source in the flow. For more information, see Publish a Flow to Tableau Server or Tableau Cloud.

Use Dynamic Axis Ranges

It’s key that your users understand the range represented in a viz so that they can correctly analyze the data. Especially when analyzing multiple vizzes in a dashboard or multiple worksheets at the same time, it can be easy for users to misinterpret data when the range of the axes is different between vizzes. For example, when two bar charts appear next to each other, the bars in both charts might appear to be equivalent sizes. However, the axes might have very different ranges, making the charts misleading.

To help users understand the range of the axis, in 2023.3 and later, authors can use Dynamic Axis Ranges to set the minimum and maximum values of an axis range by using numeric parameters or date parameters. Then, as users navigate across vizzes, the axes update synchronously. This makes it easier for your users to analyze data across vizzes easily and accurately. And by limiting the range of the data, you can view a subset of data without filtering the underlying data or impacting the moving average of your data.

Dynamic Axis Ranges can also be used to extend or shorten the range of an axis without filtering out the underlying data. This is ideal for showing progress against a goal or showing a moving average.

Supported field types

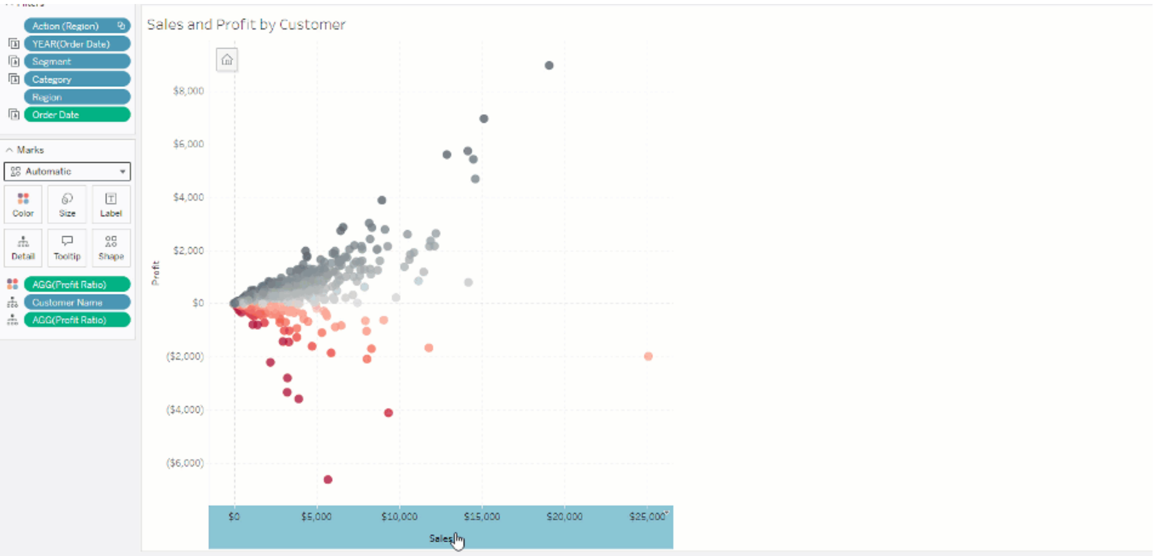
Dynamic Axis Ranges support any parameter that is compatible with the selected continuous axis, for example:

- Numeric parameters
- Temporal parameters (date or dateTime)

Configure a dynamic axis range

1. From a Tableau sheet, create a parameter for your axis.
2. Right-click the axis, and choose **Edit Axis**.
3. For the Range, choose **Custom**. Then, select the parameter that you created for either the start or end axis extent.
4. Close the dialog box.

5. If you’re using multiple sheets on a dashboard, repeat these steps for the axes across the different sheets.


Action (Region)
YEAR(Order Date)
Segment
Category
Region
Order Date
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Shape
AGG(Profit Ratio)
Customer Name
AGG(Profit Ratio)
Sales and Profit by Customer
$8,000
$6,000
$4,000
$2,000
$0
($2,000)
($4,000)
($6,000)
Profit
$0
$5,000
$10,000
$15,000
$20,000
$25,000
Sales

Understand limitations and edge cases

Dynamic Axis Ranges aren’t updated within Stories. If the parameter used for the axis is deleted, then the most recent parameter value remains as the axis extent. The next time you edit the axis, an error message will prompt you to choose a new parameter to be used.

Use Dynamic Axis Titles

Tableau’s flexibility empowers authors to quickly analyze different data sets and visualize data differently for deeper analysis. But with that flexibility, comes the responsibility to communicate accurately the data that is used in a viz. For example, it’s critical to communicate the units of measure that change based on a parameter value. Imagine that you’re looking at a viz of the weather that shows a forecast of 25 degrees. In Fahrenheit, that forecast might be a great ski trip. But in Celsius, that forecast might call for a trip to the beach.

As an author, you can use Dynamic Axis Titles to update the axis title based on the value of a parameter or a single-value field (for example, an LOD calculation). If you use swap parameters, the axis titles update to match the data being used.

Supported field types

To be used as a Dynamic Axis Title, fields must be:

- A single-valued and a fixed LOD calculation
- A parameter
- A constant calculated field
- A top 1 set

Configure a dynamic axis title

1. From a Tableau sheet, drag a continuous field onto a shelf.
2. Double-click the axis to open the **Edit Axis** dialog.
3. Under the **Axis Titles** section, choose the field you want to use for your axis title from the list.
4. Close the **Edit Axis** dialog.

For a more complex use case, first follow the steps in Example: Swap Measures Using Parameters. Then, follow these steps:

1. Double-click the X axis to open the **Edit Axis** dialog.
2. Under the **Axis Titles** section, select **Parameter**, and then choose the Placeholder 2 selector.
3. Close the **Edit Axis** dialog.
4. Repeat these steps for the Y axis using Placeholder 1.

Now, when the parameters are changed, the axes titles update to reflect the data being displayed.

Understand limitations and edge cases

Dynamic axis titles are cleared when the viz type is changed using Show Me. Also if you use subtitles, then the subtitle appears after the Dynamic Axis Title, just as it does for custom titles. Automatic subtitles are populated only when you have a continuous date value axis that is filtered to a single year with at least two time periods. The dynamic axis title functionality doesn't work when using the worksheet in Stories (a sequence of visualizations that work together to convey information).

Dynamic Color Ranges

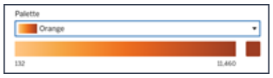
With dynamic color ranges, you can link color ranges to a parameter's value, enabling you to visualize data trends more effectively. By using parameter actions, you can dynamically update color ranges based on selections or mark hovers, and you can link the start, center, and end points of the color range to a parameter. This not only allows for customization but also helps to ignore outlier data that might skew the color palette. You can also synchronize range values across visualizations on a dashboard, leading to faster insights.

Use supported field and color palette types

You can use a dynamic color range with continuous fields, typically measures. They can be applied to quantitative color palettes in Tableau, including sequential and diverging color palettes.

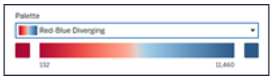
Sequential color palettes

Typically, a sequential palette shows a single color, varying in intensity. You must specify at least the two end colors in the sequential color range.



Diverging color palettes

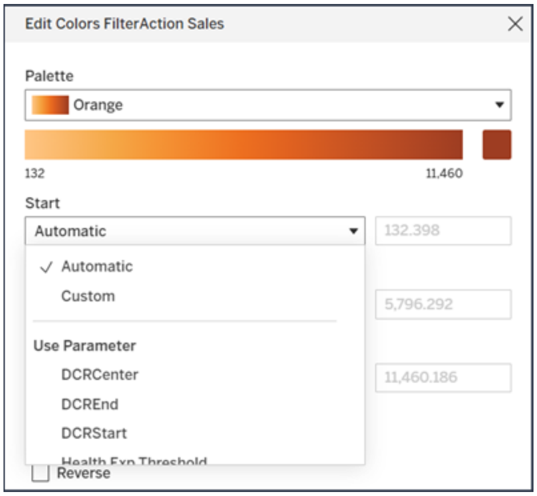
A diverging color palette is like two sequential palettes that share a color in the middle but have different extremes. This type of palette shows two ranges of values using color intensity (how dark or light) to show the magnitude of the number and the actual color (orange or blue) to show which range the number is from. Diverging palettes are most commonly used to show the difference between positive and negative numbers.



Configure a dynamic color range

You can configure a dynamic color range on any quantitative, continuous field used in an existing parameter.

1. After your parameter has been set up, select **Colors** on the Marks card.
2. Select **Edit Colors…**
3. In the Edit Colors dialog box, expand the dropdown next to the start and end point. You can choose **Automatic** or **Custom**, or you can use a parameter to set the color range to update dynamically with parameter actions.



Edit Colors FilterAction Sales

Palette: Orange

Start: Automatic

132.398

5,796.292

11,460.186

Connect a dynamic color range to a parameter action

You can type in any value you want in a parameter control to ensure a more efficient color contrast. For a more interactive solution, you can configure the parameter so that the color range point is tied to a parameter action.

1. To do this, create a parameter action with these properties:
2. Set the **Source Sheet** to the worksheet or a sheet on a dashboard.

3. Set the **Target Parameter** to the parameter that you want to be tied to the dynamic color range.

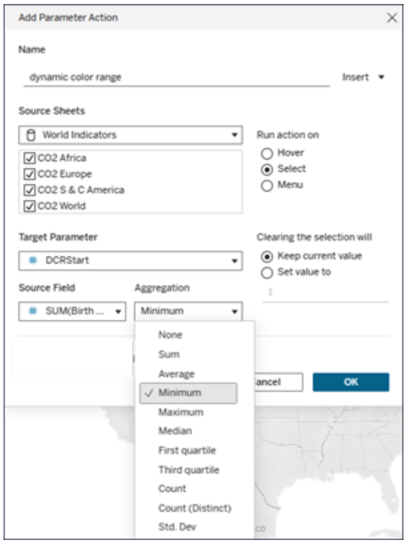
4. Set the **Source Field** to a continuous measure used to encode color.

5. Set the **Aggregation**:

   - Use **Minimum** or **First Quartile** for the start of the color range.

   - Use **Maximum** or **Third Quartile** for the end of the color range.

6. Make sure that **Clearing the selection will** is set to **Keep current value**. This ensures that your color palette changes persist between interactions.



Add Parameter Action

Name: dynamic color range

Source Sheets: World Indicators

☑ CO2 Africa
☑ CO2 Europe
☑ CO2 S & C America
☑ CO2 World

Run action on: ○ Hover ● Select ○ Menu

Target Parameter: DCRStart

Source Field: SUM(Birth ...

Aggregation: Minimum

Clearing the selection will: ● Keep current value ○ Set value to

Insert
None
Sum
Average
✓ Minimum
Maximum
Median
First quartile
Third quartile
Count
Count (Distinct)
Std. Dev
ancel
OK

With this parameter action, your color range dynamically updates as you interact with marks on the viz.

Understand limitations and edge cases

Dynamic color ranges aren’t updated within Stories.

If you delete the parameter used for the dynamic color range, then the range value will be set to the most recent parameter value. The next time you edit the color, you'll receive a message to choose a new parameter for the dynamic color range.

Use Dynamic Zone Visibility

Dashboard space is valuable, especially when you want to progressively reveal insights about data. With Dynamic Zone Visibility, you can hide or reveal zones (tiled or floating dashboard elements) based on the value of a field or parameter. As you interact, zones on your dashboard appear or disappear. The result is a dynamic dashboard that doesn’t compromise your desired layout.

While you can show or hide objects by clicking a button on a dashboard, Dynamic Zone Visibility allows you to show and hide objects automatically. This is ideal for dashboards that are used by different user groups. For example, you might want to show different user groups different zones when they visit your dashboard.

And you can use Dynamic Zone Visibility with Parameter Actions. For example, when a user clicks a mark on a viz, a previously hidden zone appears. This is ideal for complex dashboards because it allows you to choose when deeper levels of data are revealed.

Supported field types

To be used for Dynamic Zone Visibility, a field or parameter must be:

- Boolean.
- Single value.
- Independent of the viz, meaning the field returns a constant value independent of the structure of the viz, such as a fixed level of detail (LOD) calculation.

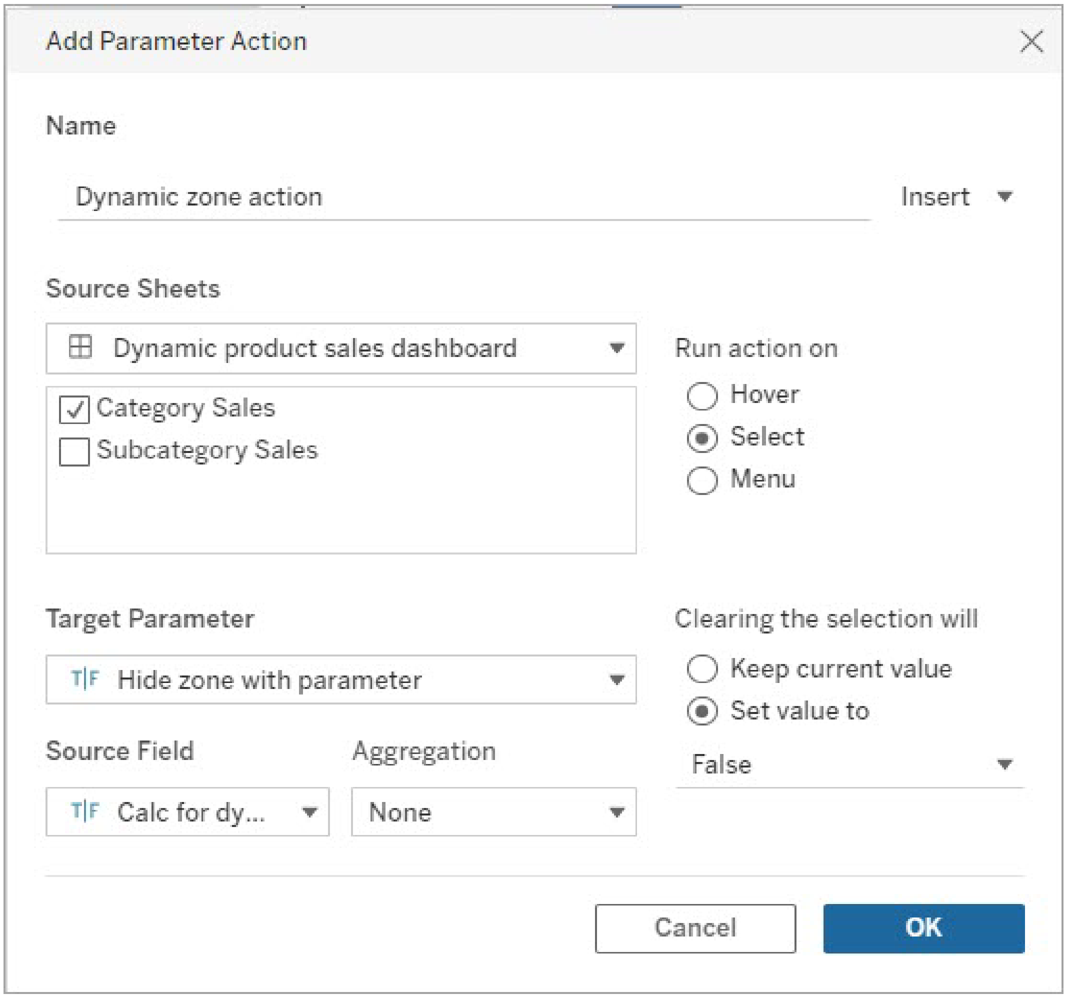
Configure a dynamic dashboard zone

The following example has two sheets that use Superstore data: the first sheet has a bar chart with Sales by Category, and the second sheet has a bar chart with Sales by Sub-Category. By using Dynamic Zone Visibility, the second sheet is visible only after a mark is clicked in the

Sales by Category zone. This example relies on a boolean calculated field, which is used as the source field for a parameter action. For the calculation to be used as the source field for the parameter action, the calculation must be added to the marks card.

1. From the Sales by Category sheet, create a parameter. In this example, the parameter **Data type** must be set to **Boolean**.
2. From the Sales by Category sheet, create a calculated field. This example uses the following calculation: `True`
3. On the Sales by Category sheet, drag the calculation that you created to **Details** on the marks card.
4. Create a dashboard.
5. Drag the sheet that you always want to be visible onto your dashboard. In our example, we want Sales by Category to be visible.
6. From your dashboard, click the Sales by Category zone (dashboard object). Then, from the Worksheet menu on your dashboard, create a parameter action. This example uses the following **Change Parameter** action:
   The source sheet is set to use the dashboard you created and the Category Sales sheet.
   The **Target Parameter** is the parameter you created.

The **Source Field** is the calculation you created.



Add Parameter Action

Name

Dynamic zone action

Source Sheets

Dynamic product sales dashboard

☑ Category Sales
☐ Subcategory Sales

Run action on

○ Hover
● Select
○ Menu

Target Parameter

T|F Hide zone with parameter

Clearing the selection will

○ Keep current value
● Set value to

False

Source Field

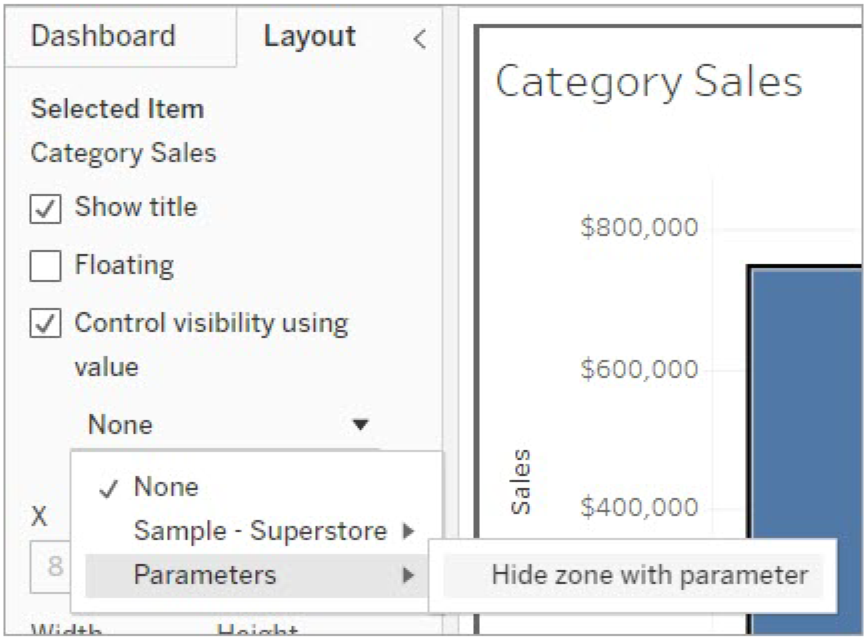
T|F Calc for dy...

Aggregation

None

7. Drag the Sales by Sub-Category worksheet onto your dashboard.
8. Click the Sales by Category zone. From the upper right corner, click the dropdown arrow and select **Use as Filter**.
9. Click the Sales by Sub-Category zone, and then click the **Layout** tab.
10. Check the box for **Control visibility using value**.
11. From the dropdown, choose the parameter you created to control zone visibility.

Note: If the option to Control visibility using value doesn’t contain the field you want to use, be sure that the field is a supported field type.


Dashboard
Layout
Category Sales
$800,000
$600,000
$400,000
Sales
None
Sample - Superstore
Parameters
Hide zone with parameter
X
8
Width
Height

Selected Item
Category Sales

☑ Show title

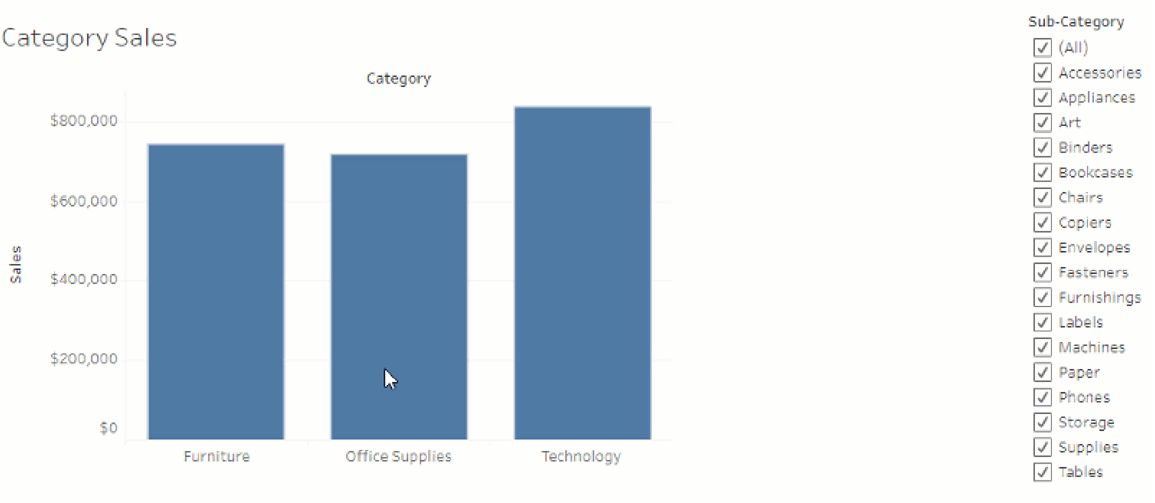
☐ Floating

☑ Control visibility using value

None

✓ None

Now, when you click a category mark in the Sales by Category zone, the Sales by Sub-Category zone appears in your dashboard.


Category Sales
Category
$800,000
$600,000
$400,000
$200,000
$0
Sales
Furniture
Office Supplies
Technology
Sub-Category
☑ (All)
☑ Accessories
☑ Appliances
☑ Art
☑ Binders
☑ Bookcases
☑ Chairs
☑ Copiers
☑ Envelopes
☑ Fasteners
☑ Furnishings
☑ Labels
☑ Machines
☑ Paper
☑ Phones
☑ Storage
☑ Supplies
☑ Tables

Understand limitations and edge cases

Dynamic Zone Visibility doesn't work when using the worksheet in Stories (a sequence of visualizations that work together to convey information).

Explore Dashboards with Data Guide

Have you ever discovered a new Tableau dashboard and wondered what data means or how to use it? Or, have you ever published a new dashboard and wished that you could include instructions about how to use your dashboard?

Data Guide provides helpful information about a dashboard and insights about the data behind it. Data Guide allows dashboard creators to provide more explanatory context for end users–like descriptions and links to resources–directly in the dashboard. And Data Guide automatically surfaces insights powered by Explain Data to help users find outliers and learn about explanations for a mark. Explain the Viz (powered by Explain Data) identifies outlier measures and potential key drivers behind them.

These contextually relevant details can help dashboard users navigate and use new dashboards more easily, allowing users to find insights faster, trust that they're looking at the right data, provide context for data, and establish confidence in their understanding of the viz.

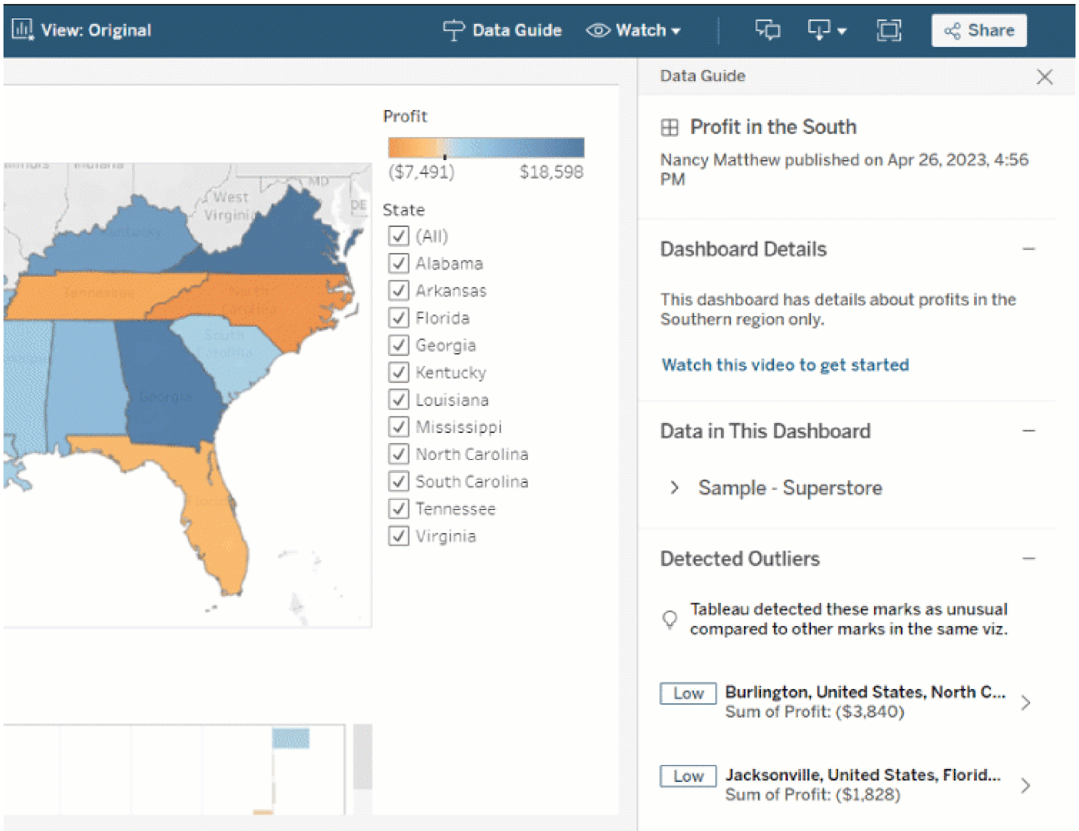
Customize Data Guide as an author

1. From your dashboard, choose the **Edit** button.
2. Choose **Data Guide** in the toolbar.
3. In the Data Guide pane, type a description to help your end users understand the purpose of your dashboard.
4. Select **Add link**, and enter a descriptive label for your link text and the URL.
5. Choose **OK**.
6. Select a viz (a sheet in the dashboard). Data Guide updates automatically so you can add a description and resources that are relevant to each viz in your dashboard.
7. Type a description, and add links relevant to the viz.
8. Choose **OK**.

Tip: To use Data Guide to write custom alt text to improve the accessibility of your vizzes, see Show more text and make it helpful.

Explore Data Guide as a dashboard user

1. From the dashboard, choose **Data Guide** in the toolbar.
2. Read the description of the dashboard and explore resources provided by the dashboard author.
3. Expand **Data in This Dashboard** and **Detected Outliers** to learn more about the underlying data used in the dashboard.
4. Select a viz (an object in the dashboard).
5. Read the description of the viz and explore resources provided by the dashboard author.
6. Expand **Data Summary** and **Detected Outliers** to learn more about data in that viz.
7. Select a mark or multiple marks, such as a bar on a chart or a region on a map, to see information about **Data in This Mark** and **Applied Filters**. Select a single mark to see possible **Explanations** for its value.


View: Original
Data Guide
Watch
Share
Profit
($7,491)
$18,598
State
☑ (All)
☑ Alabama
☑ Arkansas
☑ Florida
☑ Georgia
☑ Kentucky
☑ Louisiana
☑ Mississippi
☑ North Carolina
☑ South Carolina
☑ Tennessee
☑ Virginia
West Virginia
MD
DE
Data Guide

Profit in the South

Nancy Matthew published on Apr 26, 2023, 4:56 PM

Dashboard Details

This dashboard has details about profits in the Southern region only.

Watch this video to get started

Data in This Dashboard

Sample - Superstore

Detected Outliers

Tableau detected these marks as unusual compared to other marks in the same viz.

Low **Burlington, United States, North C...**
Sum of Profit: ($3,840)

Low **Jacksonville, United States, Florid...**
Sum of Profit: ($1,828)

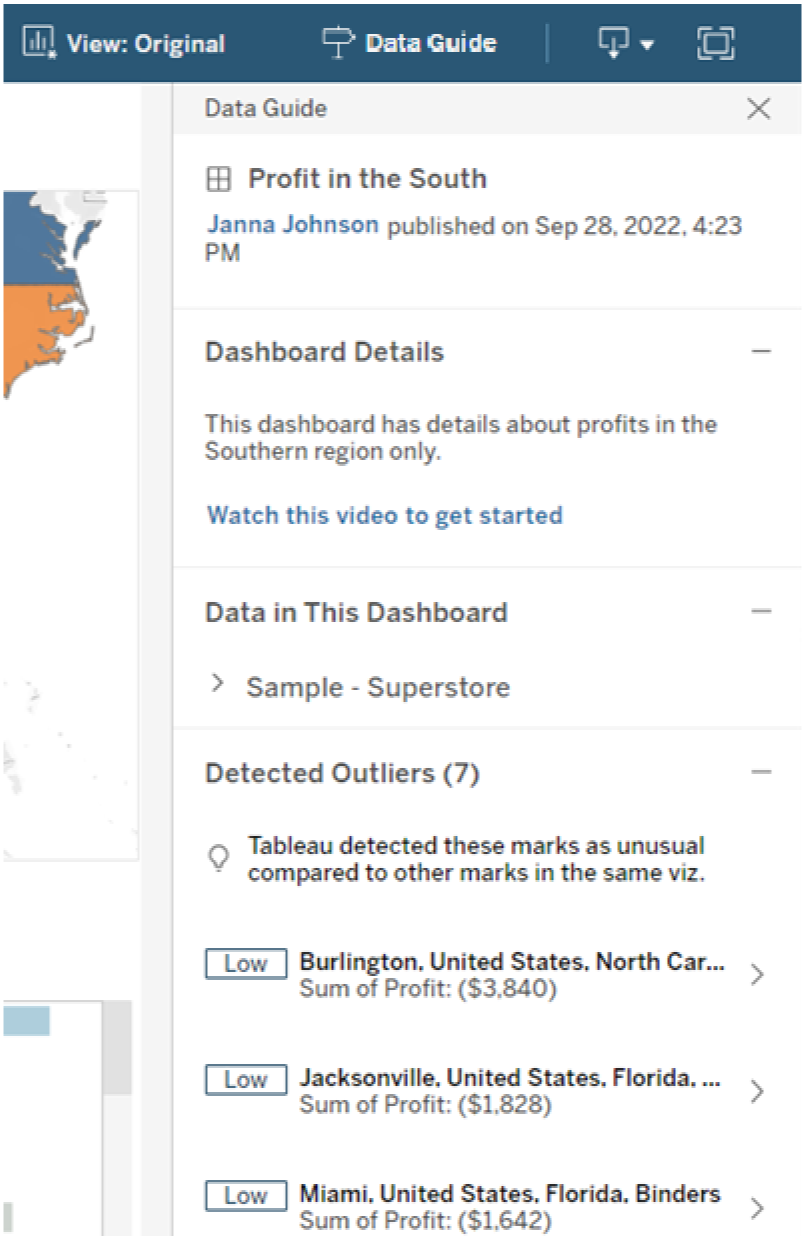
Explore Data Guide at different levels

By default, Data Guide is closed when you open a workbook. And you can open Data Guide in the toolbar. At the top of the Data Guide pane, you see the name of the dashboard or viz that you selected. As a dashboard author, you can write descriptions for both the dashboard and for individual vizzes that make up your dashboard.

Understand dashboard-level details

At the dashboard level, Data Guide:

- Displays the dashboard’s name, author, and last published date.
- Can include a description written by the dashboard author and links to related resources, such as videos or wiki pages.
- Lists the data sources used by the dashboard and details about the data, such as which dimensions and measures are used.
- Reveals detected outliers in the dashboard that are identified by Explain Data. For more information, see Get Started with Explain Data.



Data Guide

Profit in the South

Janna Johnson published on Sep 28, 2022, 4:23 PM

Dashboard Details

This dashboard has details about profits in the Southern region only.

Watch this video to get started

Data in This Dashboard

Sample - Superstore

Detected Outliers (7)

Tableau detected these marks as unusual compared to other marks in the same viz.

Low Burlington, United States, North Car...
Sum of Profit: ($3,840)

Low Jacksonville, United States, Florida, ...
Sum of Profit: ($1,828)

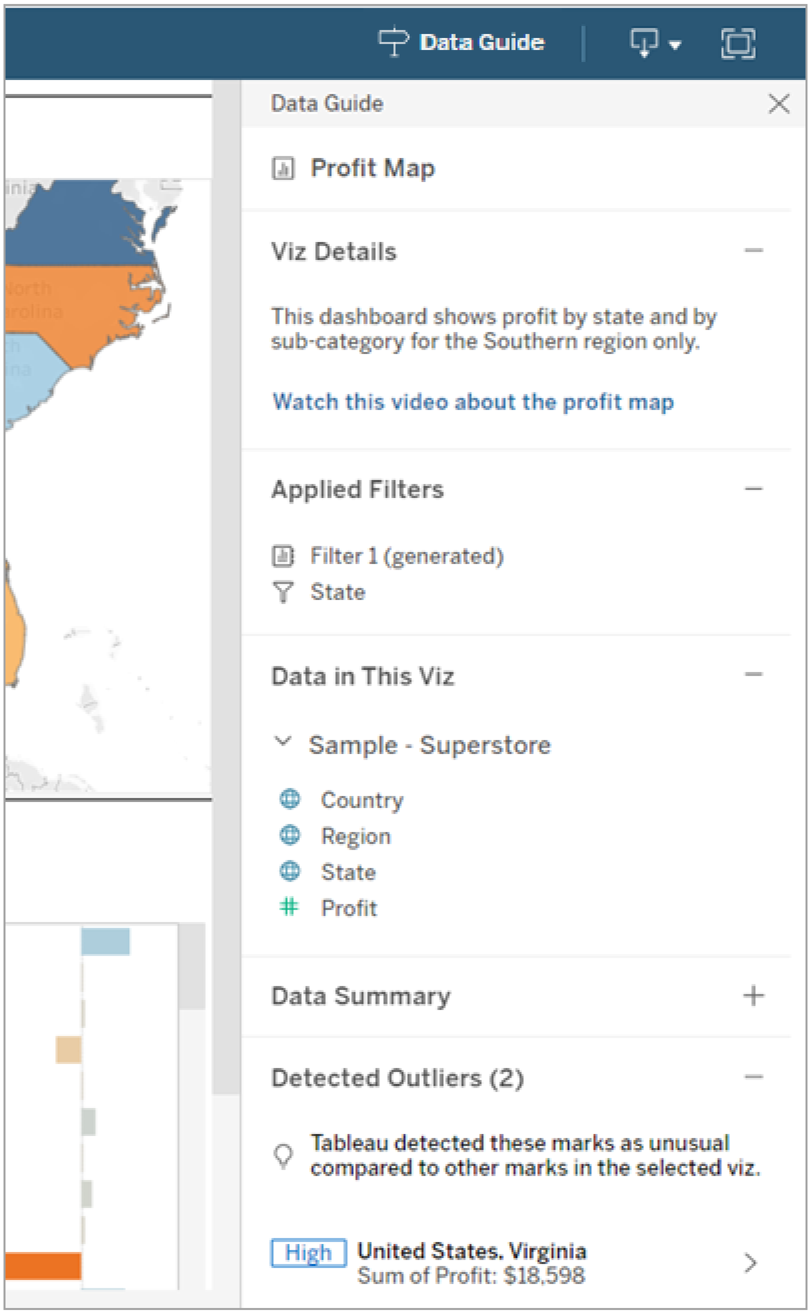
Low Miami, United States, Florida, Binders
Sum of Profit: ($1,642)

Understand viz-level details

When a user selects a specific viz (dashboard object), Data Guide:

- Displays the viz’s name.
- Can include a description written by the dashboard author and links to related resources, such as videos or wiki pages.

- Lists the data sources used by the dashboard, including the dimensions and measures used.
- Lists applied filters and data used in the viz, so you can identify how the data is being influenced by filters that users interact with. Only filters that a user can change are shown.
- Has a summary of the data used in the viz, including the number of data points and sorting details.
- Reveals detected outliers in the viz that are identified by Explain Data. For more information, see Get Started with Explain Data.



Data Guide

Profit Map

Viz Details

This dashboard shows profit by state and by sub-category for the Southern region only.

Watch this video about the profit map

Applied Filters

Filter 1 (generated)
State

Data in This Viz

Sample - Superstore

Country
Region
State
Profit

Data Summary

Detected Outliers (2)

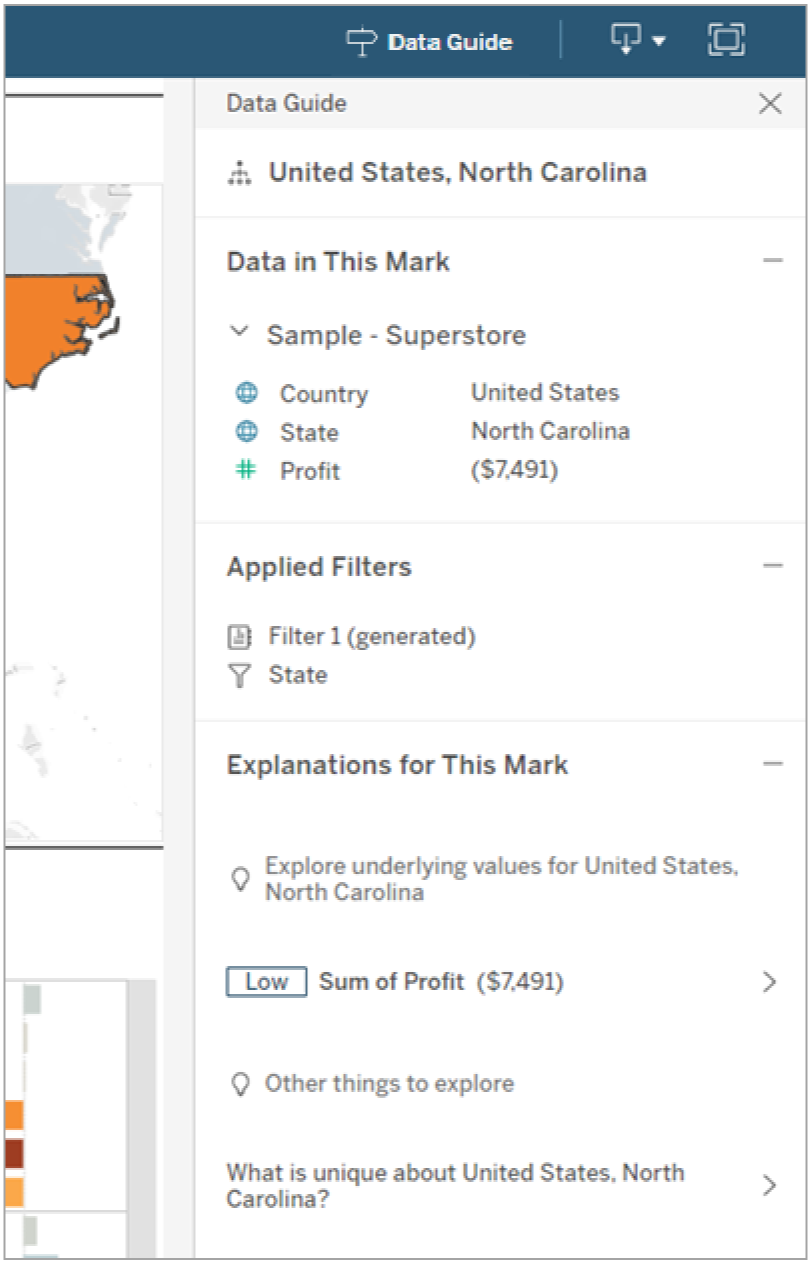
Tableau detected these marks as unusual compared to other marks in the selected viz.

High United States, Virginia
Sum of Profit: $18,598

Understand mark-level details

When a user selects a mark (or marks) such as region on a map, Data Guide:

- Displays the name of the mark.
- Lists applied filters and data used in the viz, so you know what's included and what's excluded.
- Reveals detected outliers in the viz that are identified by Explain Data. For more information, see Get Started with Explain Data.



United States, North Carolina

Data in This Mark

Sample - Superstore

Country	United States
State	North Carolina
Profit	($7,491)

Applied Filters

Filter 1 (generated)
State

Explanations for This Mark

Explore underlying values for United States, North Carolina

Low Sum of Profit ($7,491)

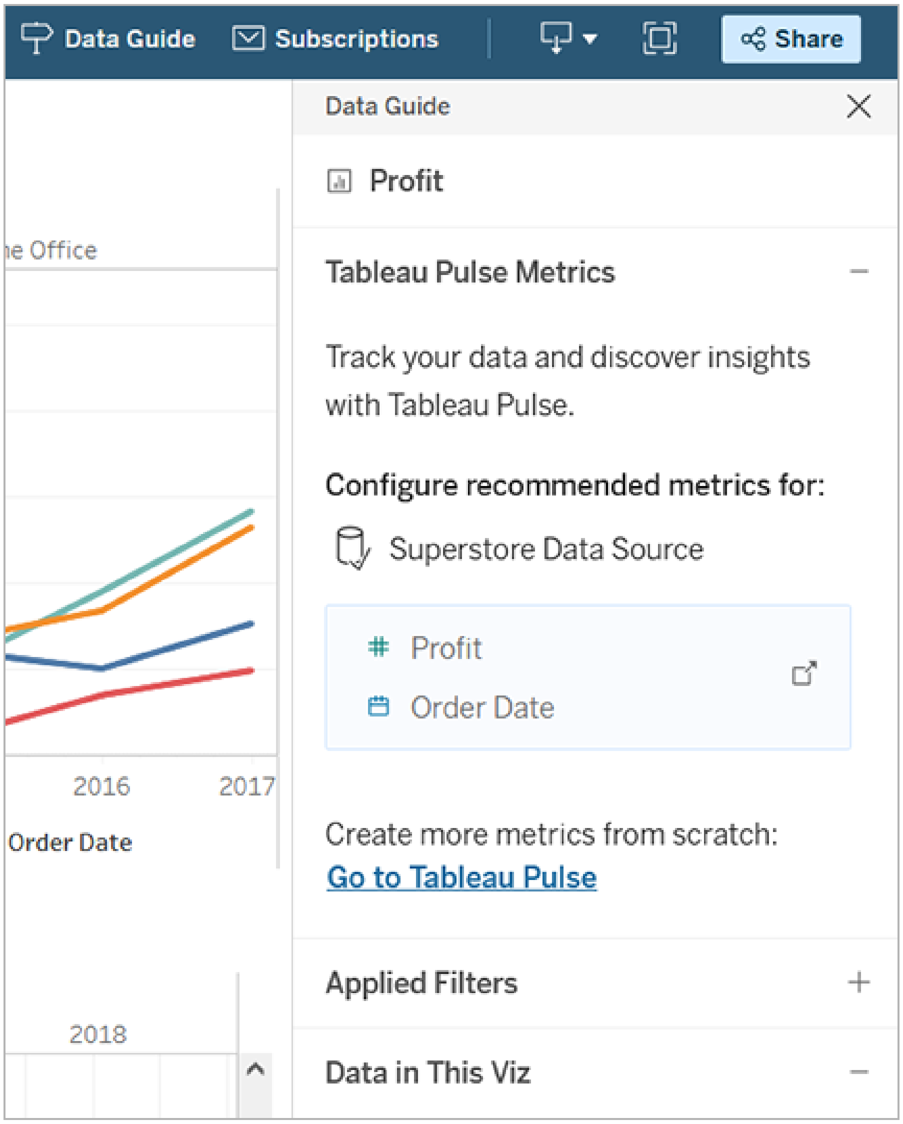
Other things to explore

What is unique about United States, North Carolina?

Get Tableau Pulse metric recommendations

In Tableau Cloud, when a user selects a viz, Data Guide shows recommended metrics based on the fields used in that viz. Users can select a recommendation to continue configuring it in Tableau Pulse. For more information, see Create Metrics with Tableau Pulse.

If there are no fields that can be recommended, but the data source used by the viz is a published data source, users can select the data source to connect to in Tableau Pulse. If Data Guide can't recommend metrics, fields, or a data source, users can still open Tableau Pulse to create metrics from scratch.



Data Guide

Profit

Tableau Pulse Metrics

Track your data and discover insights with Tableau Pulse.

Configure recommended metrics for:

Superstore Data Source

Profit

Order Date

Create more metrics from scratch:
Go to Tableau Pulse

Applied Filters

Data in This Viz

Control Data Guide visibility

By default, Data Guide is closed when you open a workbook. When you open or close Data Guide, it remains in this state for all workbooks on the site. In 2023.1 or later, a site administrator can hide Data Guide for all users. This removes the Data Guide button from the Tableau toolbar on all workbooks on the site. To hide Data Guide:

1. From the left pane, choose **Settings**.
2. From the **General** tab, scroll to **Availability of Data Guide**.

3. Choose **Hide**.
4. Choose **Save**.

Autosave Workbooks

In Tableau Cloud, Autosave saves the edits that you make to a new or existing workbook while you work.

How does Autosave work?

As soon as you start making changes to a new or existing workbook, we'll start to autosave the changes to a private draft version of your workbook. When you're ready to share your changes with others, use **Publish** to replace the last published revision with your draft.

> **Note:** Autosave doesn't automatically save every type of change, such as specific types of assets. In these cases, you'll see a notification that you must **Publish** your workbook to save your edits.

Workbook file size

Autosave is available for workbooks that are smaller than 5MB. You must **Publish** to manually save changes for larger workbook files.

What if multiple users edit the same workbook?

When more than one user works on the same workbook, each user's edits are associated with and saved to their own private draft. When you begin to edit a workbook, you'll receive a notification if the version you're working from has a published revision from another user. You're then offered a choice to either discard your draft and edit the current revision or to resume editing your private draft.

Warning: You won't receive a notification if another user publishes a revision after you've begun your edits to your private draft. If another user publishes their draft before you publish your version, your changes will overwrite theirs.

You can check the workbook **Revision History** to see when the workbook was last published. From the revision history, you can choose to **Preview** a revision, or **Restore** a previous revision. For more information, see Work with Content Revisions.

If you choose to discard your draft to edit the current revision, the draft and associated asset files that were uploaded are deleted. To retain assets and edits that you made in your private draft, you can manually incorporate the edits of other users into your private draft. Then, publish the workbook with both sets of changes.

Permissions requirement

Autosave is available to Creators and Explorers (can publish) with web editing capabilities at the workbook level. If a user has web editing capabilities at the view level only, Autosave won’t be turned on.

Spell Check (Tableau Cloud and Tableau Server Only)

As of Tableau 2024.2, you can use your web browser's built-in spell check functionality to identify spelling errors and find correct spelling suggestions on your text content on the following rich text authoring components in Tableau:

- Tooltips
- Captions
- Worksheet Titles
- Dashboard Titles
- Dashboard Descriptions
- Legend Titles
- Filter Control Titles
- Parameter Control Titles
- Annotations

- Highlighter Control Titles
- Pages Control Titles
- Story Titles
- Story Descriptions
- Mark Labels
- Viz Alt Text
- Field Comments
- Edit Groups and Alias Dialog

When entering text in these rich authoring components, words that are identified as a possible spelling error will be flagged. For example, if you're using Google Chrome or Safari, the words are underlined with a red, squiggly line. You can right-click the word and see a list of spelling suggestions from your web browser.

Spell check isn’t currently supported for Tableau attributes, such as creating custom field names using SQL elements.

As this feature is powered by your web browser, there may be slight variations in the appearance and spelling recommendations provided by the browser. If your text is being flagged incorrectly, you can add words to your web browser's local word library.

The web browser that you're using determines whether the feature is turned on and which languages are supported. If you'd like to turn off spell check you can do it through your web browser's spell check settings.

Supported browsers and languages

Tableau is available in the following languages: English (US), English (UK), Dutch, French (France), French (Canada), German, Italian, Spanish, Brazilian Portuguese, Swedish, Japanese, Korean, Traditional Chinese, Simplified Chinese, and Thai.

Because this feature is powered by your web browser, be sure to check your browser's documentation to confirm that the browser supports spell check in your chosen language.

Use Relationships for Multi-table Data Analysis

Tables that you drag into this canvas use relationships. Relationships are a flexible way to combine data for multi-table analysis in Tableau.

Think of a relationship as a contract between two tables. When you are building a viz with fields from these tables, Tableau brings in data from these tables using that contract to build a query with the appropriate joins.

We recommend using relationships as your first approach to combining your data because it makes data preparation and analysis easier and more intuitive. Use joins only when you absolutely need to. Learn more about the basics of creating relationships in this 5-minute video.

> **Note**: The interface for editing relationships shown in this video differs slightly from the current release but has the same functionality.

Learn more about how relationships work in these Tableau blog posts:

- Relationships, part 1: Introducing new data modeling in Tableau
- Relationships, part 2: Tips and tricks
- Relationships, part 3: Asking questions across multiple related tables

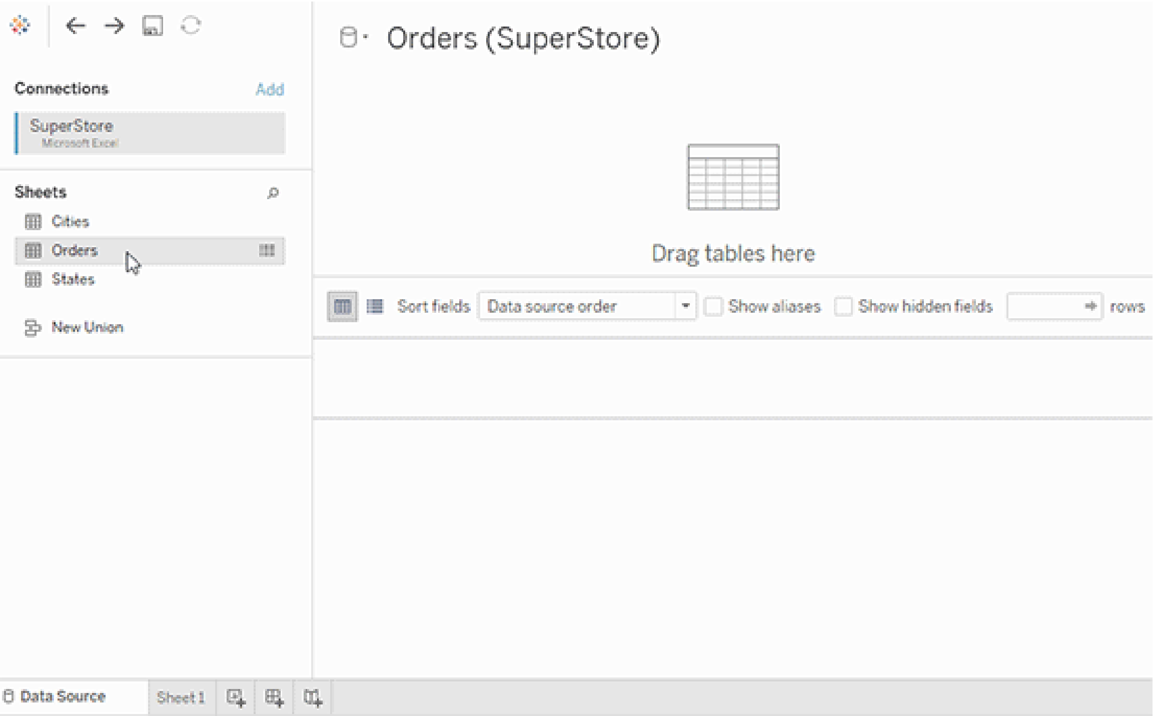
Also see video podcasts on relationships from Action Analytics, such as Why did Tableau Invent Relationships? Click "Video Podcast" in the Library to see more.

In Tableau version 2024.2 and later, the Tableau data model supports multi-fact analysis and shared dimensions through multi-fact relationships. For more information, see About Multi-fact Relationship Data Models, When to Use a Multi-fact Relationship Model, and Build a Multi-fact Relationship Data Model.

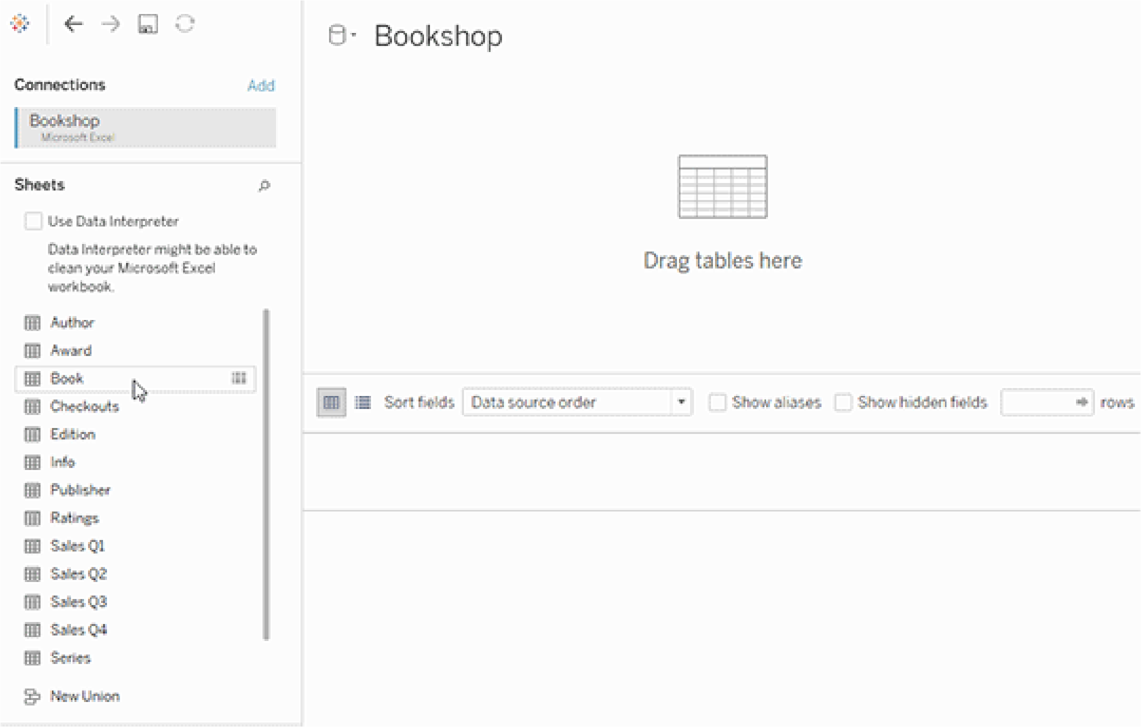
Are you building a new data source and workbook?

Drag a table to the Data Source page canvas to start building your data source.

A data source can be made of a single table that contains all of the dimension and measure fields you need for analysis...


Orders (SuperStore)
Connections
Add
SuperStore
Microsoft Excel
Sheets
Cities
Orders
States
New Union
Drag tables here
Sort fields
Data source order
Show aliases
Show hidden fields
rows
Data Source
Sheet 1

Or, you can create a multi-table data source by dragging out more tables and defining their relationships...


Connections
Add
Bookshop
Microsoft Excel
Sheets
☐ Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.
Author
Award
Book
Checkouts
Edition
Info
Publisher
Ratings
Sales Q1
Sales Q2
Sales Q3
Sales Q4
Series
New Union
Bookshop
Drag tables here
Sort fields
Data source order
☐ Show aliases
☐ Show hidden fields
rows

Watch this 1-minute video about getting started with using relationships.

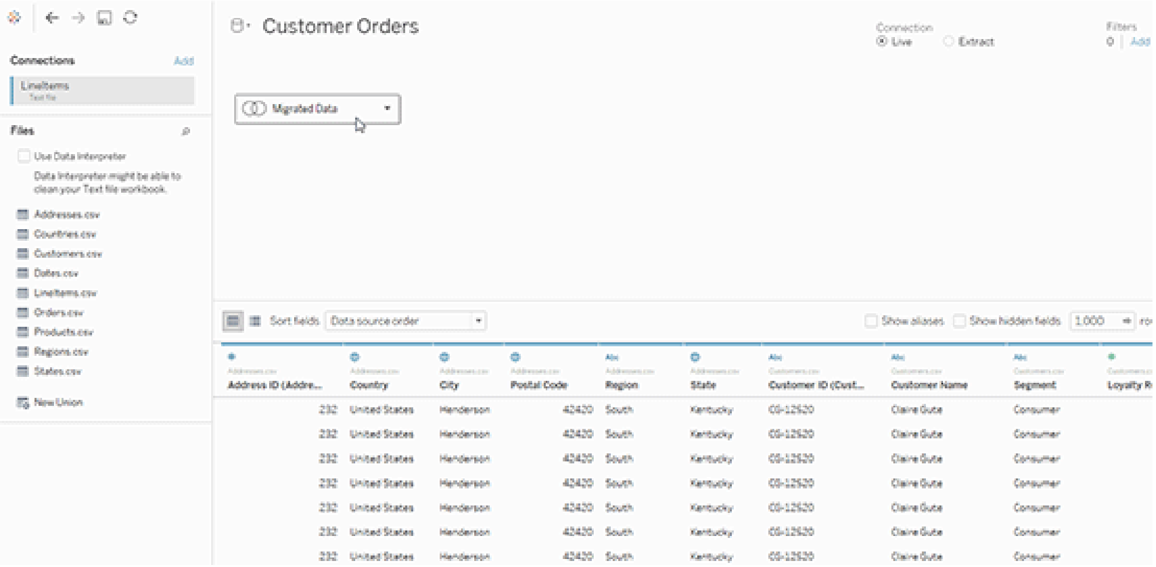
> **Note**: The interface for editing relationships shown in this video differs slightly from the current release but has the same functionality.

For more information about using relationships, see Relate Your Data, How Relationships Differ from Joins, The Tableau Data Model, and Create and define relationships.

For more information on changes to data sources and analysis in Tableau 2020.2 and later, see What's Changed with Data Sources and Analysis and Questions about Relationships, the Data Model, and Data Sources.

Are you opening an older workbook or data source?

When you open a pre-2020.2 workbook or data source in 2020.2, your data source will appear as a single logical table in the canvas, with the name "Migrated Data" or the original table name. Your data is preserved and you can continue to use the workbook as you did before.


Customer Orders
Connections
Add
LineItems
Text file
Files
Use Data Interpreter
Data Interpreter might be able to clean your Text file workbook.
Addresses.csv
Countries.csv
Customers.csv
Dates.csv
LineItems.csv
Orders.csv
Products.csv
Regions.csv
States.csv
New Union
Migrated Data
Filters
Add
Show aliases
Show hidden fields

☐ Use Data Interpreter

Connection ● Live ○ Extract

Filters 0

Sort fields: Data source order

☐ Show aliases ☐ Show hidden fields 1,000

Address ID (Addre...	Country	City	Postal Code	Region	State	Customer ID (Cust...	Customer Name	Segment	Loyalty R
232	United States	Henderson	42420	South	Kentucky	CG-12520	Claire Gute	Consumer	
232	United States	Henderson	42420	South	Kentucky	CG-12520	Claire Gute	Consumer	
232	United States	Henderson	42420	South	Kentucky	CG-12520	Claire Gute	Consumer	
232	United States	Henderson	42420	South	Kentucky	CG-12520	Claire Gute	Consumer	
232	United States	Henderson	42420	South	Kentucky	CG-12520	Claire Gute	Consumer	
232	United States	Henderson	42420	South	Kentucky	CG-12520	Claire Gute	Consumer	
232	United States	Henderson	42420	South	Kentucky	CG-12520	Claire Gute	Consumer	

To see the physical tables that make up the single logical table, double-click that logical table to open it in the physical layer. You will see its underlying physical tables, including joins and unions.

For more information on changes to data sources and analysis in Tableau 2020.2 and later, see What's Changed with Data Sources and Analysis and Questions about Relationships, the Data Model, and Data Sources.

The Tableau Data Model

Every data source that you create in Tableau has a data model. You can think of a data model as a diagram that tells Tableau how it should query data in the connected database tables.

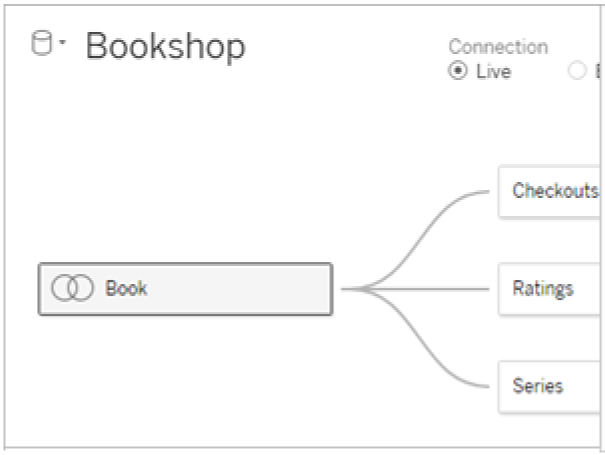
The tables that you add to the canvas in the **Data Source** page create the structure of the data model. A data model can be simple, such as a single table. Or it can be more complex, with multiple tables that use different combinations of relationships, joins, and unions.

The data model has two layers:

- The default view that you first see in the Data Source page canvas is the *logical layer* of the data source. You combine data in the logical layer using relationships (or noodles). Think of this layer as the Relationships canvas in the Data Source page. For more information, see Use Relationships for Multi-table Data Analysis.
- The next layer is the *physical layer*. You combine data between tables at the physical layer using joins and unions. Each logical table contains at least one physical table in this layer. Think of the physical layer as the Join/Union canvas in the Data Source page. Double-click a logical table to view or add joins and unions.

Logical Layer

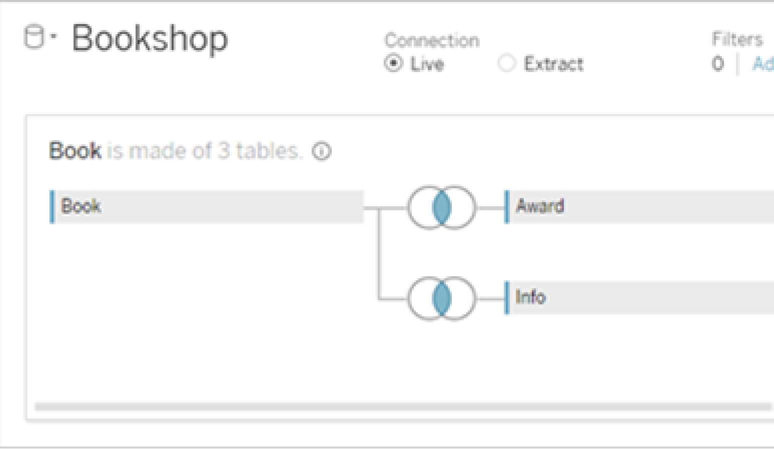
Noodles = Relationships


Bookshop
Connection
Live
Book
Checkouts
Ratings
Series

The top-level view of a data source with multiple, related tables. This is the logical layer. Logical tables can be combined using relationships (noodles). They don't use join types. They act like containers for physical tables.

Physical Layer

Venn diagram = Joins


Bookshop
Connection
Live
Extract
Filters
0
Book is made of 3 tables.
Book
Award
Info

Double-click a logical table to open it and see its physical tables. Physical tables can be combined using joins or unions. In this example, the Book logical table is made of three, joined physical tables (Book, Award, Info).

Logical Layer	Physical Layer
Relationships canvas in the Data Source page	Join/Union canvas in the Data Source page
Tables that you drag here are called logical tables	Tables that you drag here are called physical tables
Logical tables can be related to other logical tables	Physical tables can be joined or unioned to other physical tables
Logical tables are like containers for physical tables	Double-click a logical table to see its physical tables
Level of detail is at the row level of the logical table	Level of detail is at the row level of merged physical tables
Logical tables remain distinct (normalized), not merged in the data source	Physical tables are merged into a single, flat table that defines the logical table

Layers of the data model

The top-level view that you see of a data source is the logical layer of the data model. You can also think of it as the Relationships canvas, because you combine tables here using relationships instead of joins.

When you combine data from multiple tables, each table that you drag to the canvas in the logical layer must have a relationship to another table. You do not need to specify join types for relationships; during analysis Tableau automatically selects the appropriate join types based on the fields and context of analysis in the worksheet.

The physical layer of the data model is where you can combine data using joins and unions. You can only use pivots in this canvas. You can think of it as the Join/Union canvas. In previous versions of Tableau, the physical layer was the only layer in the data model. Each logical table can contain one or more physical tables.

Important: You can still create single-table data sources in Tableau that use joins and unions. The behavior of single-table analysis in Tableau has not changed. Your upgraded workbooks will work the same as they did before 2020.2.

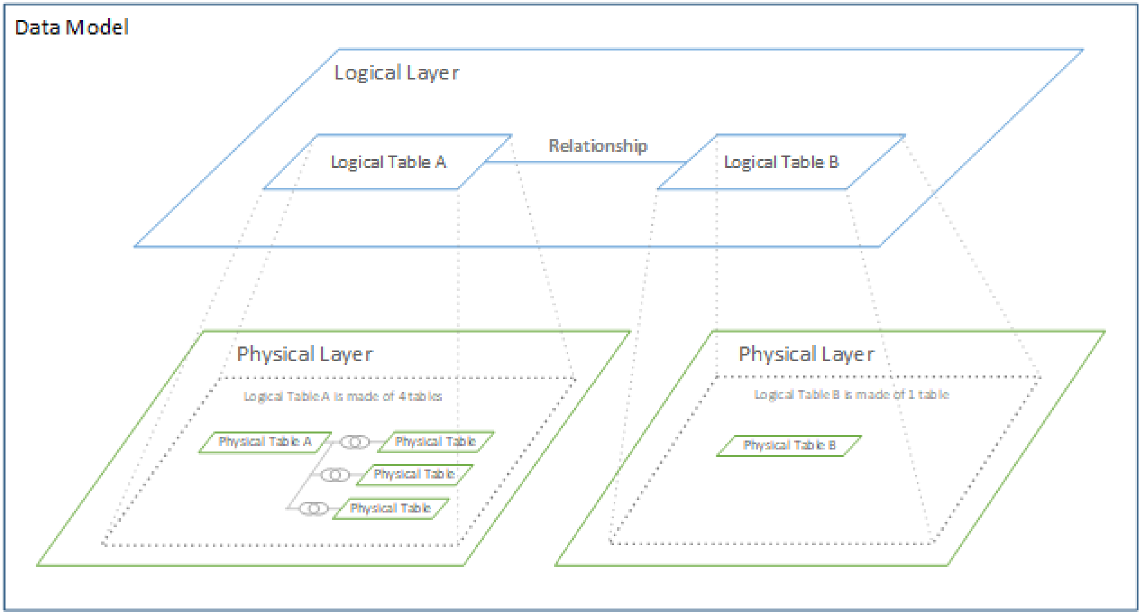
Learn more: For related information on combining data using relationships, also see these topics and blog posts:

- How Relationships Differ from Joins
- Use Relationships for Multi-table Data Analysis
- Relate Your Data
- Relationships, part 1: Introducing new data modeling in Tableau
- Relationships, part 2: Tips and tricks
- Relationships, part 3: Asking questions across multiple related tables

Also see video podcasts on relationships from Action Analytics, such as Why did Tableau Invent Relationships? Click "Video Podcast" in the Library to see more.

Understanding the data model

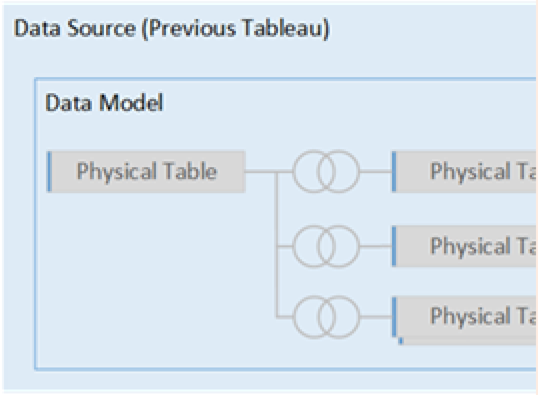
In previous versions of Tableau (pre-2020.2), the data model had a physical layer only. In Tableau 2020.2 and later, the data model has the logical (semantic) layer and a physical layer. This gives you more options for combining data using schemas to fit your analysis.


Data Model
Logical Layer
Logical Table A
Relationship
Logical Table B
Physical Layer
Logical Table A is made of 4 tables
Physical Table A
Physical Table
Physical Table
Physical Table
Physical Layer
Logical Table B is made of 1 table
Physical Table B

In Tableau 2020.2 and later, a logical layer has been added in the data source. Each logical table contains physical tables in a physical layer.

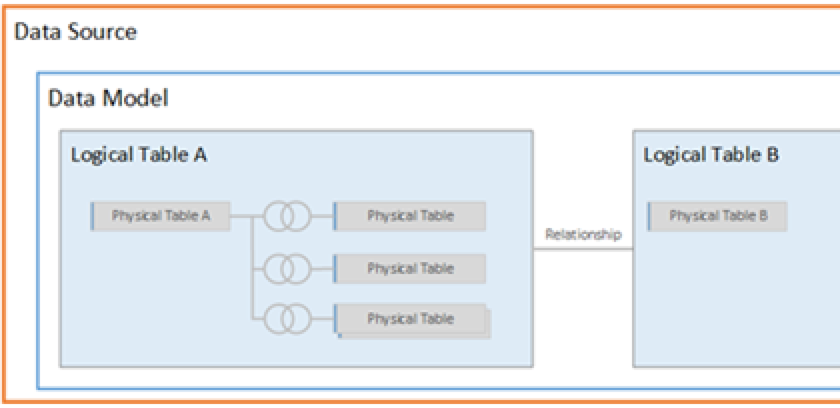
In earlier versions of Tableau (pre-2020.2), the data model in your data source consisted of a single, physical layer where you could specify joins and unions. Tables added to the physical layer (joined or unioned) create a single, flattened table (denormalized) for analysis.

Previous versions


Data Source (Previous Tableau)
Data Model
Physical Table
Physical Ta
Physical Ta
Physical Ta

In versions of Tableau before 2020.2, the data model has only the physical layer

2020.2 and later


Data Source
Data Model
Logical Table A
Physical Table A
Physical Table
Physical Table
Physical Table
Relationship
Logical Table B
Physical Table B

In 2020.2 and later, the data model has two layers: the logical layer and the physical layer

In Tableau 2020.2 and later, the data model in your data source includes a new semantic layer above the physical layer—called the logical layer—where you can add multiple tables and relate them to each other. Tables at the logical layer are not merged in the data source, they remain distinct (normalized), and maintain their native level of detail.

Logical tables act like containers for merged physical tables. A logical table can contain a single, physical table. Or it can contain multiple physical tables merged together through joins or unions.

Build a new model

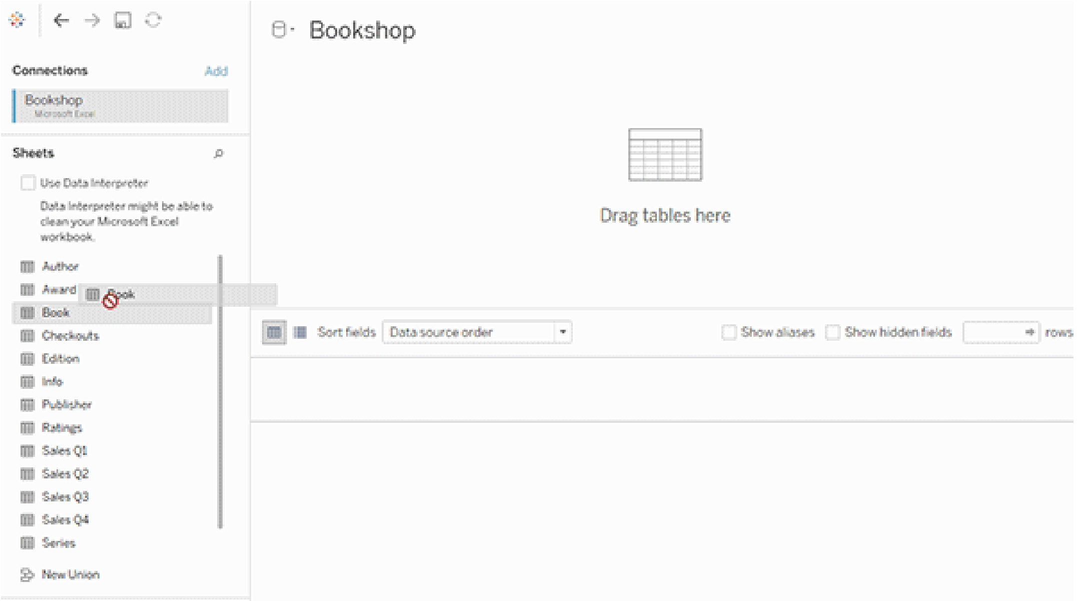
When you add one or more tables to the logical layer, you are essentially building the data model for your data source. A data source can be made of a single, logical table, or you can drag multiple tables to the canvas to create a more complex model.

- The first table that you drag to the canvas becomes the root table for the data model in your data source.
- After you drag out the root table, you can drag out additional tables in any order. You will need to consider which tables should be related to each other, and the matching field pairs that you define for each relationship.
- If you are creating a star schema, it can be helpful to drag the fact table out first, and then relate dimension tables to that table.
- Deleting a table in the canvas automatically deletes its related descendants as well. If you delete the root table, all other tables in the model are also removed.
- Each relationship must be made of at least one matched pair of fields. Add multiple field pairs to create a compound relationship. Matched pairs must have the same data type. Changing the data type in the Data Source page does not change this requirement. Tableau will still use the data type in the underlying database for queries.
- Relationships can be based on calculated fields.
- You can specify how fields used in the relationships should be compared by using operators when you define the relationship.

For more information about relationships, see Create and define relationships in Relate Your Data.

Multi-table model

- To create a multi-table model, drag tables to the logical layer of the Data Source page canvas.


Bookshop
Connections
Add
Bookshop
Microsoft Excel
Sheets
Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.
Author
Award
Book
Book
Checkouts
Edition
Info
Publisher
Ratings
Sales Q1
Sales Q2
Sales Q3
Sales Q4
Series
New Union
Drag tables here
Sort fields
Data source order
Show aliases
Show hidden fields
rows

Tables that you drag to the logical layer of the Data Source page canvas must be related to each other. When you drag additional tables to the logical layer canvas, Tableau automatically attempts to create the relationship based on existing key constraints and matching fields to define the relationship. If it can't determine the matching fields, you will need to select them.

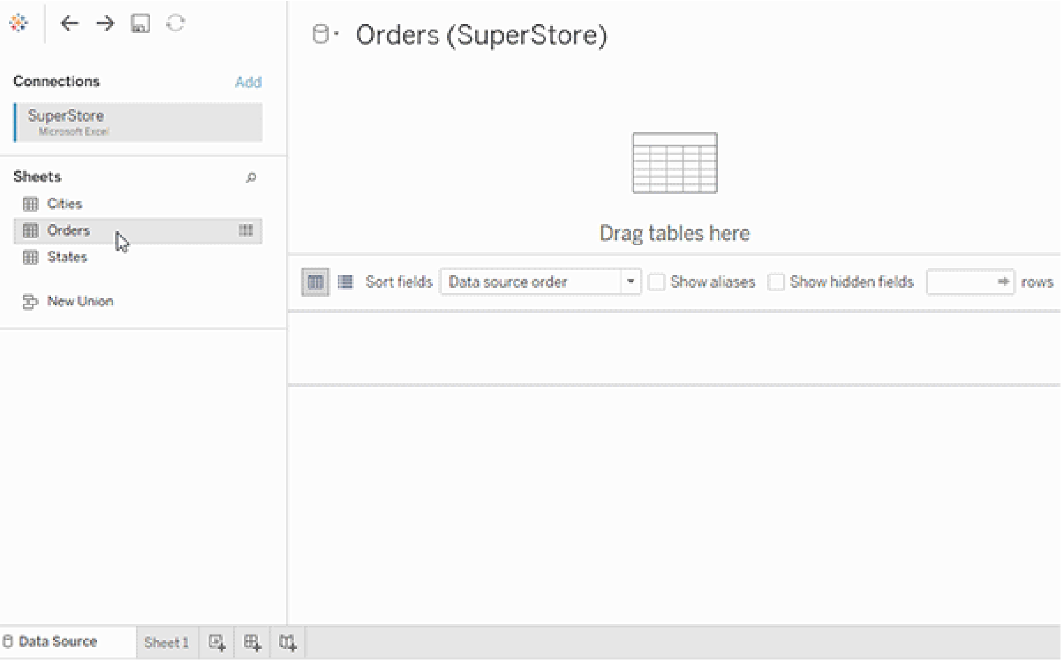
If no constraints are detected, a **Many-to-many** relationship is created and referential integrity is set to **Some records match**. These default settings are a safe choice and provide the most a lot of flexibility for your data source. The default settings support full outer joins and optimize queries by aggregating table data before forming joins during analysis. All column and row data from each table becomes available for analysis.

You can add more data inside any logical table by double-clicking the table. This opens the physical layer of the Data Source page canvas. If you need to use joins or unions, you can drag the tables you want to join or union into the physical layer canvas. The physical tables are merged in their logical table.

Follow the steps in Create and define relationships to combine multiple tables.

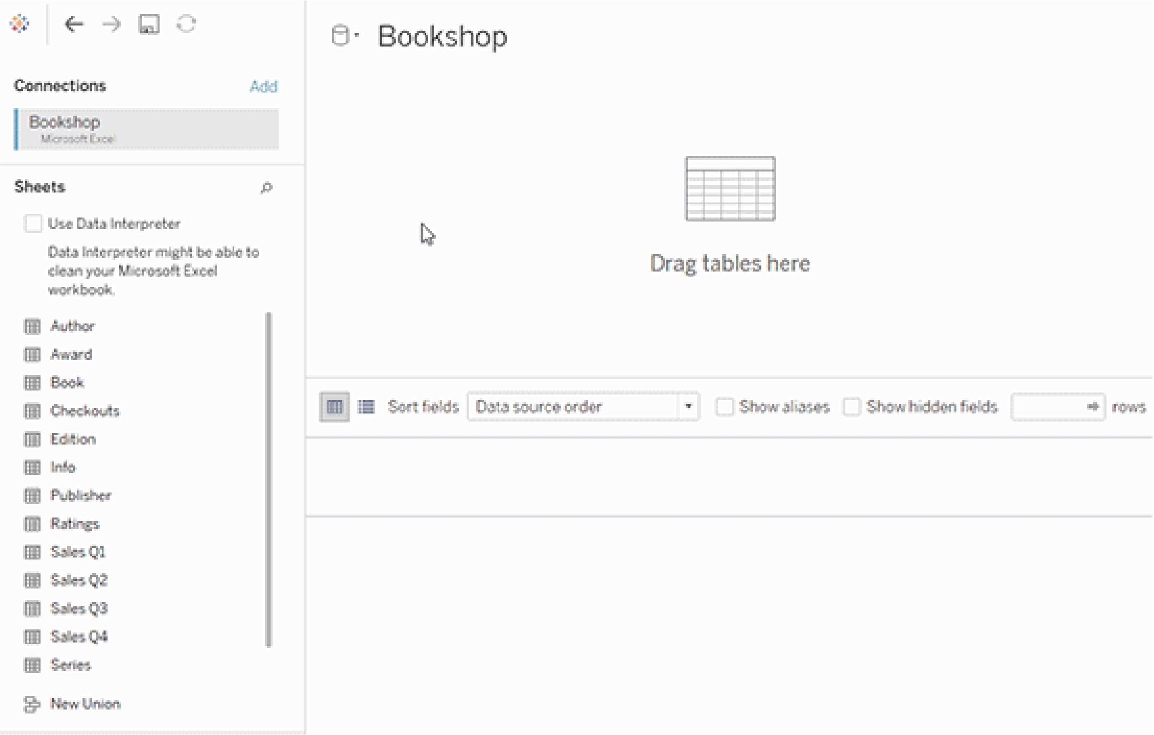
Single-table model

- To create a single-table model, drag a table into the logical layer canvas of the Data Source page. You can then use the fields from that table in the Data pane for analysis.


Orders (SuperStore)
Connections
Add
SuperStore
Microsoft Excel
Sheets
Cities
Orders
States
New Union
Drag tables here
Sort fields
Data source order
Show aliases
Show hidden fields
rows
Data Source
Sheet 1

Single-table model that contains other tables

You can add more data inside the single, logical table by double-clicking the table. This opens the physical layer of the Data Source page canvas. If you need to use joins or unions, you can drag the tables you want to join or union into the physical layer canvas. The physical tables are merged in their logical table.


Bookshop
Connections
Add
Bookshop
Microsoft Excel
Sheets
☐ Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.
Author
Award
Book
Checkouts
Edition
Info
Publisher
Ratings
Sales Q1
Sales Q2
Sales Q3
Sales Q4
Series
New Union
Drag tables here
Sort fields
Data source order
☐ Show aliases
☐ Show hidden fields
rows

This example shows the Book table in the Relationships canvas (logical layer) of the data source. Double-clicking the Book logical table opens the Join/Union canvas (physical layer).

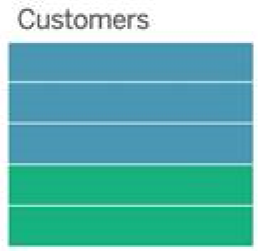
In this example, the joins merge the Award and Info tables with the Book table. In this case, the join between Book and Award will be one-to-many, at the level of detail of awards. This would duplicate measure values for Book and Info. To avoid duplication, you could relate Award and Info to Book instead of joining them inside of the Book logical table.

Supported data model schemas

The data modeling capabilities in Tableau (version 2020.2 and later) are designed to make analysis over common multi-table data scenarios—including star and snowflake data models—easy. The following types of models are supported in Tableau data sources.

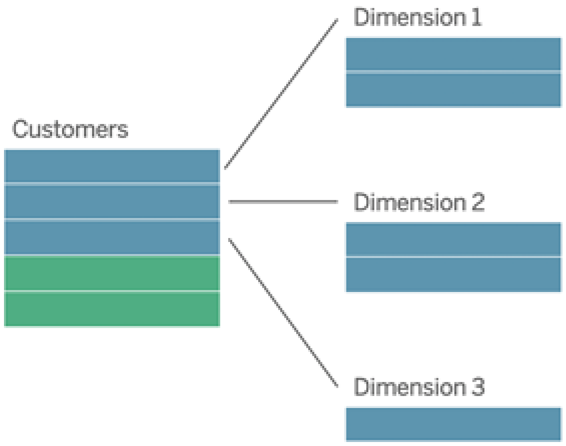
Single-table

Analysis over a single logical table that contains a mixture of dimensions and measures works just as in Tableau pre-2020.2. You can build a logical table using a combination of joins, unions, custom SQL, and so on.



Star and snowflake

In enterprise data warehouses, it is common to have data structured in star or snowflake schemas where measures are contained in a central fact table and dimensions are stored separately in independent dimension tables. This organization of data supports many common analysis flows including rollup and drill down.



These models can be directly represented with relationships in the data modeling capabilities available in Tableau 2020.2 and later.

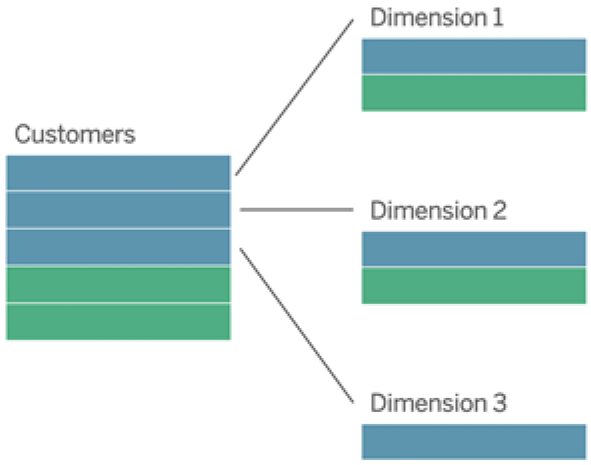
Drag the fact table into the model first and then relate the dimension tables to the fact table (in a star schema) or to other dimension tables (in a snowflake).

Typically, in a well-modeled star or snowflake schema, the relationships between the fact table and the dimension tables will be many-to-one. If this information is encoded in your data warehouse, Tableau will automatically use this to set the relationship’s Performance Options. If not, you can set this information yourself. For more information, see Optimize Relationship Queries Using Performance Options.

In a well-modeled star or snowflake schema, every row in the fact table will have a matching entry in each of the dimension tables. If this is true and captured in your data warehouse integrity constraints, Tableau will automatically use this information to set the referential integrity setting in Performance Options. If some fact table rows do not have a matching row in a dimension table (sometimes called “late-arriving dimensions” or “early-arriving facts”), Tableau will default to retaining all rows when computing measures, but may drop values when showing dimension headers. For more information, see Optimize Relationship Queries Using Performance Options.

Star and snowflake with measures in more than one table

In some star or snowflake schemas, all the measures for your analysis are contained in the fact table. However, it is often true that additional measures of interest may be related to the dimension tables in your analysis. Even if the dimension tables do not contain measures, it is common in analysis to want to count or otherwise aggregate dimension values. In these cases, the distinction between fact tables and dimension tables is less clear. To create clarity when viewing your data model, we recommended adding the finest grain table to the data source canvas first, and then relating all other tables to that first table.



If you were to join these tables together into a single logical table, the measures in the dimension tables would be replicated, resulting in distorted aggregates unless you took precautions to deduplicate the values using LOD calculations or COUNT DISTINCT. However, if you instead create relationships between these tables, Tableau will aggregate measures before performing joins, avoiding the problem of unnecessary duplication. This relieves you of the need to carefully track the level of detail of your measures.

Multi-fact analysis

In version 2024.2 and later, Tableau's data modeling capabilities support multi-fact analysis through the use of multi-fact relationships. For in-depth information on how to create multi-fact relationships data models, see:

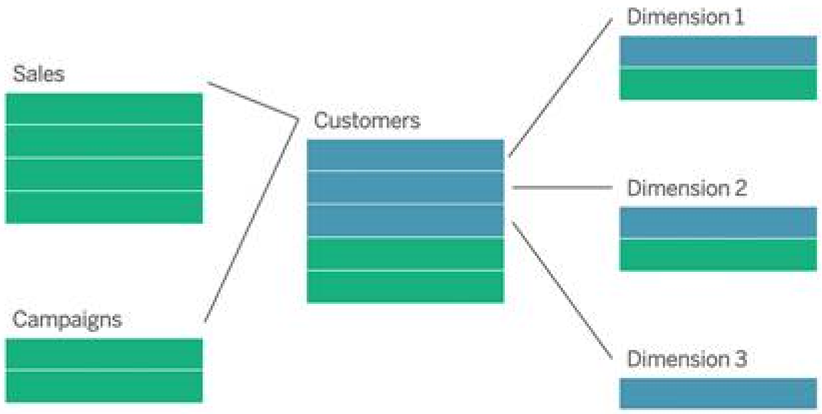
- About Multi-fact Relationship Data Models
- When to Use a Multi-fact Relationship Model
- Build a Multi-fact Relationship Data Model

A multi-fact relationship model—a data model with multiple base tables—permits unrelated tables in the model when shared tables also exist in the model. During analysis, fields from a shared table "stitch" together otherwise unrelated tables of data based on the shared dimensions they have in common (such as happening in the same place or at the same time). All the benefits of relationships are maintained, including the retention of each table's grain, or native level of detail.

Similar to a single base table data model, Tableau determines the best join type to use behind the scenes based on the structure of the viz. But in a multi-fact relationship model, the join options are expanded to include outer and cross joins to handle different levels of relatedness. For more information, see About Multi-fact Relationship Data Models.

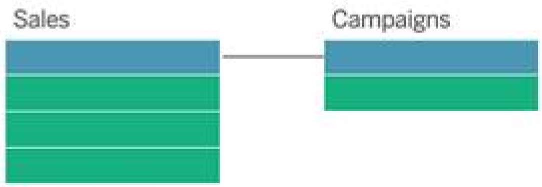
Note: In versions 2020.2 through 2024.1, you can add fact tables (containing measures) to star and snowflake models only if they are related to a single dimension table.

For example, you can bring two or more fact tables together to analyze a shared dimension, such as in Customer 360-like analyses. These fact tables can be at a different level of detail than the dimension table, or from each other. They can also have a many-to-many relationship with the dimension table. In these scenarios, Tableau will ensure that values are not replicated before aggregation.



If you don’t have a shared dimension table that relates your fact tables, you can sometimes dynamically build one using custom SQL or by using joins or unions of other dimension tables.

Two fact tables can be related directly to each other on a common dimension. This type of analysis works best when one of the fact tables contains a superset of the common dimension.



There are various scenarios that may indicate you should build a multi-fact relationship model with multiple base tables rather than a single base table data source:

- **Circular relationships**. Circular relationships are not supported. If you're trying to build a data source with a cycle, use multi-fact relationships and make the downstream table another base table instead.
- **Conformed dimensions** and **Contextual OR relationships**. If you have a series of tables that are related on the same sets of relationship clauses (such as date and location), those dimensions should be pulled out and made into shared tables instead.
  - This is especially useful because multiple relationship clauses must all be true (logically, an AND) for the tables to be related for those records.
  - If, instead, you want to analyze records where one may be true at a time (a contextual OR), this flexibility is provided by setting up a data model with shared dimension tables instead.
- **Equivalent blends**. If you're using a blend but want to have an equivalent blend without primary and secondary data sources, build a data model that combines the data sources from the blend with their linking fields in a shared table or tables.

Requirements for relationships in a data model

- When relating tables, the fields that define the relationships must have the same data type. Changing the data type in the Data Source page does not change this requirement. Tableau will still use the data type in the underlying database for queries.
- You can't define relationships based on geographic fields.
- Circular relationships aren't supported in the data model.
- You can't define relationships between published data sources.

Factors that limit the benefits of using related tables

- Dirty data in tables (i.e. tables that weren't created with a well-structured model in mind and contain a mix of measures and dimensions in multiple tables) can make multi-table analysis more complex.

- Using data source filters will limit Tableau's ability to do join culling in the data. Join culling is a term for how Tableau simplifies queries by removing unnecessary joins.
- Tables with a lot of unmatched values across relationships.
- In versions 2020.2 through 2024.1: Interrelating multiple fact tables with multiple dimension tables (attempting to model shared or conformed dimensions). In version 2024.2 and later, you can use multi-fact relationships to address these cases.

How Relationships Differ from Joins

Relationships are a dynamic, flexible way to combine data from multiple tables for analysis. You don’t define join types for relationships, so you won’t see a Venn diagram when you create them.

Think of a relationship as a contract between two tables. When you are building a viz with fields from these tables, Tableau brings in data from these tables using that contract to build a query with the appropriate joins.

- **No up-front join type**. You only need to select matching fields to define a relationship (no join types). Tableau first attempts to create the relationship based on existing key constraints and matching field names. You can then check to ensure they are the fields you want to use, or add more field pairs to better define how the tables should be related.
- **Automatic and context-aware**. Relationships defer joins to the time and context of analysis. Tableau automatically selects join types based on the fields being used in the visualization. During analysis, Tableau adjusts join types intelligently and preserves the native level of detail in your data. You can see aggregations at the level of detail of the fields in your viz rather than having to think about the underlying joins. You don't need to use LOD expressions such as FIXED to deduplicate data in related tables.
- **Flexible**. Relationships can be many-to-many and support full outer joins. When you combine tables using relationships, it’s like creating a custom, flexible data source for every viz, all in a single data source for the workbook. Because Tableau queries only tables that are needed based on fields and filters in a viz, you can build a data source that can be used for a variety of analytic flows.

For more information, see Relate Your Data and Don’t Be Scared of Relationships.

Joins are still available as an option for combining your data. Double-click a logical table to go to the join canvas. For more information, see Where did joins go?

Watch a video: For an introduction to using relationships in Tableau, see this 5-minute video.

Note: The interface for editing relationships shown in this video might differ slightly from the current release but has the same functionality.

Also see video podcasts on relationships from Action Analytics, such as Why did Tableau Invent Relationships? Click "Video Podcast" in the Library to see more.

For related information about how relationship queries work, see these Tableau blog posts:

- Relationships, part 1: Introducing new data modeling in Tableau
- Relationships, part 2: Tips and tricks
- Relationships, part 3: Asking questions across multiple related tables

Characteristics of relationships and joins

Relationships are a dynamic, flexible way to combine data from multiple tables for analysis. We recommend using relationships as your first approach to combining your data because it makes data preparation and analysis easier and more intuitive. Use joins only when you absolutely need to.

Here are some advantages to using relationships to combine tables:

- Make your data source easier to define, change, and reuse.
- Make it easier to analyze data across multiple tables at the correct level of detail (LOD).
- Do not require the use of LOD expressions or LOD calculations for analysis at different levels of detail.
- Only query data from tables with fields used in the current viz.

Relationships

- Are displayed as flexible noodles between logical tables
- Require you to select matching fields between two logical tables

- Do not require you to select join types
- Make all row and column data from related tables potentially available in the data source
- Maintain each table's level of detail in the data source and during analysis
- Create independent domains at multiple levels of detail. Tables aren't merged together in the data source.
- During analysis, create the appropriate joins automatically, based on the fields in use.
- Do not duplicate aggregate values (when Performance Options are set to Many-to-Many)
- Keep unmatched measure values (when Performance Options are set to Some Records Match)

Joins

Joins are a more static way to combine data. Joins must be defined between physical tables up front, before analysis, and can't be changed without impacting all sheets using that data source. Joined tables are always merged into a single table. As a result, sometimes joined data is missing unmatched values, or duplicates aggregated values.

- Are displayed with Venn diagram icons between physical tables
- Require you to select join types and join clauses
- Joined physical tables are merged into a single logical table with a fixed combination of data
- May drop unmatched measure values
- May duplicate aggregate values when fields are at different levels of detail
- Support scenarios that require a single table of data, such as extract filters and aggregation

Requirements for using relationships

- When relating tables, the fields that define the relationships must have the same data type. Changing the data type in the Data Source page does not change this requirement. Tableau will still use the data type in the underlying database for queries.
- You can't define relationships based on geographic fields.
- Circular relationships aren't supported in the data model.
- You can't define relationships between published data sources.

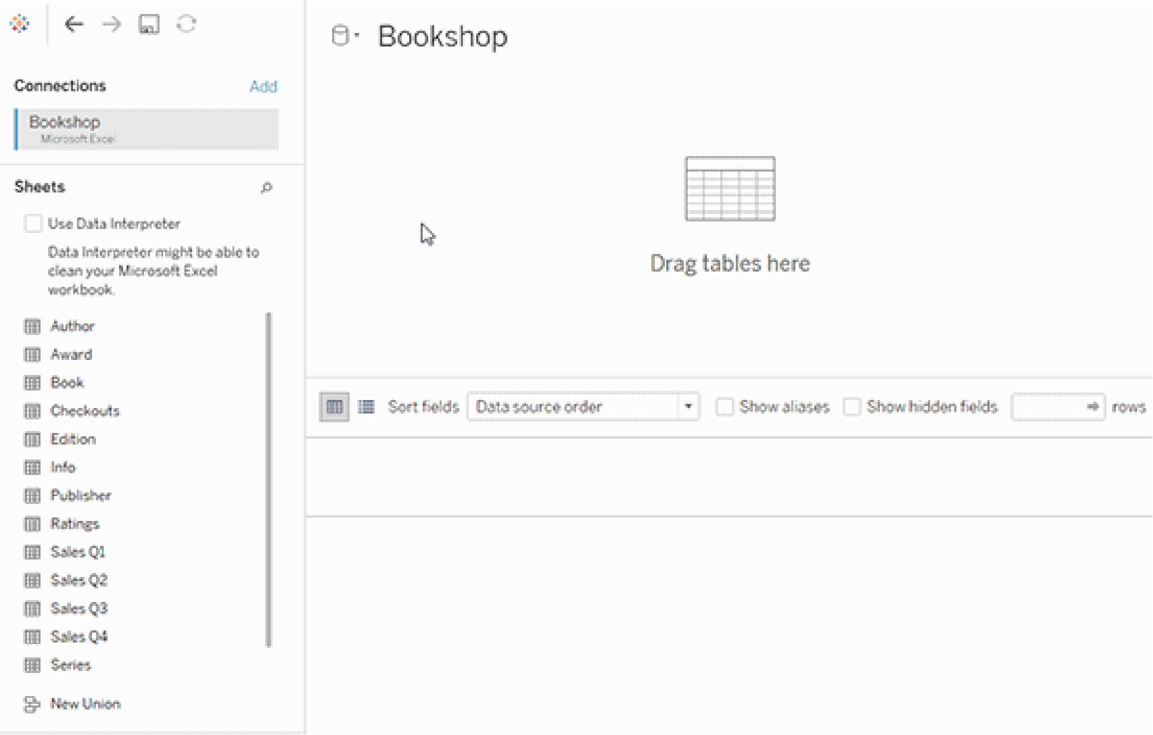
Factors that limit the benefits of using related tables

- Dirty data in tables (i.e. tables that weren't created with a well-structured model in mind and contain a mix of measures and dimensions in multiple tables) can make multi-table analysis more complex.
- Using data source filters will limit Tableau's ability to do join culling in the data. Join culling is a term for how Tableau simplifies queries by removing unnecessary joins.
- Tables with a lot of unmatched values across relationships.
- In versions 2020.2 through 2024.1: Interrelating multiple fact tables with multiple dimension tables (attempting to model shared or conformed dimensions). In version 2024.2 and later, you can use multi-fact relationships to address these cases. For more information, see Multi-fact analysis with relationships and About Multi-fact Relationship Data Models.

Where did joins go?

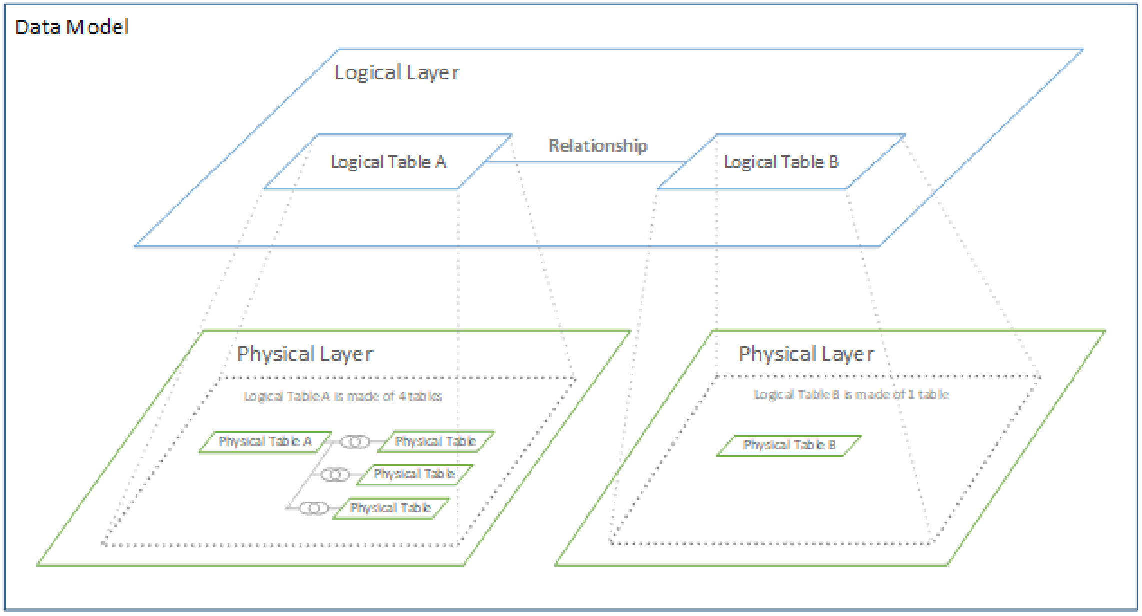
You can still specify joins between tables in the physical layer of a data source. Double-click a logical table to go to the Join/Union canvas in the physical layer and add joins or unions.

Every top-level, logical table contains at least one physical table. Open a logical table to view, edit, or create joins between its physical tables. Right-click a logical table, and then click **Open**. Or, just double-click the table to open it.


Bookshop
Connections
Add
Bookshop
Microsoft Excel
Sheets
☐ Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.
Author
Award
Book
Checkouts
Edition
Info
Publisher
Ratings
Sales Q1
Sales Q2
Sales Q3
Sales Q4
Series
New Union
Drag tables here
Sort fields
Data source order
☐ Show aliases
☐ Show hidden fields
rows

When you create a data source, it has two layers. The top-level layer is the logical layer of the data source. You combine data between tables in the logical layer using relationships.

The next layer is the physical layer of the data source. You combine data between tables at the physical layer using joins. For more information, see Logical and physical tables in the data model.


Data Model
Logical Layer
Logical Table A
Relationship
Logical Table B
Physical Layer
Logical Table A is made of 4 tables
Physical Table A
Physical Table
Physical Table
Physical Table
Physical Layer
Logical Table B is made of 1 table
Physical Table B

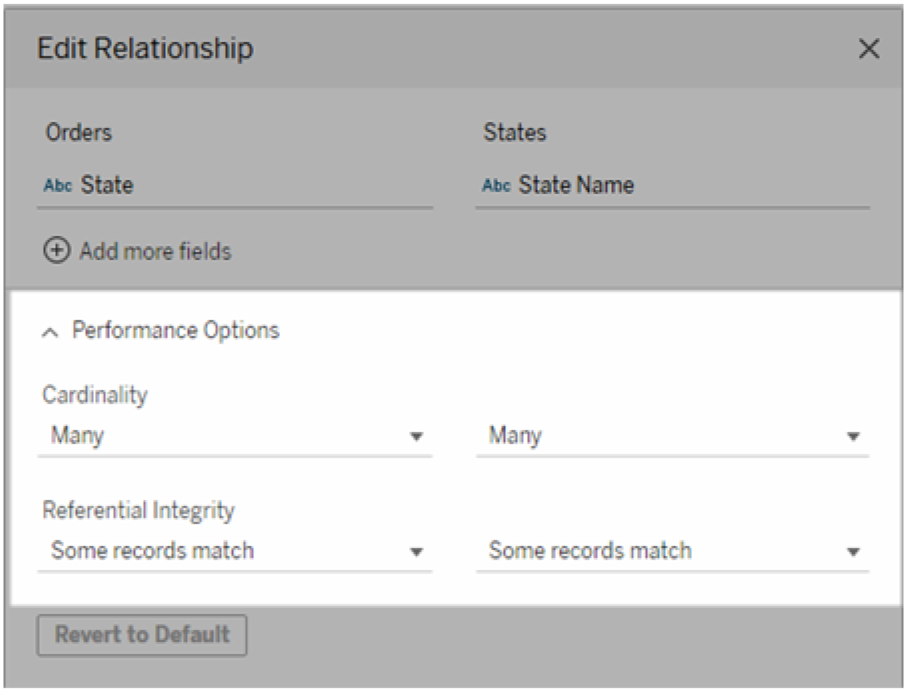
Optimize Relationship Queries Using Performance Options

Performance Options are optional settings that define the cardinality (uniqueness) and referential integrity (matching records) between the two tables in a relationship. These settings help Tableau optimize queries during analysis.

- **If you aren't sure what to choose**, use the recommended default settings indicated by Tableau. Using the defaults is safe and will automatically generate correct aggregations and joins during analysis. If you don't know the cardinality or referential integrity, you don't need to change these settings.
- **If you know the shape of your data**, you can optionally change these settings to represent uniqueness and matching between the records in the two tables.

In many analytical scenarios, using the default settings for a relationship will give you all of the data you need for analysis. In some scenarios, you might want to adjust the Performance Options settings to describe your data more accurately. For more details about using relationships to combine and analyze data, see Relate Your Data and this Tableau blog post: Relationships, part 1: Introducing new data modeling in Tableau.

What the Cardinality and Referential Integrity settings mean



Orders

Abc State

States

Abc State Name

Add more fields

Performance Options

Cardinality

Many

Many

Referential Integrity

Some records match

Some records match

Cardinality options

Cardinality settings determine if Tableau aggregates table data before or after automatically joining the data during analysis.

- Select **Many** if the field values aren't unique, or you don't know. Tableau will aggregate the relevant data before forming joins during analysis.
- Select **One** if field values are unique. During analysis, the relevant data will be joined before aggregation. Setting this option correctly optimizes queries in the workbook when the field values in the relationship are unique. However, selecting **One** when field values aren’t unique can result in duplicate aggregate values being shown in the view.

Note: Selecting **One** treats records as if each key value is unique and there is at most only one row with a null value.

Referential Integrity options

Referential Integrity settings determine the type of join used to get the dimension values for a measure during analysis.

- Select **Some Records Match** if some values in the field don't have a match in the other table, or you don't know. During analysis, Tableau uses outer joins to get dimensions values for a measure. All measure values will be shown in the view, even unmatched measures.
- Select **All Records Match** if values in the field are guaranteed to have a match in the other table. This setting generates fewer and simpler joins during analysis, and optimizes queries. You might see inconsistent results during analysis (unmatched values removed or missing in view) if there are unmatched values in this table.

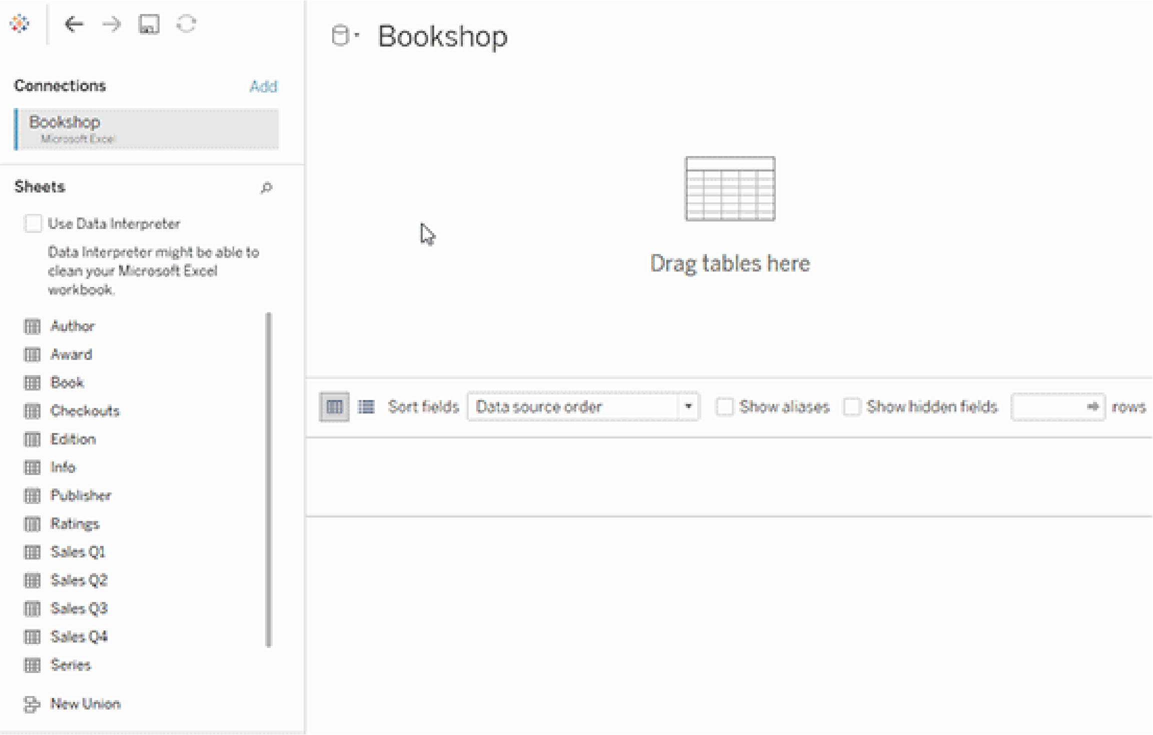
Notes: Selecting **All Records Match** treats records as if no null values exist in the fields used for the relationship. During analysis, Tableau will use inner joins to get dimension values for a measure. By default, Tableau will never join null keys.

For more information about Cardinality and Referential integrity as concepts, see Cardinality and Referential Integrity.

Where did joins go?

You can still specify joins between tables in the physical layer of a data source. Double-click a logical table to go to the join canvas.

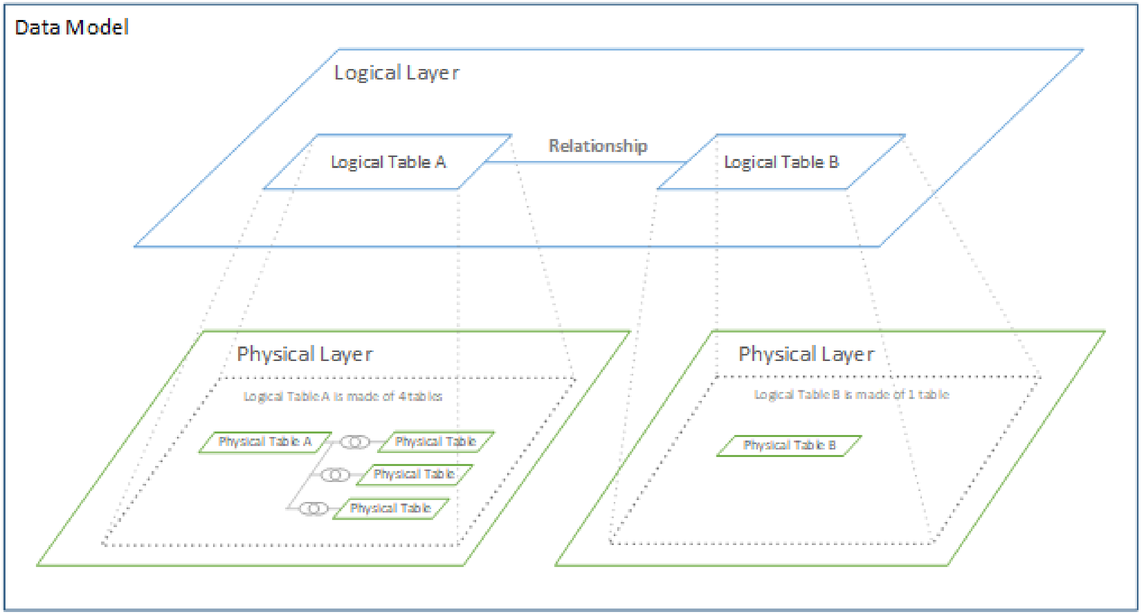
Every top-level, logical table contains at least one physical table. Open a logical table to view, edit, or create joins between its physical tables. Right-click a logical table, and then click **Open**. Or, just double-click the table to open it.



Connections
Add
Bookshop
Microsoft Excel
Sheets
☐ Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.
Author
Award
Book
Checkouts
Edition
Info
Publisher
Ratings
Sales Q1
Sales Q2
Sales Q3
Sales Q4
Series
New Union
Bookshop
Drag tables here
Sort fields
Data source order
☐ Show aliases
☐ Show hidden fields
rows

When you create a data source, it has two layers. The top-level layer is the logical layer of the data source. You combine data between tables in the logical layer using relationships.

The next layer is the physical layer of the data source. You combine data between tables at the physical layer using joins. For more information, see Logical and physical tables in the data model.


Data Model
Logical Layer
Logical Table A
Relationship
Logical Table B
Physical Layer
Logical Table A is made of 4 tables
Physical Table A
Physical Table
Physical Table
Physical Table
Physical Layer
Logical Table B is made of 1 table
Physical Table B

Tips on using Performance Options

If you know the shape of your data, you can use the optional settings in Performance Options to establish the cardinality of the tables to each other (one-to-one, one-to-many, many-to-many) and indicate referential integrity (values from one table will always have match in the other table).

Instead of thinking of the settings in Performance Options as “yes” and “no”, think of them as “yes” and “I don’t know”. If you are sure that a table's values are unique, select **One**. If you are sure that each record in one table matches one or more records in the other table, select **All Records Match**. Otherwise, leave the default settings as they are.

If you aren't sure about the shape of your data, use the default settings. When Tableau can't detect these settings in your data, the default settings are:

- Cardinality: Many-to-Many
- Referential integrity: Some Records Match

If Tableau detects key relationships or referential integrity in your data, those settings will be used and indicated as "detected".

To reapply the default settings, click **Revert to Default**.

Terms defined

Cardinality refers to the uniqueness of data contained in a field (column) or combination of fields. When the tables you want to analyze contain many rows of data, queries can be slow (and performance of the overall data source is affected) so we recommend choosing a method for combining data based on the cardinality of the related columns between tables.

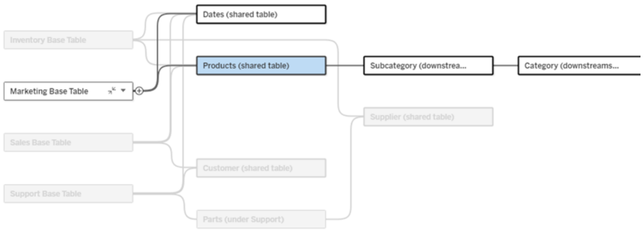
- Low cardinality: When related columns have a lot of repeated data. For example, a table called Products might contain a Category column that contains three values: Furniture, Office Supplies, and Technology.
- High cardinality: When related columns have highly unique data. For example, a table called Orders might contain an Order ID column that contains a unique value for every order of product.

Referential integrity means that one table will always have a matching row in the other table. For example, a Sales table will always have a matching row in the Product Catalog table.

About Multi-fact Relationship Data Models

Multi-fact relationships let you build data sources with more than one *base table*. Using multiple base tables in your data model allows you to perform multi-fact analysis in Tableau.

By establishing *trees* of tables, rooted in a base table, you can model data structures with different conceptual domains and use their shared characteristics to connect them. This type of analysis is often referred to as multi-fact analysis, conformed dimensions, or shared dimensions. In Tableau, we call this a multi-fact relationship data model because you use relationships to build it. A multi-fact relationship data model always contains multiple base tables. Base tables are the left-most tables in the data model. For guidance on how to determine which tables to use as base tables, see When to Use a Multi-fact Relationship Model.


Dates (shared table)
Inventory Base Table
Products (shared table)
Subcategory (downstrea...
Category (downstreams...
Marketing Base Table
Supplier (shared table)
Sales Base Table
Customer (shared table)
Support Base Table
Parts (under Support)

A multiple base table data model with one base table's tree highlighted.

Levels of relatedness

Data models with multiple base tables have a lot of flexibility to how pieces of data can relate—or not relate—to each other.

> **Note**: Relatedness at any level is only relevant in data models with multiple base tables. Prior to multi-fact relationship data models, either everything was related (within a single data source) or nothing was (blending across multiple data sources).

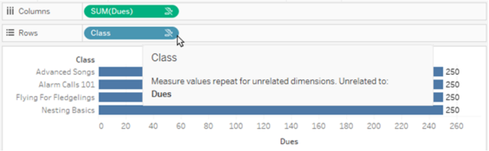
Relatedness in the data model

Tables are related, unrelated, or shared based on the structure of the data model. In a data source, the relatedness of tables is a constant. As a brief overview:

- *Related tables* are in the same tree.
  - Prior to 2024.2, all data sources were single base table data sources consisting of a single tree, and in a single base table data source all tables are related.
- *Unrelated tables* are in different trees. Base tables are always unrelated to each other. Tables that are downstream of exactly one base table are also unrelated to tables in other trees.
- *Shared tables* have multiple incoming relationships and belong to more than one tree.
  - Tables downstream from a table with multiple incoming relationships are also considered shared.

Relatedness during analysis

Fields can be related, unrelated, not yet related, ambiguously related, or they can act as stitching fields. The relatedness among a group of fields is determined on a sheet-by-sheet basis based on the structure of the data model, what fields are actively in use (that is, on the shelves as pills), and if those fields are dimensions or measures.



Class

Measure values repeat for unrelated dimensions. Unrelated to:
Dues

To make a visualization with fields from multiple tables, Tableau has to perform joins behind the scenes to compute the values. The type of join used depends on the relatedness of the fields. As a brief overview:

- When *related fields* are used in a viz, dimensions are inner joined and measure values are broken down by the dimensions.
  - It's a little more complicated than that—additional joins might be needed behind the scenes to ensure that no measure values are dropped. But in a dimension-only viz, related dimensions are inner joined and that's the main concept here.
  - This is the same behavior as single-base table models.
- When *unrelated fields* are used in a viz, dimensions are cross joined. Measure values are table scoped (that is, aggregated locally to a single value for their entire table) and repeated.
  - It's also possible for fields to be *not yet related* or *ambiguously* related, which means that for the combination of active fields, there is more than one way for the relationships between their tables to be resolved. If Tableau encounters uncertainty, it treats the fields as unrelated.
- When fields are *stitched* based on a shared field, dimensions are outer joined. Measure values are aggregated at the level of whatever dimension they can be broken down by and might be repeated.
  - *Stitching dimensions* are similar to linking fields in data blending. Results are calculated for each pair of related fields, then the unrelated values are stitched together across the shared values of the dimension shared between them.

All of these concepts and definitions are discussed in more detail later in this topic.

An aside on dimensions and measures

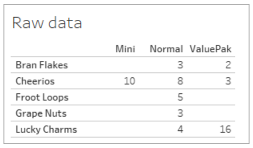
In Tableau, *measures* are *aggregations*—they're aggregated up to the *granularity* set by the *dimensions* in the view. The value of a measure therefore depends on the context of the dimensions. For example, "number of cereal boxes" depends on if we mean the total inventory or the number of boxes per brand.

Dimensions are usually categorical fields, such as country or brand. In Tableau, dimensions set the granularity, or the *level of detail*, of the view. We typically want to group our data into marks by some combination of categories. What dimensions we use to build the view determines how many marks we have.

When a measure is used without dimensions, it's said to be *table scoped*. This means its value is the fully aggregated value for the entire table. As soon as we use a dimension such as brand in the viz, the measure is broken down more granularly. The total number of cereal boxes is now per brand.

Aggregation refers to how the data is combined. Tableau's default aggregation is SUM. You can change the aggregation to other options, including: average, median, count distinct, minimum, and so on. *Granularity* refers to how detailed or broken down the measure is—which is controlled by the dimensions. Unless the granularity of the measure is row level (aka disaggregated), its value must be aggregated.

Example



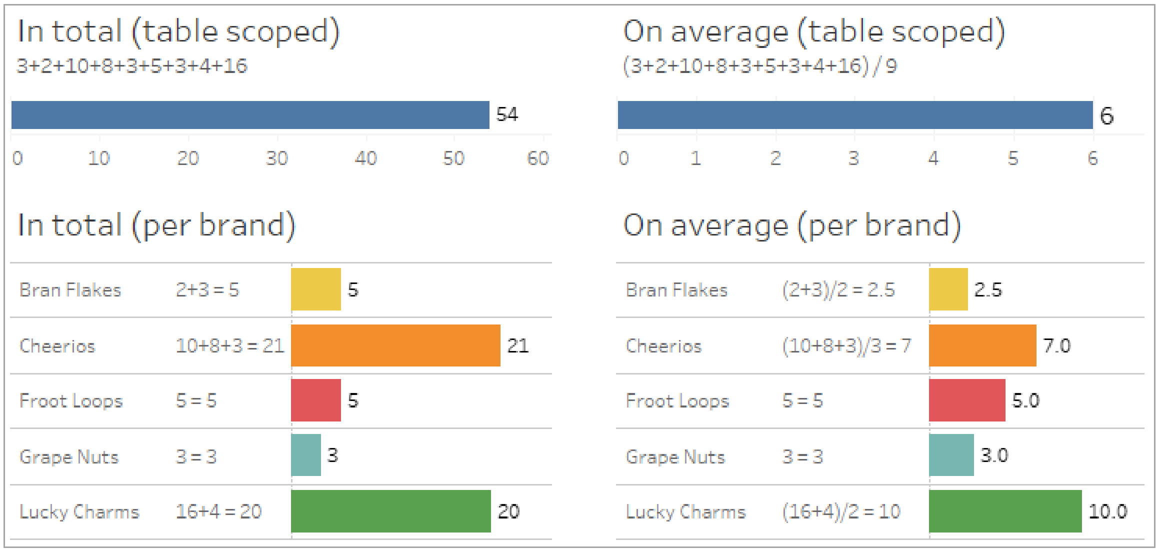
Raw data

	Mini	Normal	ValuePak
Bran Flakes		3	2
Cheerios	10	8	3
Froot Loops		5	
Grape Nuts		3	
Lucky Charms		4	16

What's the value of "number of boxes of cereal?"

Well, it depends on the aggregation type and the granularity as set by the dimensions.

- Aggregations:
  - Sum (or total)
  - Average
- Granularity:
  - Table scoped / fully aggregated (the blue bars in the example)
  - Broken down by the **Brand** dimension (the colored bars in the example)

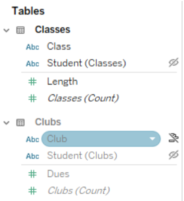


Field-level relatedness indicators

There are several visual clues that can help you understand the degree of relatedness for fields you're using in an analysis.

Relatedness indicators on a worksheet

- **Unrelated icon**: Tableau uses an unrelated icon to indicate not everything in the view is related. If you see an unrelated icon on a pill in the view or in the Data pane, you can hover over the icon to get more information.
  - The related icon indicates that field is stitching together unrelated fields.
- **Light gray field names**: Field names are displayed in light gray text in the Data pane when they're not related to *any* fields in use on shelves. You can still use these fields for analysis in that viz, but unrelated fields are evaluated differently in analysis than fields that are related. On hover, these fields also display an unrelated icon.

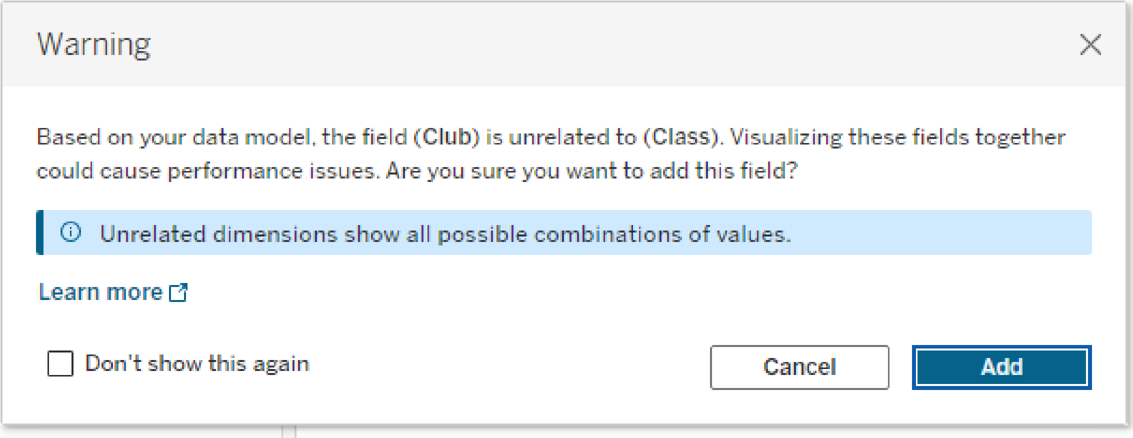

Tables
Classes
Abc Class
Abc Student (Classes)
# Length
# Classes (Count)
Clubs
Abc Club
Abc Student (Clubs)
# Dues
# Clubs (Count)

Note: In previous versions of Tableau, light gray field names indicated that the fields were hidden and **Show hidden fields** was selected. Hidden fields, when shown, are now indicated with a clickable eye icon ⊘.

Relatedness warning dialog

When unrelated fields are used together in a viz, Tableau shows a warning dialog to let you know that the fields aren't related. This warning appears each time you add an unrelated field to prevent accidental cross joins that might impact performance.

- If you want to use unrelated fields without stitching, click **Add** to continue adding the field to the viz.
- If you want to stitch unrelated fields, a best practice is to bring out the stitching field before an otherwise unrelated field. The dialog won't show if the stitching field is already in use. See How joins are used for each level of relatedness for more information about how stitching prevents cross joins.

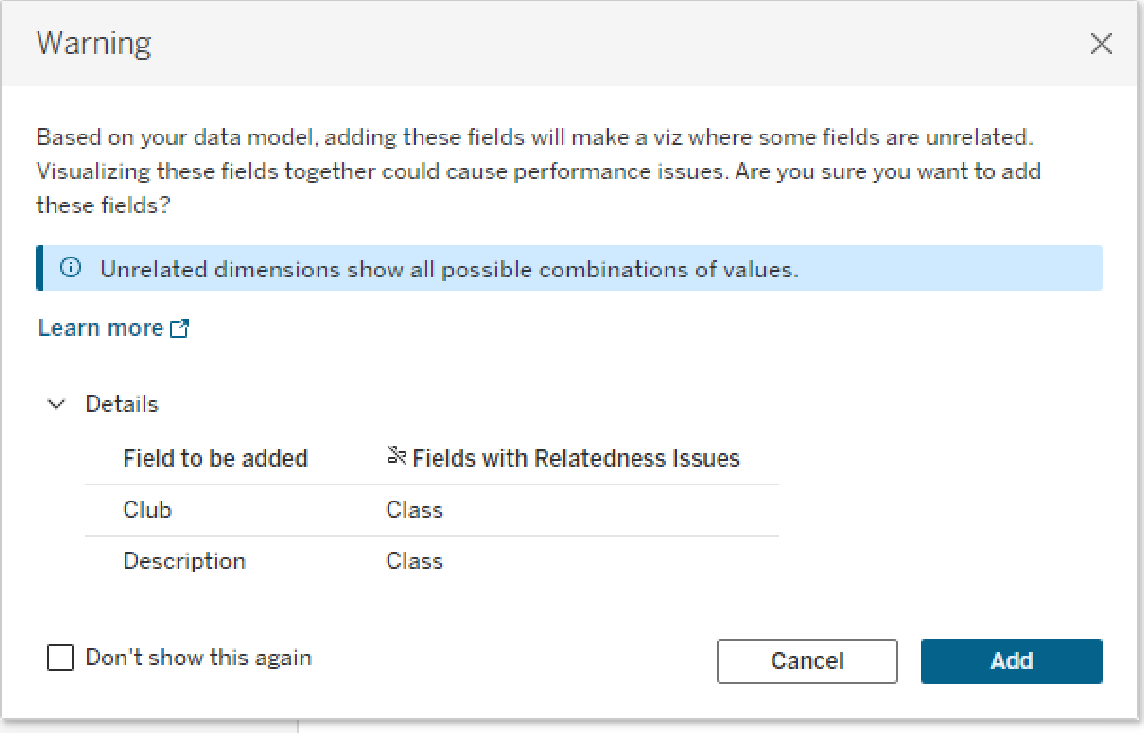


Warning

Based on your data model, the field (Club) is unrelated to (Class). Visualizing these fields together could cause performance issues. Are you sure you want to add this field?

ⓘ Unrelated dimensions show all possible combinations of values.

When multiple fields are being added or are already present in the view, the **Details** area appears in the dialog. Expand it to see more information about the relatedness of all the fields in use and identify where the unrelatedness issue is coming from.



Warning

Based on your data model, adding these fields will make a viz where some fields are unrelated. Visualizing these fields together could cause performance issues. Are you sure you want to add these fields?

Unrelated dimensions show all possible combinations of values.

Field to be added	Fields with Relatedness Issues
Club	Class
Description	Class

☐ Don't show this again

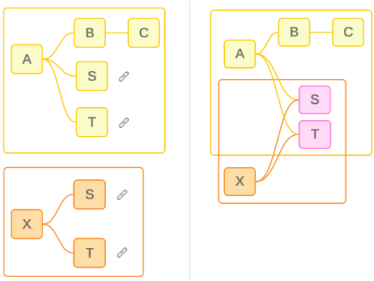
To stop the warning message from appearing at all, select the option **Don't show this again**. You can always re-enable these warning messages again by turning them back on:

- In Tableau Desktop, open the **Help** menu > **Settings and Performance** > **Reset Ignored Messages**.
- In a browser, clear your cached data. For example in Chrome, open the **3 dots menu** > **Delete Browsing Data...** > Choose "**Cached images and files**" > **Delete data**.

Table-level relatedness in the data model

In a data model with multiple base tables, each base table defines a set of tables that are related and form a conceptual *tree*. These trees must be connected by at least one shared table to ensure the overall data source is a single entity.

What might previously have been two data sources that could be blended using linking fields can now be a single data source with two trees, connected by the shared tables that contain those common fields.



Tip: How tables are related in the data model impacts how their fields can be related in the analysis. It can be helpful to use the View Data Model dialog during analysis to see how a table fits into the overall data model.

Let's walk through what tables are related, unrelated, or shared using this example data source. There are two trees, one established by base Table A and one by base Table B.

Unrelated tables

Base tables are fundamentally unrelated. Similarly, any tables that exist solely in a single tree are unrelated to tables in other trees.

Table A and Table X are unrelated

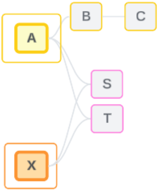
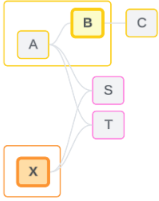


Table B and Table X are unrelated

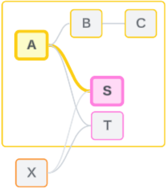


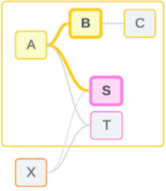
Related tables

Tables in the same tree are considered related.

Table A and Table S are related

Table B and Table S are related (through Table A)

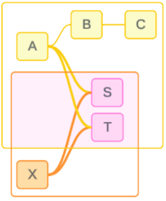




Shared tables

Shared tables have multiple incoming relationships. These tables belong to multiple trees and are shared across them.

Table S and Table T are shared.



Field-level relatedness in the analysis

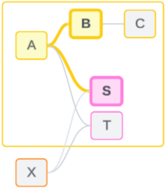
Relatedness between fields is determined on a sheet-by-sheet basis based on the structure of the data model, what fields are actively in use (that is, what fields are in the viz as pills on shelves), and if those fields are dimensions or measures. How field relatedness impact the results of a viz is covered in the next section.

Let's walk through some scenarios using the same example data source. Each field's name indicates which table it is from, such as FieldB from Table B. Fields can be dimensions or measures unless otherwise noted.

Related fields

At a high level, fields are related when Tableau can clearly determine how to evaluate them together based on a relationship path within a single tree.

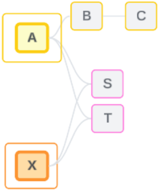
For example, FieldB (from Table B) and FieldS (from Table S) are related.



Unrelated fields

At a high level, fields are unrelated in any case when they're not related. This could be because the fields are from unrelated tables, such as using fields from two base tables. In this case, fields from different base tables are fundamentally unrelated.

For example, FieldA and FieldX are unrelated.



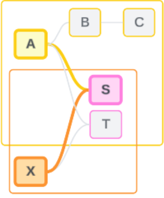
Or fields can be treated as unrelated for a point in time—such as in ambiguous or not yet related cases. For the most part, you can rely on relatedness indicators to alert you when fields are unrelated in the context of a viz.

Stitching dimension

Stitching is how Tableau evaluates fields from unrelated tables in a multi-fact data model during analysis. In a viz, using a dimension from a shared table stitches together otherwise unrelated fields and allows them to be evaluated simultaneously in the same viz. Think of this as juxtaposing results from two trees together based on a dimension they share.

For example, if a viz is built with FieldA and FieldX, these two fields are unrelated. Adding DimensionS introduces a stitching field.

- FieldA and DimensionS are evaluated together.
- FieldX and DimensionS are evaluated together.
- Those intermediate results are brought together based on the values of DimensionS.
- FieldA and FieldX are now stitched.



Tip: A best practice is to use a stitching field in the viz before bringing out an unrelated field. For example, drag out DimensionS first, or FieldA then DimensionS then FieldX, instead of FieldA then FieldX then DimensionS. Adding the stitching field first ensures that Tableau is always aware of how to evaluate the relationships and avoids potential performance issues from evaluating unrelated dimensions together with cross joins.

Stitching requires a dimension from a shared table to be active in the viz. Fields placed on the Filters shelf or on the Tooltip property of the Marks card aren't considered active for the purposes of stitching.

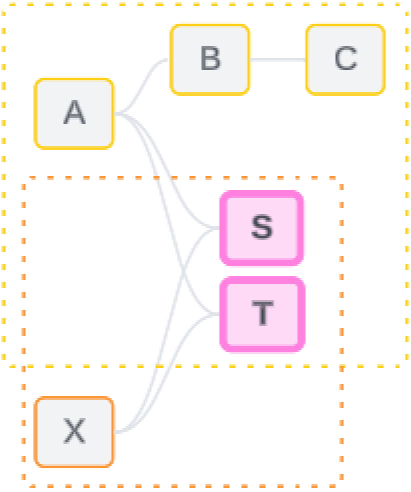
Not yet related fields

Fields can also have multiple ways they could be related but aren't yet. This happens when there's more than one possible relationship between two shared tables (or downstream shared tables).

Consider FieldS and FieldT. Their tables are related to each other both through the tree defined by base Table A and through the tree defined by base Table X.

In a viz with just FieldS and FieldT, there's no information about which tree should be used to relate them. Without additional information Tableau can't evaluate whether to relate these fields through Base Table A's tree or Base Table B's tree.

FieldS and FieldT are treated as unrelated although there are multiple *potential* relationships.



These could-be-but-aren't-yet-related fields are evaluated as unrelated because Tableau can't clearly determine their relationship path. Unlike truly unrelated fields which can only be stitched, not yet related fields can be resolved and the fields can be directly related.

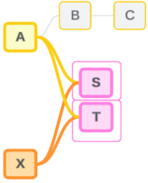
Ambiguously related fields

Fields can also be ambiguously related. This happens when there is more than one active possible relationship between shared tables (or downstream shared tables). Unlike not yet related fields, which can be thought of as hypo-related or under related, ambiguously related fields are hyper-related or over related.

Consider FieldS and FieldT. Their tables are related to each other both through the tree defined by base Table A and through the tree defined by base Table X.

In a viz with FieldA, FieldX, FieldS, and FieldT, there's too much information to decide which tree should be used to relate them. Without trimming the information, Tableau can't evaluate whether to relate these fields through Base Table A's tree or Base Table B's tree.

FieldS and FieldT are treated as unrelated although there are multiple *active* relationships.

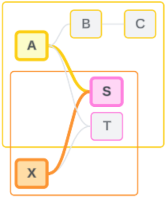


These ambiguously related fields are evaluated as unrelated because Tableau can't clearly determine their relationship path. Unlike truly unrelated fields which can only be stitched, ambiguously related fields can be resolved and the fields can be directly related.

Ambiguous measure from a shared table

When a dimension is used from a shared table, it stitches together fields from its unrelated upstream tables. Measure can't stitch, however, and the value of a measure depends on its related dimensions.

In a viz with DimensionA and DimensionX, these two dimensions are unrelated. If MeasureS is brought out from Table S, it is unrelated to the combination DimensionA and DimensionX together. Although it could be related to either one independently, it can't be simultaneously related to both of them in the same viz.



A shared measure can be considered a type of ambiguity or over relatedness and is resolved the same way.

Resolve unclear relationships between fields

Whenever there is uncertainty about how to relate fields, Tableau won't make an arbitrary decision and instead treats them as unrelated. It's often better to relate these fields by clarifying the uncertainty around which tree to use.

Resolving not yet related fields is done by adding a field to establish which tree to use. Resolving ambiguously related fields is done by removing fields to establish which tree to use.

Example:

Resolving not yet related: add a field

- In a viz of FieldS and FieldT, adding a field from Table A, B, or C to the viz makes Base Table A's tree active and resolves the desired path between FieldS and FieldT.
- Alternatively, using a field from Table X resolves the desired path between FieldS and FieldT to Base Table X's tree.

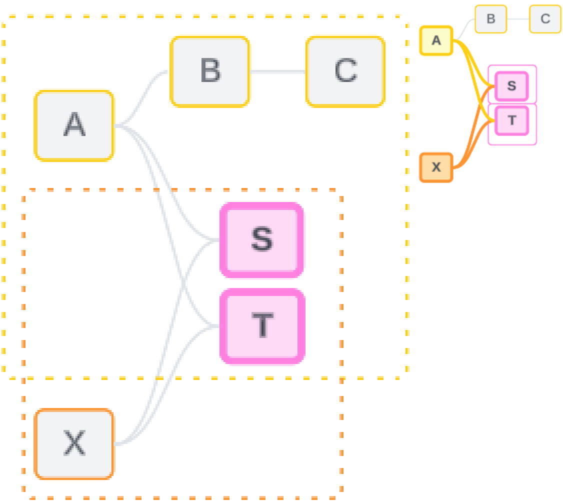
Resolving ambiguously related: remove a field or fields

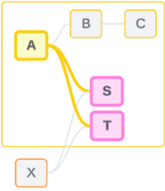
- In a viz of FieldA, FieldX, FieldS, and FieldT, removing FieldX makes only Base Table A's tree active and resolves the desired path between FieldS and FieldT.
- Alternatively, removing FieldA resolves the desired path between FieldS and FieldT through Base Table X's tree.

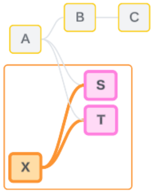
Resolving a shared measure: remove a field or fields

- In a viz of DimensionA, DimensionX, and MeasureS, removing DimensionX makes only Base Table A's tree active and resolves the desired path between DimensionA and MeasureS.
- Alternatively, removing DimensionA resolves the desired path between DimensionX and MeasureS through Base Table X's tree.

Not yet related	**Ambiguously related**	**Relatedness resolved to a single tree**	
		Related through base Table A	Related through base Table X



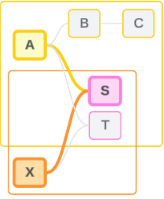
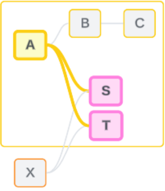




Resolving uncertainty is similar to using a FIXED Level of Detail (LOD) expression. In a FIXED LOD expression, you tell Tableau what level of detail to aggregate to by defining the dimension declaration. Uncertainty is resolved by changing the structure of the viz to make only one tree active, thus telling Tableau what relationship paths it can consider to perform the analysis.

Stitching vs resolving uncertainty

Both stitching and resolving uncertainty are ways of dealing with unrelatedness, but they have different outcomes:

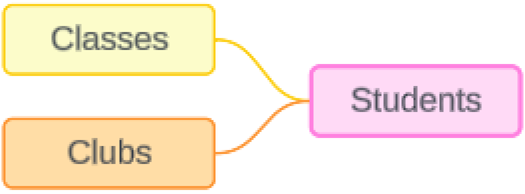
Stitching	Resolving uncertainty
	
Unrelated FieldA and FieldX stitched by DimensionS	FieldS and FieldT evaluated through the tree defined by base Table A
Juxtaposes unrelated fields based on shared attributes	Narrows down which relationship path to use when there are multiple options (ambiguity or a

	shared measure), or establishes a relationship path when there wasn't one (not yet related).
Uses multiple base table logic to calculate results	Uses single base table logic to calculate results
Analysis involves unrelated tables	Analysis involves shared tables

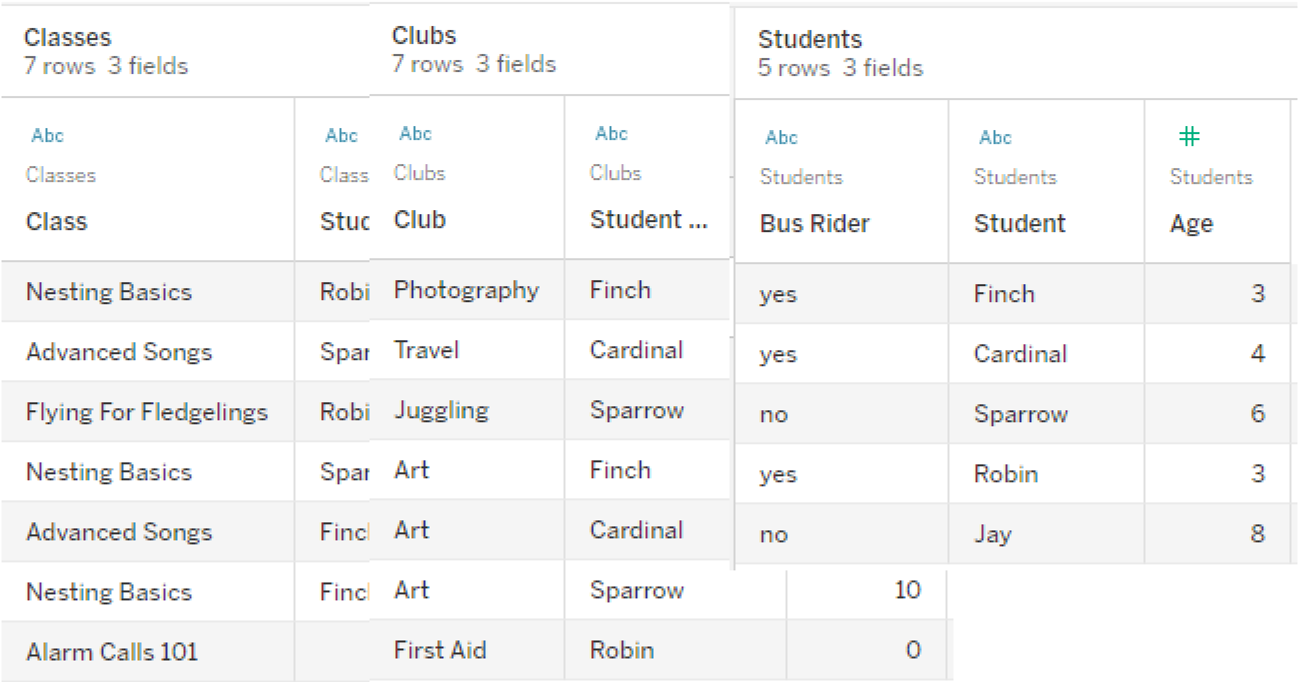
How joins are used for each level of relatedness

After the field-level relatedness has been determined, Tableau has to evaluate the results to create the actual visualization. The queries used to calculate the values shown in a viz rely on joins. Whether fields are related, unrelated, or stitched has a different impact on what joins are performed. Remember, ambiguously related and not yet related fields are treated as unrelated in this context.

To explain relatedness and joins, this section covers tables and their fields, plus the values in those fields. Consider the following data model with two base tables, Classes and Clubs, and a shared table, Students.



Classes	Clubs	Students



Classes
7 rows 3 fields

Abc Classes Class	Abc Class Stuc
Nesting Basics	Robi
Advanced Songs	Spar
Flying For Fledgelings	Robi
Nesting Basics	Spar
Advanced Songs	Fincl
Nesting Basics	Fincl
Alarm Calls 101	

Clubs
7 rows 3 fields

Abc Clubs Club	Abc Clubs Student ...	
Photography	Finch	
Travel	Cardinal	
Juggling	Sparrow	
Art	Finch	
Art	Cardinal	
Art	Sparrow	10
First Aid	Robin	0

Students
5 rows 3 fields

Abc Students Bus Rider	Abc Students Student	# Students Age
yes	Finch	3
yes	Cardinal	4
no	Sparrow	6
yes	Robin	3
no	Jay	8

Fields:

- **Class**, a dimension with values of Nesting Basics, Advanced Songs, Flying for Fledglings, and Alarm Calls 101
- **Length**, a measure
- **Student**, a dimension used to relate to the Student table

Fields:

- **Club**, a dimension with values of Photography, Travel, Juggling, Art, and First Aid
- **Dues**, a measure
- **Student**, a dimension used to relate to the Student table

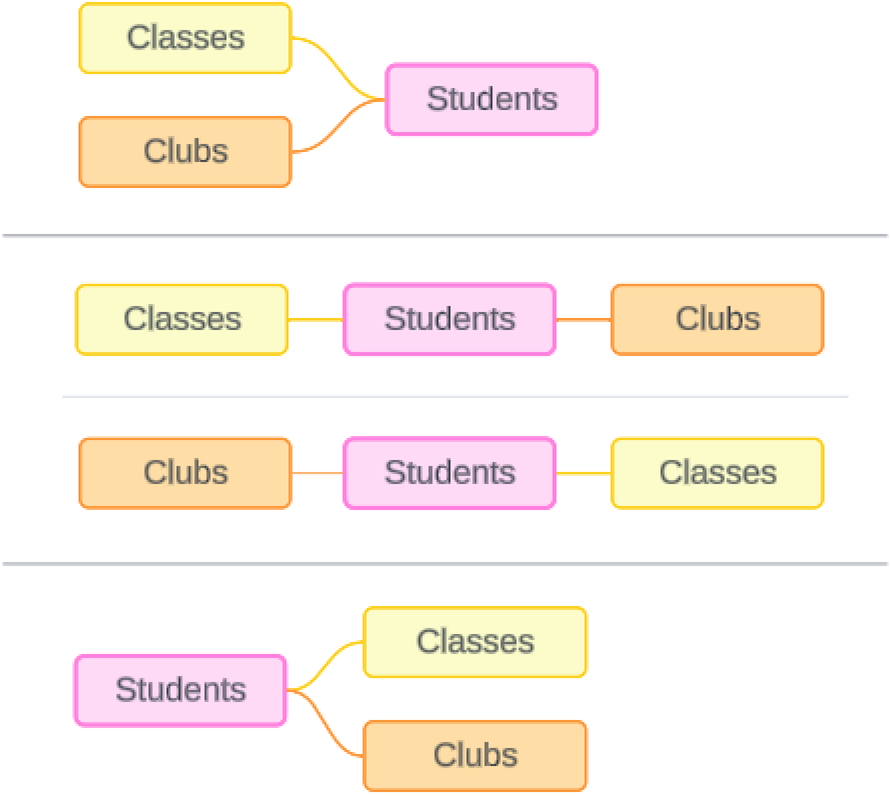
Fields:

- **Bus Rider**, a dimension with values of yes or no
- **Student**, a dimension with values of Finch, Cardinal, Sparrow, Robin, and Jay. Used to relate to the other two tables
- **Age**, a measure

This very simple model illustrates how the high-level join logic is calculated for multi-fact relationship data models. For more information about the basics of joins used in single base table data models built on relationships, see How Analysis Works for Multi-table Data Sources that Use Relationships.

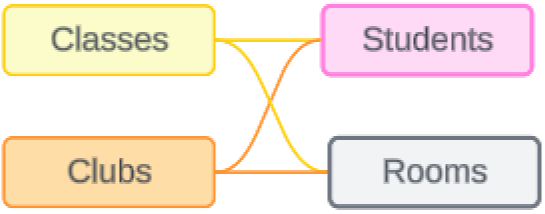
Should this example be a data model with multiple base tables?

For this three table data model, it might be tempting to set it up as a single base table model, as Classes-Students-Clubs or Clubs-Students-Classes, or with Students as a base table. As a rule, multi-fact relationship data models are intended for specific kinds of data schemas or analysis scenarios. If your data model has characteristics that are best suited to a multi-fact relationship data model, set it up that way to keep your base tables conceptually unrelated. However, if your data doesn't require this type of structure, a single base table model can be simpler to use.


Classes
Clubs
Students
Classes
Students
Clubs
Clubs
Students
Classes
Students
Classes
Clubs

Models that could be built for these three tables: (1) Classes and Clubs as base tables with Students as a shared table, (2) linearly, starting with either Classes or Clubs, and (3) Students as a single base table with Classes and Clubs as downstream tables.

In this particular instance, there's nothing about these tables, the data, or the model that truly requires multiple base tables. We're using this model as an example to keep it simple so the focus can be on the join logic. Or you could imagine that there's another related table, Rooms, that we're simply ignoring to avoid over complicating the discussion.



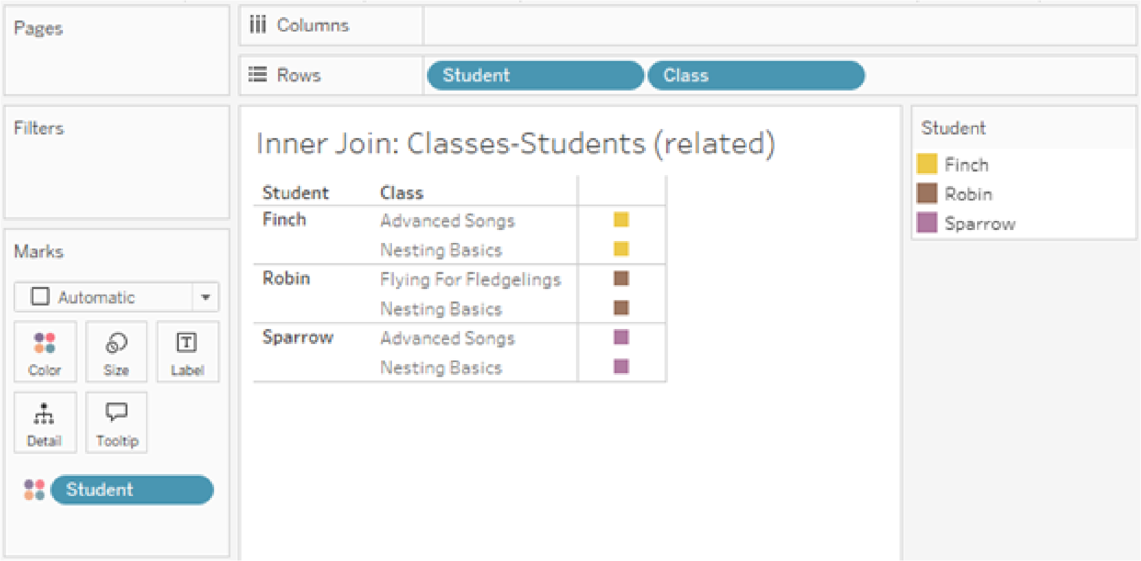
As a best practice, however, only use a multi-fact relationship model when your data requires it.

Related dimensions use inner joins

Related dimensions are inner joined. Inner joins drop any dimension values that aren't shared across both tables.

- Tableau uses additional logic to ensure measure values aren't lost. This section uses only dimensions to demonstrate the basics of how Tableau applies inner joins to related dimensions.

The following example shows how related dimensions only return rows that are present in the data. No students are in the Alarm Calls 101 class, so it's not present in the results. Cardinal and Jay aren't in any classes, so they're not present in the results.


Pages
Columns
Rows
Student
Class
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip
Student

Inner Join: Classes-Students (related)

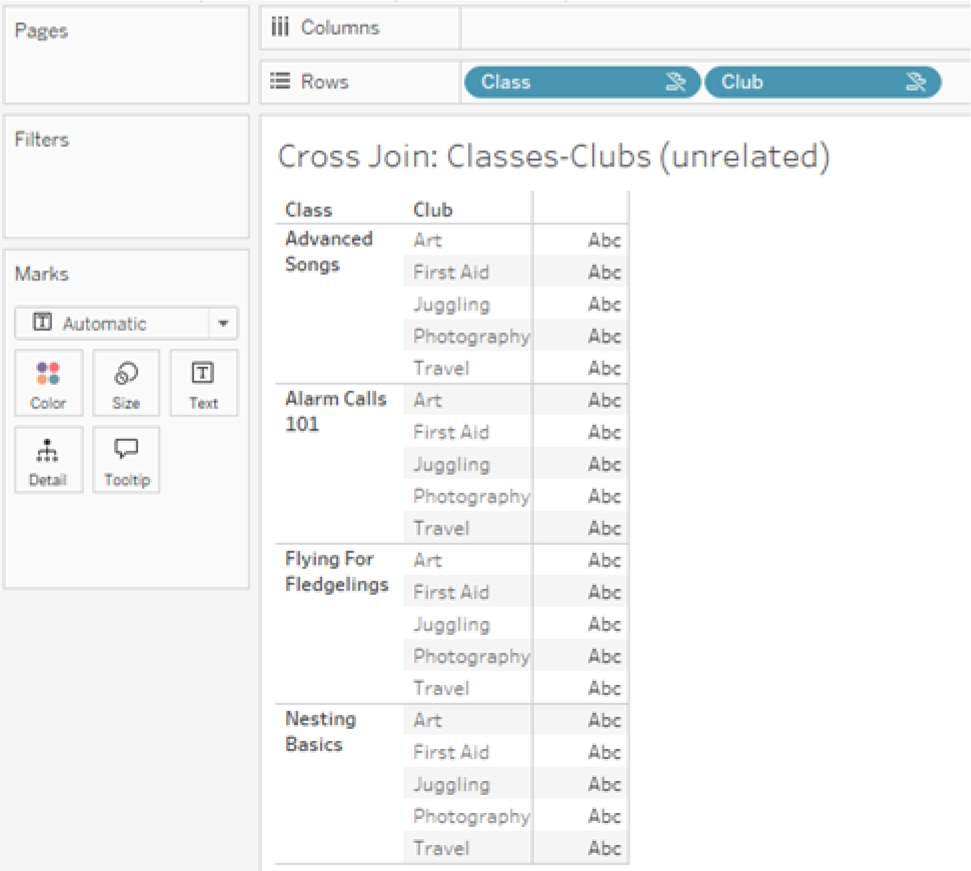
Student	Class	
Finch	Advanced Songs	🟨
	Nesting Basics	🟨
Robin	Flying For Fledgelings	🟫
	Nesting Basics	🟫
Sparrow	Advanced Songs	🟪
	Nesting Basics	🟪

Student
- 🟨 Finch
- 🟫 Robin
- 🟪 Sparrow

Unrelated dimensions use cross joins

Unrelated dimensions—on their own, without a stitching dimension—are cross joined.

In a cross join, every value from one dimension is combined with every value from the other dimension, even if a resulting combination doesn't actually exist in the data. In this example, the cross join adds a row for each possible combination of Class and Club.



Cross Join: Classes-Clubs (unrelated)

Class	Club	
Advanced Songs	Art	Abc
	First Aid	Abc
	Juggling	Abc
	Photography	Abc
	Travel	Abc
Alarm Calls 101	Art	Abc
	First Aid	Abc
	Juggling	Abc
	Photography	Abc
	Travel	Abc
Flying For Fledgelings	Art	Abc
	First Aid	Abc
	Juggling	Abc
	Photography	Abc
	Travel	Abc
Nesting Basics	Art	Abc
	First Aid	Abc
	Juggling	Abc
	Photography	Abc
	Travel	Abc

It's important to recognize when a cross join is occurring in your analysis. Although there's a row for Advanced Songs + First Aid in the results table for the cross join, no students are actually in this combination of activities (we'll see proof of this in the stitching example in the next section).

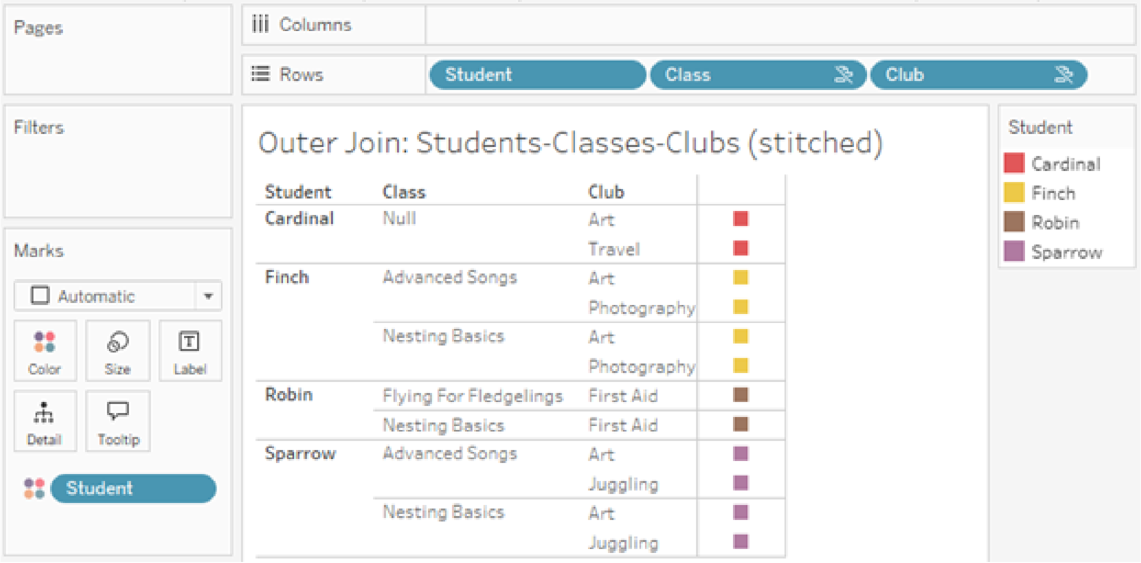
Why is it important to recognize that not all cross join results are based in the data? Imagine you were trying to build a schedule for classes and clubs so there were no conflicts for any students. There aren't any students in Advanced Songs and First Aid, so you could ignore this result and schedule that class and club simultaneously. The cross join doesn't represent combinations of values that actually exist in the data.

Additionally, cross joins when there is high cardinality (a large number of unique values) can impact performance. Imagine cross joining every phone number with every email address in your contacts. That would be a huge explosion of combinations and a potentially costly operation.

Stitched dimensions use outer joins

Unrelated dimensions—in the presence of a stitching dimension—are outer joined.

In this example, both the Classes table and Clubs table are related to the shared Students table but not to each other, so the fields Class and Club are unrelated. Adding the Student dimension lets Tableau know which values from Class and which values from Club should be juxtaposed in the analysis. We call this outer join behavior *stitching*.



Outer Join: Students-Classes-Clubs (stitched)

Student	Class	Club	
Cardinal	Null	Art	🟥
		Travel	🟥
Finch	Advanced Songs	Art	🟨
		Photography	🟨
	Nesting Basics	Art	🟨
		Photography	🟨
Robin	Flying For Fledgelings	First Aid	🟫
	Nesting Basics	First Aid	🟫
Sparrow	Advanced Songs	Art	🟪
		Juggling	🟪
	Nesting Basics	Art	🟪
		Juggling	🟪

Student
- 🟥 Cardinal
- 🟨 Finch
- 🟫 Robin
- 🟪 Sparrow

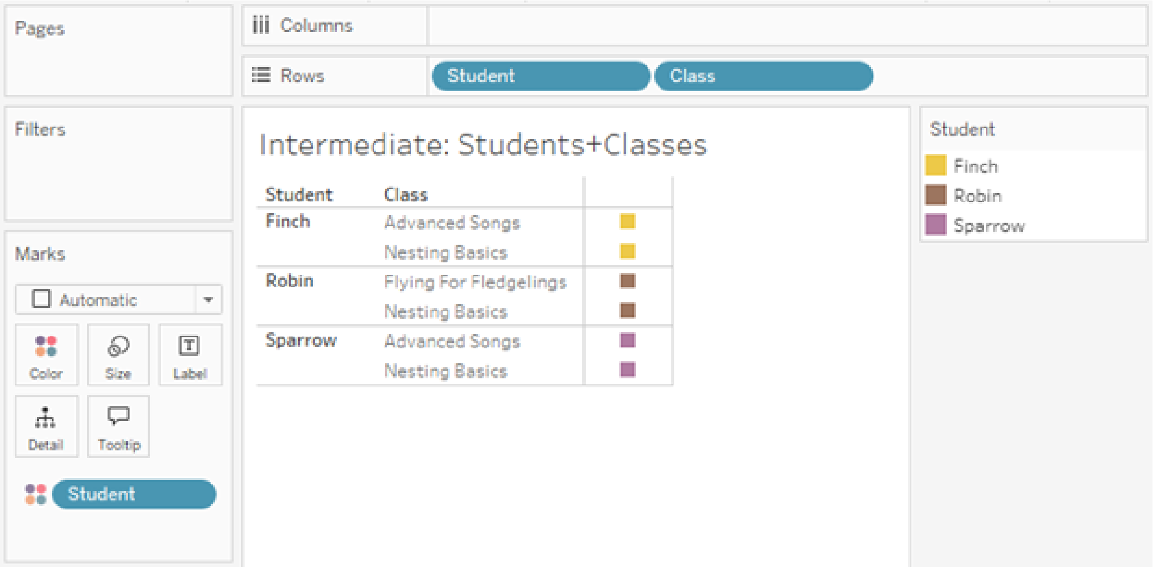
Stitching is similar to data blending in that there are intermediate results that are brought back together for the overall results. Unlike blending, however, stitching is an outer join, not a left join, and doesn't drop values from either side. There's no concept of primary or secondary data sources when it's all one data source, so both of the unrelated fields are given equal precedence.

Intermediate results are outer joined

What goes into the outer join for stitched fields? An intermediate inner join is computed for the stitching field and each of the unrelated fields in turn, then those intermediate results are outer joined based on the values of the stitching dimension.

Example

An inner join for Student and Class...


Pages
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip

Columns

Rows: Student, Class

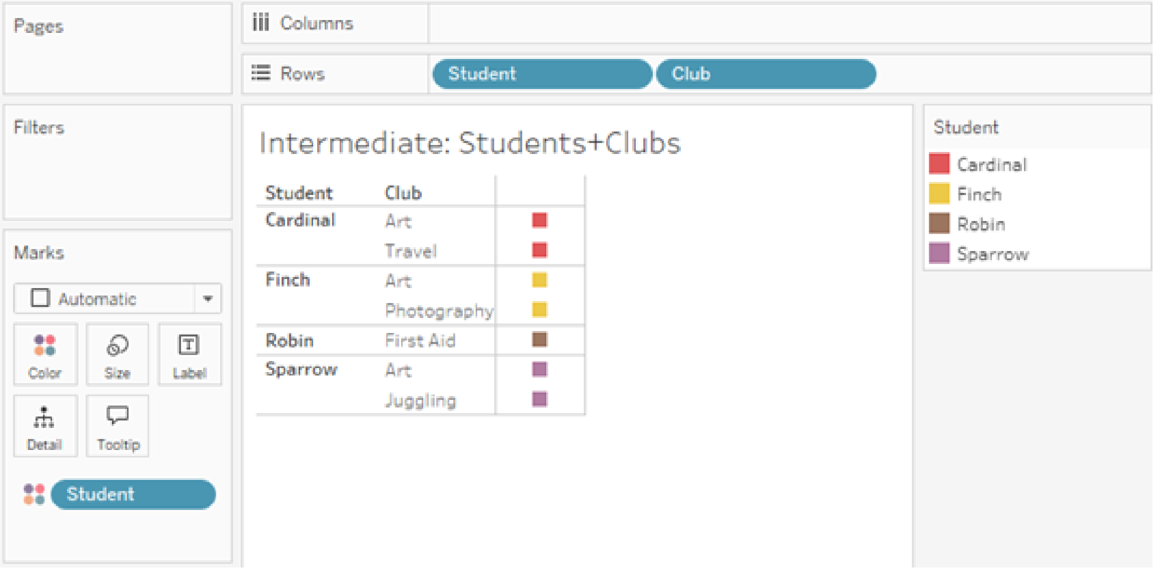
Marks: Color: Student

Intermediate: Students+Classes

Student	Class	
Finch	Advanced Songs	🟨
	Nesting Basics	🟨
Robin	Flying For Fledgelings	🟫
	Nesting Basics	🟫
Sparrow	Advanced Songs	🟪
	Nesting Basics	🟪

Student
- 🟨 Finch
- 🟫 Robin
- 🟪 Sparrow

...and an inner join for Student and Club...


Pages
Filters
Marks
Automatic
Color
Size
Label
Detail
Tooltip

Columns

Rows: Student, Club

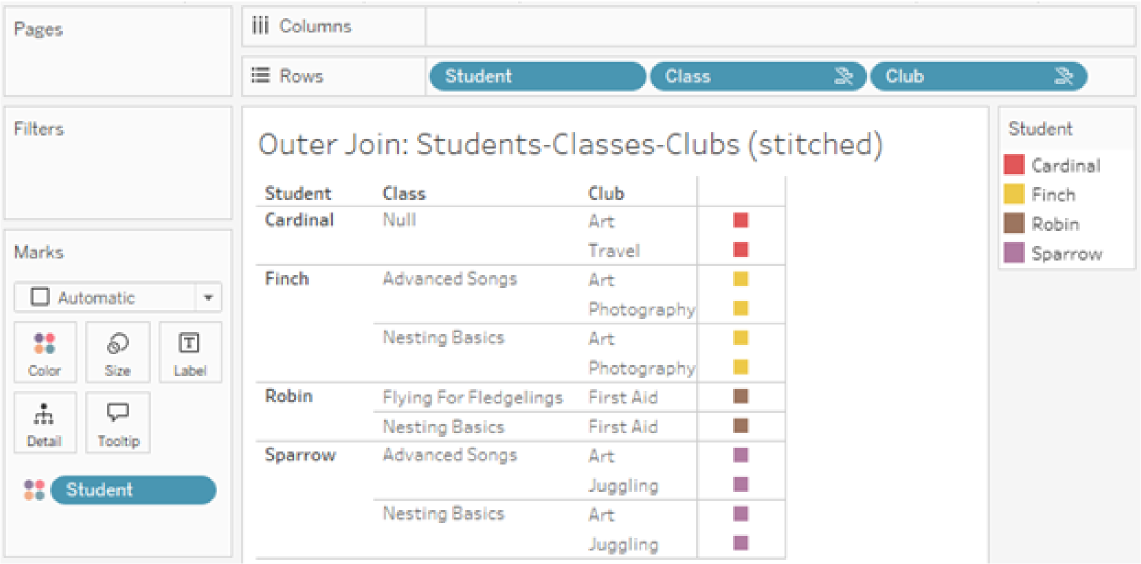
Marks: Color: Student

Intermediate: Students+Clubs

Student	Club	
Cardinal	Art	🟥
	Travel	🟥
Finch	Art	🟨
	Photography	🟨
Robin	First Aid	🟫
Sparrow	Art	🟪
	Juggling	🟪

Student
- 🟥 Cardinal
- 🟨 Finch
- 🟫 Robin
- 🟪 Sparrow

...are then outer joined on Student.



Outer Join: Students-Classes-Clubs (stitched)

Student	Class	Club	
Cardinal	Null	Art	🟥
		Travel	🟥
Finch	Advanced Songs	Art	🟨
		Photography	🟨
	Nesting Basics	Art	🟨
		Photography	🟨
Robin	Flying For Fledgelings	First Aid	🟫
	Nesting Basics	First Aid	🟫
Sparrow	Advanced Songs	Art	🟪
		Juggling	🟪
	Nesting Basics	Art	🟪
		Juggling	🟪

Student
🟥 Cardinal
🟨 Finch
🟫 Robin
🟪 Sparrow

Additional joins to retain measures

In addition to the join logic for dimensions, measures can introduce additional joins. When relationships were first introduced in Tableau, one of the core principles was that measure values aren't lost. This is also maintained in multi-fact relationship data models.

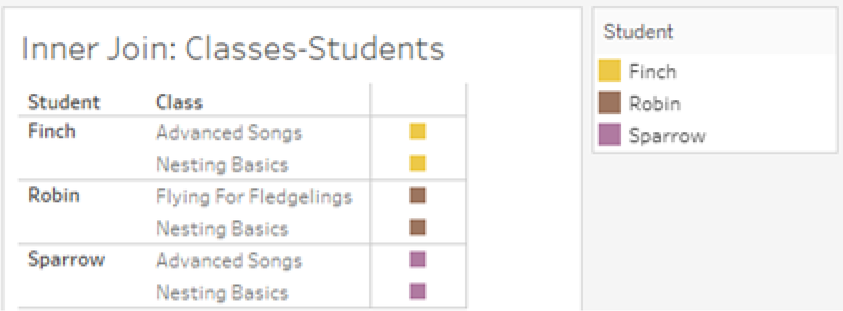
The essential details are:

- Measure values are broken down only by related dimensions.
- Measure values repeat for unrelated dimensions.
- Dimension values that would be dropped in dimension-only vizzes may be returned if there are relevant measure values associated with them.

Note: Remember that measures are aggregations—they're computed at the level of detail (the granularity) set by the combination of dimensions in the viz. This is referred to as a measure being *broken down* by a dimension. When a measure is used without any dimensions, it is said to be *table scoped*. This means the measure's value is the fully aggregated value. As soon as we use a dimension in the viz, the measure is broken down more granularly based on the dimension values. The value of a measure in an analysis therefore depends on the context of the dimensions.

Related measures

Consider the subset of dimension values that are returned for an inner join on the related dimensions **Student** and **Class.** There are *three* student values, Finch, Robin, and Sparrow; and *three* class values, Advanced Songs, Nesting Basics, and Flying for Fledgelings.

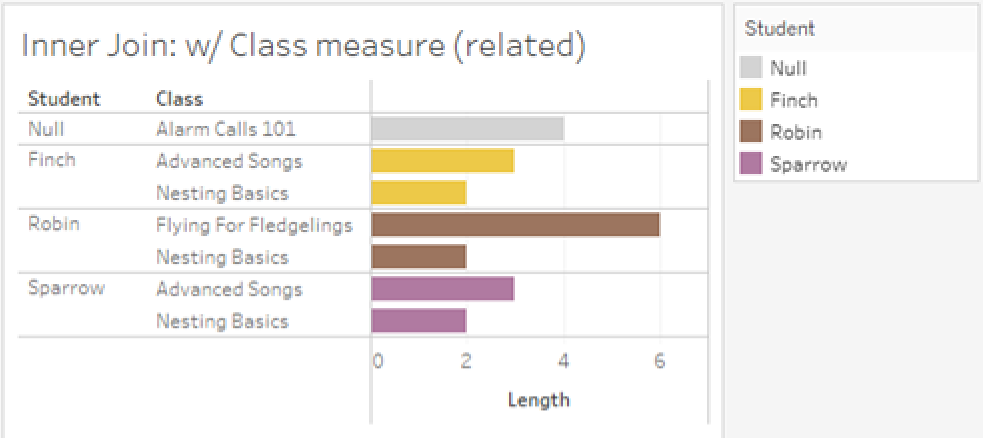


Inner Join: Classes-Students

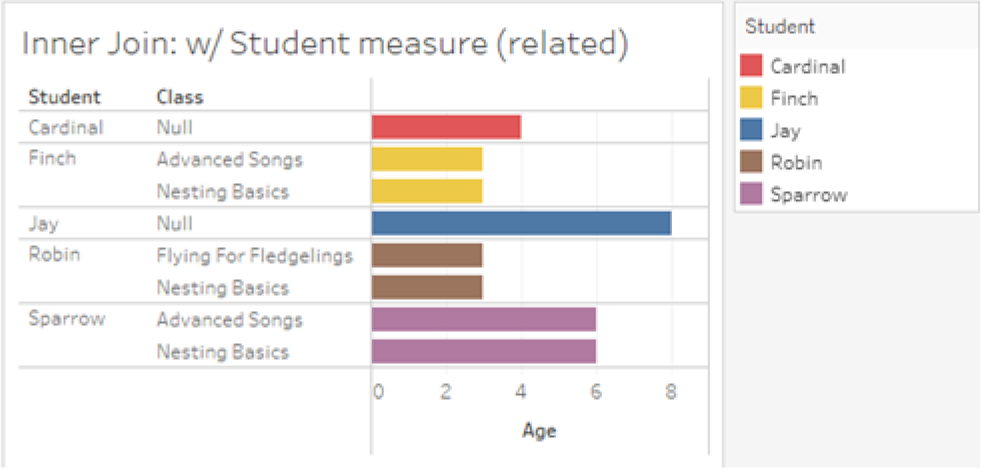
Student	Class	
Finch	Advanced Songs	🟨
	Nesting Basics	🟨
Robin	Flying For Fledgelings	🟫
	Nesting Basics	🟫
Sparrow	Advanced Songs	🟪
	Nesting Basics	🟪

Student
- 🟨 Finch
- 🟫 Robin
- 🟪 Sparrow

If we add the **Length** measure from the Class table, we see that all *four* classes are shown and there's a null for Student. Every class **Length** is displayed, at the level of **Class**.



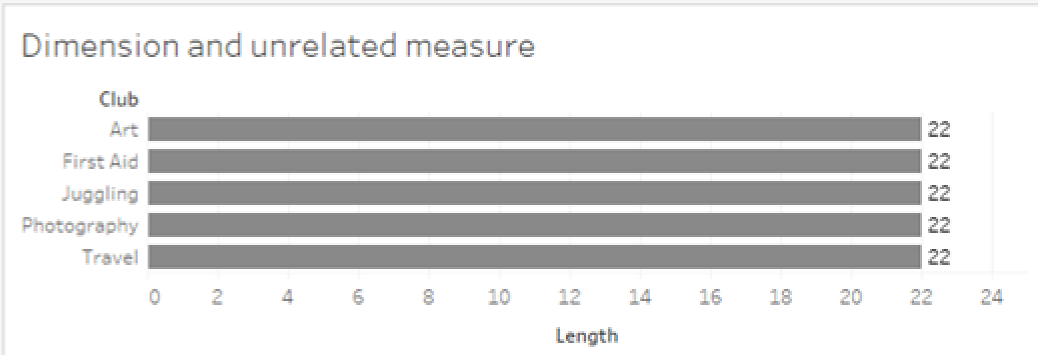
If we instead add the **Age** measure from the Student table, we see that all *five* students are shown and there are two nulls for Class. The results preserve every student, even if they're not in a class. Every student **Age** is displayed, at the level of **Student**.



Unrelated measures

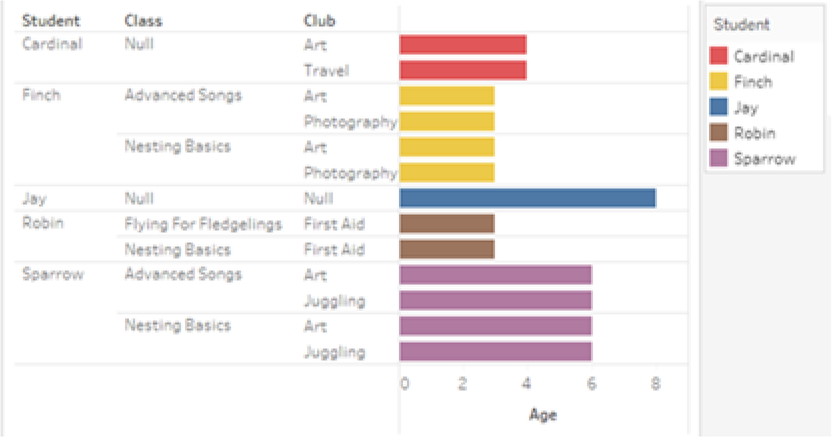
Measure values are repeated for unrelated dimension values.

If we look at the **Length** measure from the Classes table and the unrelated **Club** dimension, the measure is table scoped and repeated across all the dimension values of **Club**.



In the presence of a stitching dimension, measures can be both broken down and repeated.

Here, the measure **Age** is from the Students table and is broken down to the level of student. Each time a student is repeated based on the dimensions for **Class** and **Club**, the **Age** value is repeated.



Troubleshooting

Considerations when working with multi-fact relationship data models

Per table extract filters

All extract filters for a multi-fact relationship data model extract are per-table (not pervasive). Because of this, filtering results may be different between live and extract connection.

Row level calculations

Row level calculations can only refer to fields which share the same upstream base table. That is, row level calculations can't be performed across trees.

Combined Fields

All fields in a combined field must share an upstream table. That is, you can't create a combined field using fields that are in different trees.

Sets

Sets can only be created with a definition that involves fields that share the same upstream base table. However, in a viz, the option to Add to Set may be available from a mark when that mark is defined by fields unrelated to the fields used to define the set. If you choose Add to Set, Tableau will add only the related fields to the set definition. This is different from the behavior for Add to Set in single base table data sources, when Add to Set adds everything that defines the mark.

Validate INCLUDE level of detail expressions

INCLUDE LOD expressions can't be evaluated across unrelated fields. Because relatedness between fields is evaluated on a sheet-by-sheet basis, it's possible to have a valid LOD expression in the Data pane or calculation editor that becomes invalid in the context of a specific viz (in the presence of an unrelated dimension). When this happens, the LOD pill will turn red. You can update the LOD expression to remove unrelated field conflicts, change the structure of the viz, or remove the LOD expression from the viz.

Updating Published Data Sources

As a best practice, create a copy of an existing published data source if you plan to modify it to become a multi-fact relationship data model when not all of its connected workbooks need the new data model. Don't update the existing version of the data source unless all its workbooks need the new tables. Publish the modified data source as a new data source and create new workbooks from it. This will prevent the existing workbooks from being converted to use VDS instead of data server when they don't need the functionality, preventing the potential for a performance hit.

Resolved issues

Resolved Issue	Fixed as of
Extracts *Local data source (in a workbook):* Attempting to extract a multi-fact relationship data source will give a "No such table" error. *Published data source:* Extracting a published multi-fact relationship data source appears to succeed, but field values can be swapped.	- Tableau Cloud: Resolved as of mid July updates. This also applies to public.tableau.com. - Tableau Desktop: Resolved as of maintenance release 2024.2.1 released July 24th, 2024 - Tableau Server: Resolved as of maintenance release

EXCLUDE Level of Detail expressions Only INCLUDE LODs should be validated in the presence of unrelated fields. However, EXCLUDE LODs may also be incorrectly marked as not valid in the same conditions.	2024.2.1 released July 24th, 2024 If you still see these issues in Tableau Desktop or Tableau Server, upgrade to a version from July 24th, 2024 or later.
Nested user calculations Nested user calculations are not available in published data sources with a multi-fact relationship data model.	

Known issues in 2024.2

Relatedness indicators with multiple Marks cards

When a viz is built with multiple measures on the Rows shelf or on the Columns shelf, each measure gets its own Marks card. The logic used to determine relatedness indicators (the unrelated icon, the text in tooltips, and the relatedness warning dialog) may not give expected results depending on which Marks card is open. The viz itself, however, is correctly computed based on the relatedness of each pair of fields. There is a planned fix for this behavior.

BatchQueryProcessor

BatchQueryProcessor must be enabled to support multi-fact relationship data models. This is expected behavior with no currently planned fix.

Tableau Pulse

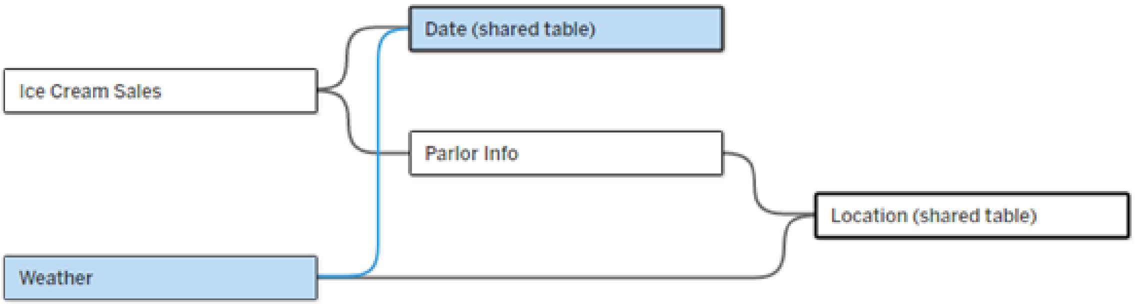
Tableau Pulse may not work with multi-fact relationship data models. You may be prevented from creating a metric definition, or any metrics that are created may be blank. This is not expected behavior but there is no currently planned fix yet.

When to Use a Multi-fact Relationship Model

A multi-fact relationship model is a data model that lets you add unrelated tables in a single data source and then uses related fields during visual analysis to essentially stitch the tables together based on the context. Unlike blending, the data exists within a single data source—the concepts of primary and secondary data sources don't apply and no data is dropped from left joins. Unlike a single table data model, multiple base tables maintain their own context regarding tables shared between them. A multi-fact relationship data model gives you more options for performing multi-fact analysis in Tableau.

Imagine you want to analyze how weather and ice cream sales trend together. Weather and ice cream sales both happen at specific times and specific places, but there's no direct connection between ice cream sales and weather. These are unrelated pieces of data that both relate to the shared concepts of date and location.

This question lends itself to creating a multi-fact relationship model. Ice Cream Sales and Weather each can be added as a base table and related on Date and Location, which are shared tables.



A multiple base table data model, with two unrelated tables (Ice Cream Sales and Weather) and two shared tables (Date and Location). There is an intermediate table, Parlor Info, between Ice Cream Sales and Location.

Why did we build the capability to model unrelated tables?

Analysis often involves bringing together tables of data that don't even have a direct relationship to each other but that both relate to the same, common information (such as date or location). A multi-fact relationship model supports loose semantic coupling by introducing the concept of degrees of relatedness and the ability to build a data model with multiple, unrelated base tables.

- Semantic coupling is a term used to describe how tightly combined data is. A *join* or a *union* is a tight semantic coupling; they bring multiple tables together into a new physical table that then acts as a single table. A *relationship* is a looser coupling between tables that ties tables together logically, maintaining their distinct status as separate tables. Even further along the semantic coupling spectrum is *data blending*, where results from separate data sources are visually combined based on elements shared between both them. A *multi-fact relationship model* is closer to the blending end of the spectrum, but within a single data source instead of across data sources.

A multi-fact relationship model—a data model with multiple base tables—permits unrelated tables in the model as long as shared tables exist in the model, too. During analysis, fields from a shared table "stitch" together otherwise unrelated tables of data based on the shared dimensions they have in common (such as happening in the same place or at the same time). All the benefits of relationships are maintained, including the retention of each table's grain, or native level of detail.

Similar to a single base table data model, Tableau determines the best join type to use behind the scenes based on the structure of the viz. But in a multi-fact relationship model, the join options are expanded to include outer and cross joins to handle different levels of relatedness. For more information, see About Multi-fact Relationship Data Models.

Where did the name come from?

Multi-fact relationships get their name from multi-fact analysis. In a data warehouse model, data is stored in a central fact table surrounded by dimension tables. In this context, *fact* refers to measurements or metrics, which are numeric fields of data that capture facts about the data—Tableau's measures. Dimension tables contain attributes about these facts.

Schemas based on fact tables are often structured as a star or snowflake, depending on how the dimension tables are organized. When analysis needs to be performed across fact tables, this is called multi-fact analysis. Analysis is done in the context of the common dimension tables, known as shared dimensions or conformed dimensions. In Tableau you build these data models using relationships, so we've named this suite of capabilities multi-fact relationships.

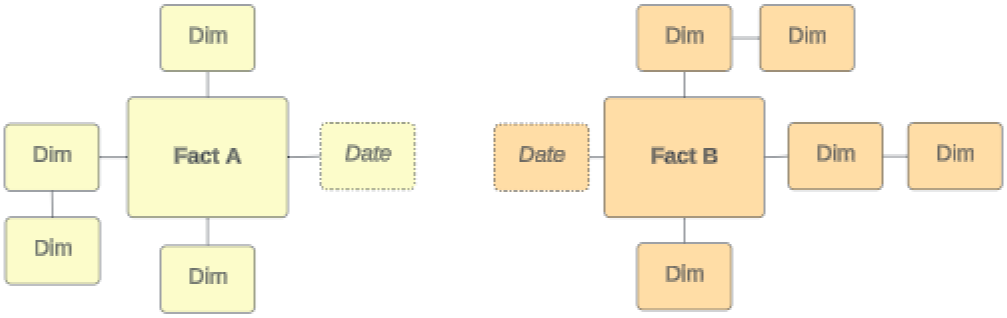
When to use multi-fact relationship data models

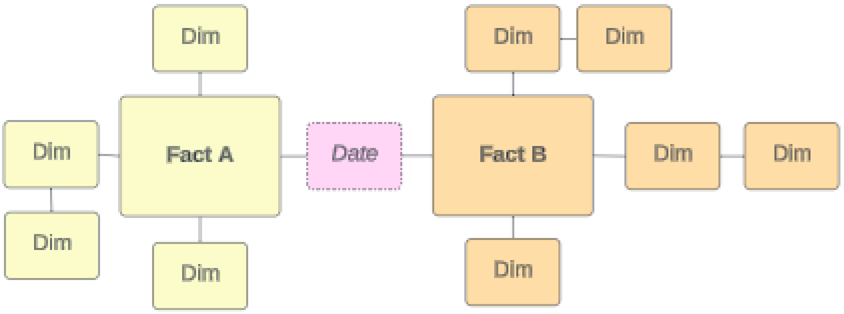
If your data consists of tables that are all related to each other, you can stick with single base table data sources built with relationships. A multi-fact relationship model is called for when your data spans different concepts, either in the form of multiple fact tables, or different unrelated contexts.

Whenever possible, build your data sources with a single base table. In a single base table data model every table is related and there is no need to consider degrees of relatedness. Only use multi-fact relationships when that data model structure is called for.

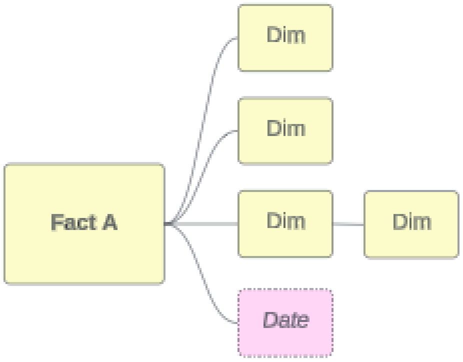
Multi-fact analysis

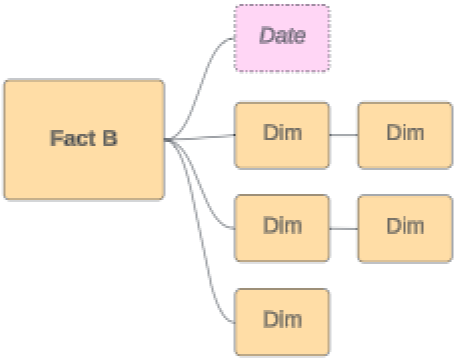
Multi-fact analysis is a core use case for multi-fact relationships in Tableau. In this example, Fact A and Fact B share a table Date.

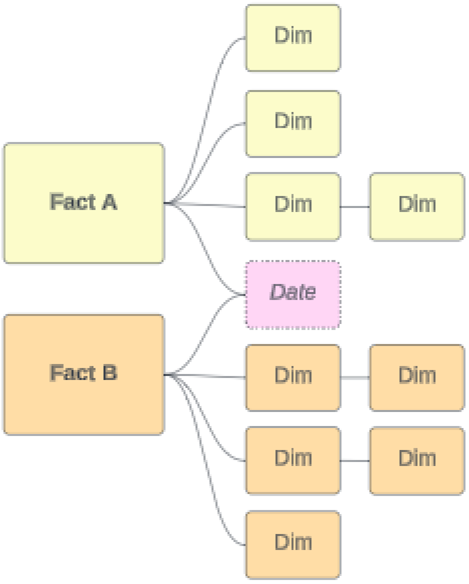

Dim
Dim
Fact A
Date
Dim
Dim
Dim
Dim
Date
Fact B
Dim
Dim
Dim


Dim
Dim
Dim
Dim
Fact A
Date
Fact B
Dim
Dim
Dim
Dim
Dim

To model this in Tableau, the fact tables become base tables and multiple incoming relationships are established for their shared dimension table.


Dim
Dim
Fact A
Dim
Dim
Date


Date
Fact B
Dim
Dim
Dim
Dim
Dim


Dim
Dim
Fact A
Dim
Dim
Date
Fact B
Dim
Dim
Dim
Dim
Dim

Other scenarios

Multi-fact relationship data models aren't just for multi-fact analysis, however. Tableau doesn't require a strict definition of fact or dimension tables. Any table can be a base table (although it should suit the characteristics of base tables). Some scenarios that indicate a multiple base table data source might be helpful include:

- **Moving through stages**, such as base tables for applications, transcripts, and alumni events for a shared student table.

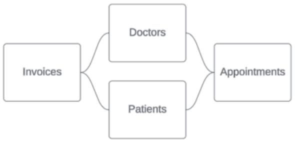
- **Different contexts for the same events**, such as base tables for the events of medical appointments and billing invoices, with shared tables to set the context to doctors or patients.
- **Different domains that may correlate,** such as scenarios that would previously be best handled with data blending, like ice cream sales and weather correlated through the shared tables of date and location.

Learn more about when multi-fact relationships are useful in this Tableau blog post: When and How to Use Multi-fact Relationships in Tableau.

Identify the base tables

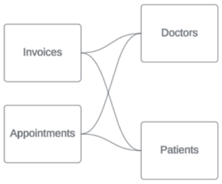
In a multi-fact relationship model, directionality matters. That is to say, which tables are the base tables along the left side of the model and which tables are shared downstream impacts how the relationships are evaluated to return the analytical results.

Consider a conceptual bow tie of invoices, appointments, doctors, and patients:

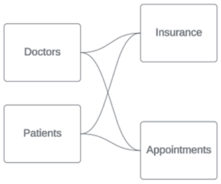


The correct way to build the data model in Tableau is with Invoices and Appointments as the base tables, and with Doctors and Patients as the shared tables (not with Doctors and Patients as the base tables).

Correct: Invoices and Appointments as the base tables



Incorrect: Doctors and Patients as the base tables



Conceptually, a patient (or doctor) is the entity that stitches together the event of an appointment and the event of an invoice.

If your data model is backwards (such as with Doctors and Patients as the base tables instead of Appointments and Invoices), the outer join stitching behavior won't be as useful. Your analysis might show a lot of table scoped measures and ambiguity. If you find yourself with ambiguously related fields that you weren't expecting , reevaluate the tables you are using as base tables and see if your data model needs to be reversed.

Characteristics of base tables and shared tables

If you're performing multi-fact analysis, the fact tables become the base tables and any shared dimension tables are shared tables. Tableau doesn't require a strict adherence to fact and dimension table characteristics. However, there are certain attributes that can help you identify which tables should be base tables and which should be shared tables.

Base table	**Shared table**
Fact tables in a data warehouse schema	Shared or conformed dimension tables in a data warehouse schema
Specific to the context or analysis	Consistent concept across various contexts
(flight information, energy usage)	(date, location)
Measure heavy	Primarily dimensions
More frequently updated/transactional	More stable/durable
(medical appointments, prescriptions, vitals)	(doctor, patient)
Has foreign key fields	Has primary key fields
Event based	Entity based
(class schedule, grade on an assign-	(student, classroom)

ment)

Note that if there are intermediate tables between a base table and a shared table, you can swap which one is the base table without fundamentally altering the data model. (Such as Parlor Info and Ice Cream Sales in the first example.) What matters is which tables are upstream of the shared tables and which are shared.

Try an additional base table instead

There are various scenarios that may indicate you should build a multi-fact relationship model with multiple base tables rather than a single base table data source:

- If you're trying to build a data source with a cycle, the downstream table should be another base table instead.
- If you have a series of tables that are related on the same sets of relationship clauses (such as date and location), those dimensions should be pulled out and made into shared tables instead.
    - This is especially useful because multiple relationship clauses must all be true (logically, an AND) for the tables to be related for those records.
    - If, instead, you want to analyze records where one may be true at a time (a contextual OR), this flexibility is provided by setting up a data model with shared dimension tables instead.
- If you're using a blend but want to have an equivalent blend without primary and secondary data sources, build a data model which combines the data sources from the blend with their linking fields in a shared table or tables.

Build a Multi-fact Relationship Data Model

Analysis often involves bringing together tables of data that don't have a direct relationship to each other yet both relate to the same, common information such as date or location. This type of analysis is sometimes referred to as multi-fact analysis with shared dimensions.

To perform this kind of analysis in Tableau, you need to create a data source that uses multiple base tables connected by shared tables.

- *Base tables* are the left-most tables in the data model on the Data Source tab. For guidance on how to determine which tables to use as base tables, see When to Use a Multi-fact Relationship Model.
- *Shared tables* are downstream tables with multiple incoming relationships. These tables contain fields that can be used to stitch together unrelated fields during analysis in a viz. Date and Location are examples of commonly shared tables.

Build the model

Building a multi-fact relationship data model is essentially the same as creating any other data source that uses relationships, but with two additional pieces: additional base tables and multiple incoming relationships to shared tables.

1. Connect to your data. You can use multiple data connections if your tables aren't all in the same database.
2. Drag a table onto the canvas to create the first base table.
3. Drag another table from the left pane to the **New Base Table** drop area.

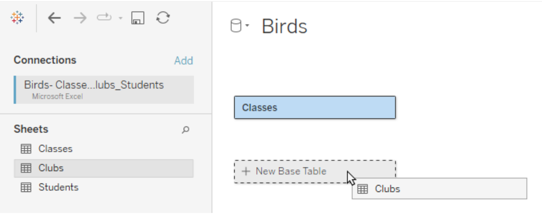
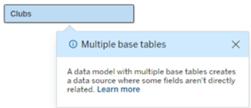
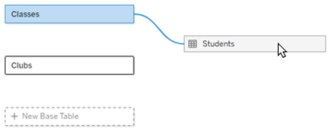


Tableau shows a warning that you're building a data model with multiple base tables. We recommend that you only set up a multiple base table model if your data needs it. Otherwise, use a single base table model to avoid the complexities that come with a multiple base table model.

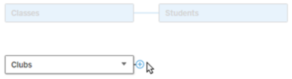


A data model with multiple base tables creates a data source where some fields aren't directly related. Learn more

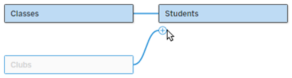
4. Drag another field to the canvas and relate it to one of the base tables. Configure each relationship if necessary.



5. Hover over the not-yet-related base table to display a plus sign (affectionately known as a "meatball").



6. Drag the plus sign icon to the shared table to create a new incoming relationship (also known as a "noodle").



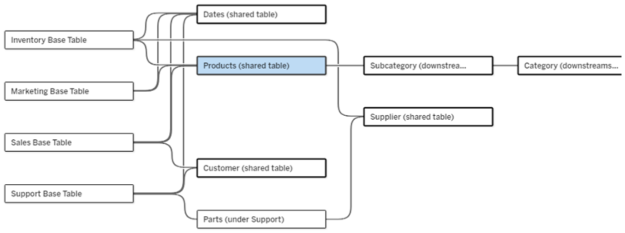
7. *Optional:* Continue adding downstream tables and base tables. Click and drag the plus sign icon to build shared tables as needed.

Note: Rather than starting with the base tables, you can also build a single base table model first and add additional base tables later.

Explore the model

A data model with multiple base tables is built with relationships, but not all tables are related to each other to the same degree. Each base table defines a *tree*, which contains every table related to that base table, either directly related or downstream from a related table. Shared tables exist in multiple trees. For more information about degrees of relatedness, see About Multi-fact Relationship Data Models.

When you view a model with multiple base tables, there are various options for exploring and managing the data model. These options are especially useful when a data model is complex.


Dates (shared table)
Inventory Base Table
Products (shared table)
Subcategory (downstrea...
Category (downstreams...
Marketing Base Table
Supplier (shared table)
Sales Base Table
Customer (shared table)
Support Base Table
Parts (under Support)

An example of a complex data model with four base tables, multiple shared tables, and downstream tables that are both shared and unshared between the base tables.

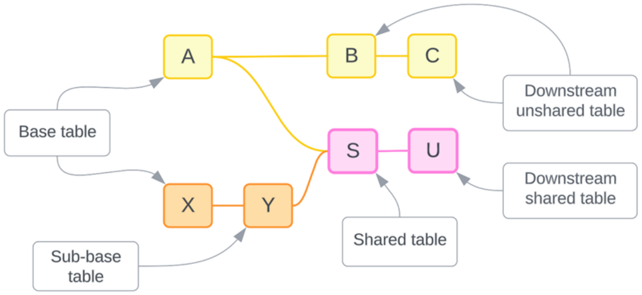
2024.2 introduced some new layout details for the data model. In a multi-fact relationship data model, relationships bundle together to help track how many incoming relationships a table has, and shared tables (and downstream shared tables) have a bolder outline than tables that aren't shared.

Terminology

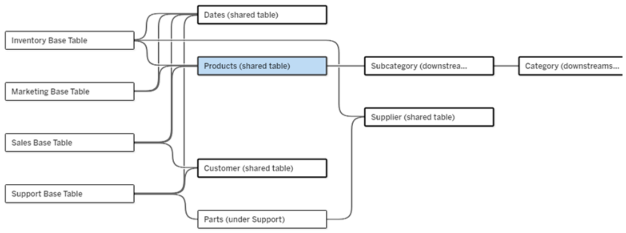
Tables in a multiple base table data model have specific roles. Base tables and shared tables are the only tables that must exist in a multi-fact relationship data model. (Without more than one base table, it's not a multi-fact relationship data model. Without a shared table connecting the base tables, it's not a valid data model.)

Because of the often complex nature of these models, it's useful to have a shared terminology for discussing other types of tables by how they fit into the data model.

- *Base tables* are on the far left and have no incoming relationships.
  - In the example, Inventory, Marketing, Sales, and Support are base tables.
- *Sub-base tables* are between a base table and a shared table.
  - In the example, Parts is a sub-base table.
- *Shared tables* have more than one incoming relationship.
  - In the example, Products, Dates, Customer, and Supplier are shared tables.
- *Downstream shared tables* have exactly one incoming relationship and have a shared table somewhere upstream of them.
  - In the example, Subcategory and Category are downstream shared tables.
- *Downstream unshared tables* have exactly one incoming relationship and have no shared tables upstream of them.
  - In the example, there are no downstream unshared tables.


A
B
C
Base table
Downstream unshared table
S
U
Downstream shared table
X
Y
Shared table
Sub-base table

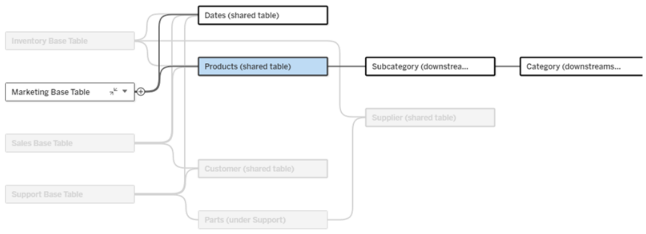
Test your understanding: identify the types of tables in the example data source


Dates (shared table)
Inventory Base Table
Products (shared table)
Subcategory (downstrea...
Category (downstreams...
Marketing Base Table
Supplier (shared table)
Sales Base Table
Customer (shared table)
Support Base Table
Parts (under Support)

- **Base tables**: Inventory, Marketing, Sales, and Support
- **Sub-base table:** Parts
- **Shared tables:** Products, Dates, Customer, and Supplier
- **Downstream shared tables:** Subcategory and Category
- **Downstream unshared tables:** none

Identify a relationship tree

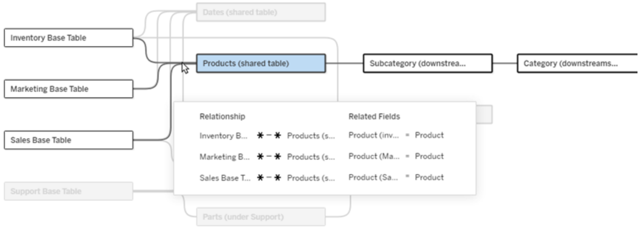
Hover over a table to highlight the tables it's related to. Tableau emphasizes the tree for that table and deemphasizes unrelated tables.


Dates (shared table)
Inventory Base Table
Products (shared table)
Subcategory (downstrea...
Category (downstreams...
Marketing Base Table
Supplier (shared table)
Sales Base Table
Customer (shared table)
Support Base Table
Parts (under Support)

The Marketing base table tree consists of two shared tables, Dates and Products, and downstream shared tables Subcategory and Category.

View relationship details

Hover over a relationship or bundle of relationships to see the details in a tooltip.


Dates (shared table)
Inventory Base Table
Products (shared table)
Subcategory (downstrea...
Category (downstreams...
Marketing Base Table
Sales Base Table
Support Base Table
Parts (under Support)

Relationship			Related Fields		
Inventory B...	✱ – ✱	Products (s...	Product (inv...	=	Product
Marketing B...	✱ – ✱	Products (s...	Product (Ma...	=	Product
Sales Base T...	✱ – ✱	Products (s...	Product (Sa...	=	Product

The incoming relationships to the Products table include three individual relationships to the Inventory, Marketing, and Sales base tables.

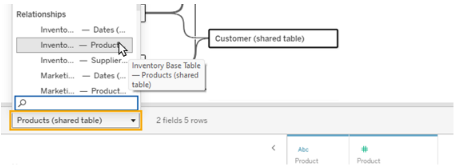
Select a relationship

When a relationship is selected, it is highlighted in blue in the data model canvas and its details appear in the Table Details pane below the data model canvas. The Table Details pane is where you can inspect or modify the relationship clause.

There are multiple ways to select a relationship:

- Click a relationship line (noodle) in the canvas. Every relationship has a clickable zone that selects just that noodle.
- Right-click or control-click a table in the canvas to open its menu. Select the **Select Relationship** option and choose which table's relationship you want.
- Click a bundle of relationships in the canvas to bring up a persistent tooltip (hovering over a bundle brings up the tooltip, you have to click to make it persist). Then select a row in the tooltip details to highlight that relationship in the model.
- Open the menu in the toolbar of the Table Details pane and select the desired relationship. You can also use this menu to select a specific table to see its preview in the

pane.


Relationships
Invento... — Dates (...
Invento... — Product...
Invento... — Supplier...
Marketi... — Dates (...
Marketi... — Product...
Customer (shared table)
Inventory Base Table — Products (shared table)
Products (shared table)
2 fields 5 rows
Abc
Product
#
Product

Swap with base table

Intermediate tables in a relationship between a base table and shared tables give you the option to swap the downstream table with the base table. This is purely a visual change to aid with conceptual understanding and doesn't change the structure of the data model.

Right-click or control-click a downstream table and select **Swap with base table (table name)**. The swap option is also only present on the downstream table and not the base table.

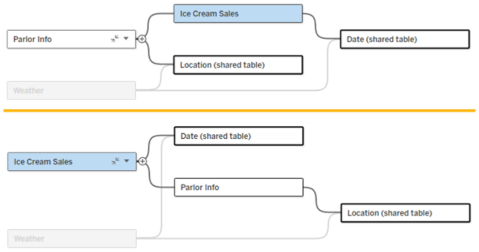
The swap option is not available for tables which would alter the data model if swapped, such as shared tables or downstream shared tables. Only downstream unshared tables or sub-base tables can be swapped with base tables.

Example

In this example, the **Parlor Info** and the **Ice Cream Sales** tables can be swapped without changing the data model's fundamental structure. No other tables can be swapped.

- Ice Cream Sales is related to both Parlor Info and the shared Date table.
- Parlor Info is related to both Ice Cream Sales and the shared Location table.
- Weather is related to both the shared tables of Date and Location.

These two models are conceptually equivalent:


Parlor Info
Ice Cream Sales
Date (shared table)
Location (shared table)
Weather
Date (shared table)
Ice Cream Sales
Parlor Info
Location (shared table)
Weather

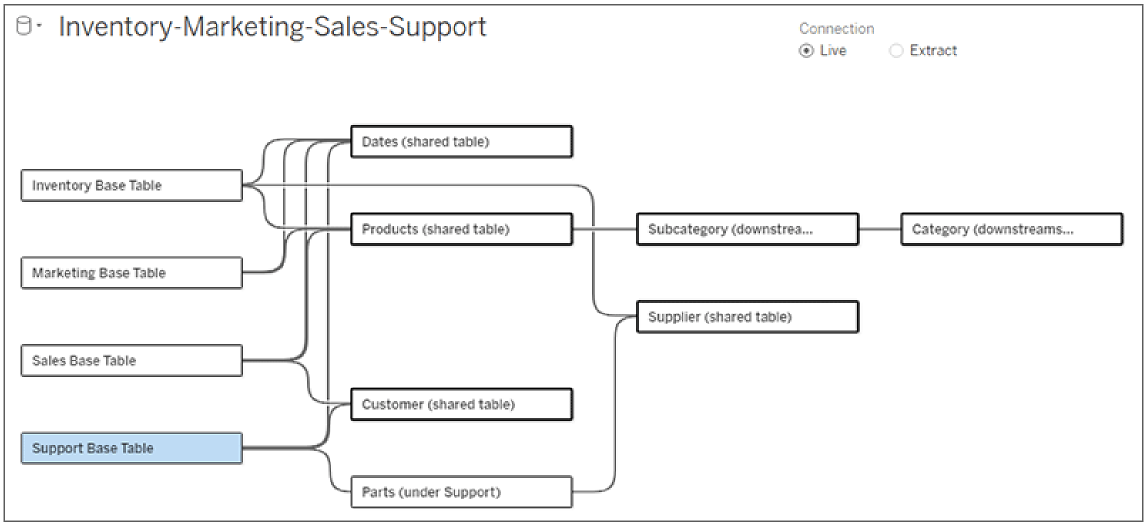
Collapse a base table

You can also collapse a relationship path, or tree, to just its base table to temporarily simplify the view of the data model.

Click the Collapse or Expand buttons on a base table to collapse or expand its entire tree. Alternatively, right-click or ctrl-click on a downstream table and select **Collapse this path** or **Collapse other paths**. This option is not available on shared tables or tables downstream of shared tables.

Collapsing a tree to its base table is purely visual and won't trigger the Unrelated Tables alert. A collapsed path is indicated by a base table with a stacked table and an Expand button. Collapsing affects all tables and relationships that are relevant only to that tree, so tables that are shared with an uncollapsed path are not hidden.

Use the Expand button to re-open the base table and everything in the tree.


Inventory-Marketing-Sales-Support
Connection
● Live
○ Extract
Inventory Base Table
Marketing Base Table
Sales Base Table
Support Base Table
Dates (shared table)
Products (shared table)
Customer (shared table)
Parts (under Support)
Subcategory (downstrea...
Category (downstreams...
Supplier (shared table)

Troubleshooting

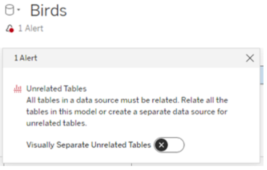
Create a single data source

All tables must be related to the entire data source in some way. If there are any tables that aren't related to the overall data model, an alert appears. The alert remains until no tables or trees are fully separate from the rest of the data model. When the alert is active, the data source can't be published and you can't use the data source in an analysis.

You can open the alert and set Visually Separate Unrelated Tables to identify which tables triggered the alert. This option is useful when you have a complex model and need to identify which table or tables aren't yet related to the rest of the data model.

Example

In the steps under Build a model, an alert displays in Step 4 before a relationship is added to connect the second base table.

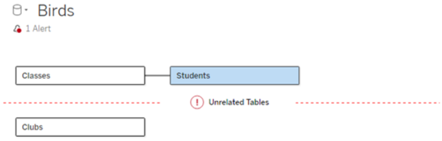


Unrelated Tables

All tables in a data source must be related. Relate all the tables in this model or create a separate data source for unrelated tables.

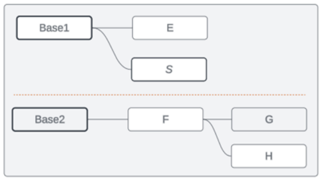
Visually Separate Unrelated Tables ✕

Setting **Visually Separate Unrelated Tables** to On moves the table **Clubs** underneath the **Unrelated Tables** line. Relating **Clubs** to **Students** resolves the alert.

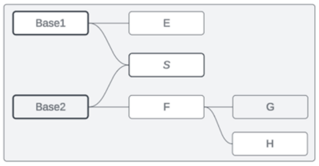


Resolve a cycle

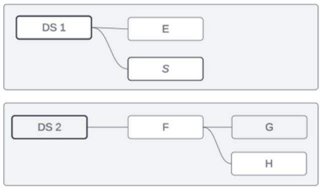
Even if some tables aren't directly related to each other, the entire data model must be a cohesive whole. In this example, each base table defines a tree but there is no shared table connecting them. This isn't a valid model for analysis.



The two groups of related tables need to be combined via a shared table...


Base1
E
S
Base2
F
G
H

...or the data model needs to be created as two separate data sources.

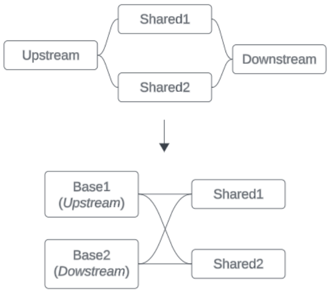

DS 1
E
S
DS 2
F
G
H

Data model restrictions

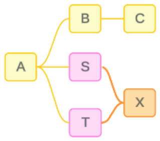
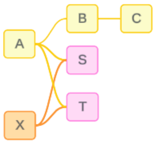
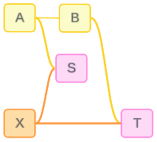
Some relationship paths between tables are not supported in a multi-base table model. If you’re unable to drop the meatball when you attempt to create a second incoming relationship on a table, make sure the structure you're trying to create is supported in Tableau. Examples of unsupported models include:

Cycles

Cycles—where there’s more than one relationship path from an upstream table to the same downstream table—are not supported. This unsupported structure is sometimes called a bowtie. To model this kind of relationship between tables in Tableau, use multiple base tables instead of a bowtie by converting the downstream table to another base table.

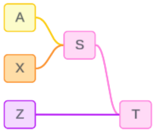

Shared1
Upstream
Downstream
Shared2
Base1
(Upstream)
Shared1
Base2
(Dowstream)
Shared2

The data model must be a *directed acyclical graph*. This means every incoming relationship to a table must be traceable upstream to a different base table.

Not supported. Table X has two incoming relationships that are both from tables downstream from Base Table A	**Supported**. Tables S and T both have multiple incoming relationships, but each one is from a different base table.	**Supported**. Although it may visually look like there's a cycle, the incoming relationships for both Table S and Table T can be traced back to different base tables.
		

Nested shared tables

Nested shared tables are not supported. Any tables downstream from a shared table (a table with multiple incoming relationships) can only have one incoming relationship.



Not supported. Table T is downstream from a shared table and can't receive an additional incoming relationship.

Understand Tooltips for Multi-fact Relationship Data Models

Note: For single table data sources or single-base table data sources, all the tables are related. Everything on this page refers to multiple base table data sources.

Field-level relatedness

Data models with multiple base tables have a lot of flexibility in how the tables can relate—or not relate—to each other. The relatedness of the *tables* is a constant based on the data model. However, the relatedness of *fields* in a viz depends on what fields are active (that is, what fields are in use on the worksheet shelves as pills). At the level of a single viz, Tableau evaluates active fields in pairs to determine how they relate to each other.

An unrelated icon on a field means it's unrelated to at least one other field in the viz. This icon can appear in a pill on a shelf or in the Data pane. (In some instances, there may be a related icon.) Hovering over the icon opens a tooltip with more information. There are different messages for different types of field relatedness, including:

- Unrelated dimension-dimension pairs
- Unrelated dimension-measure pairs
- Stitching dimensions
- Unrelated filter pairs

The messages also varies slightly depending on whether the field is in use on a shelf or in the Data pane.

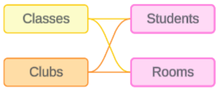
- **On a shelf**: The tooltip for pills on shelves provides information about how the fields in the viz are related to each other and what impact that has on how Tableau computed the results.
- **In the Data pane**: The tooltip for fields in the data pane provides information about what *would* happen if that field were added to the viz. Fields in the Data pane can also be de-emphasized with light gray text if they don't related to any fields in the viz.

Tip: In Tableau, aggregated dimensions—such as ATTR(dimension) or MIN(dimension)—function as measures.

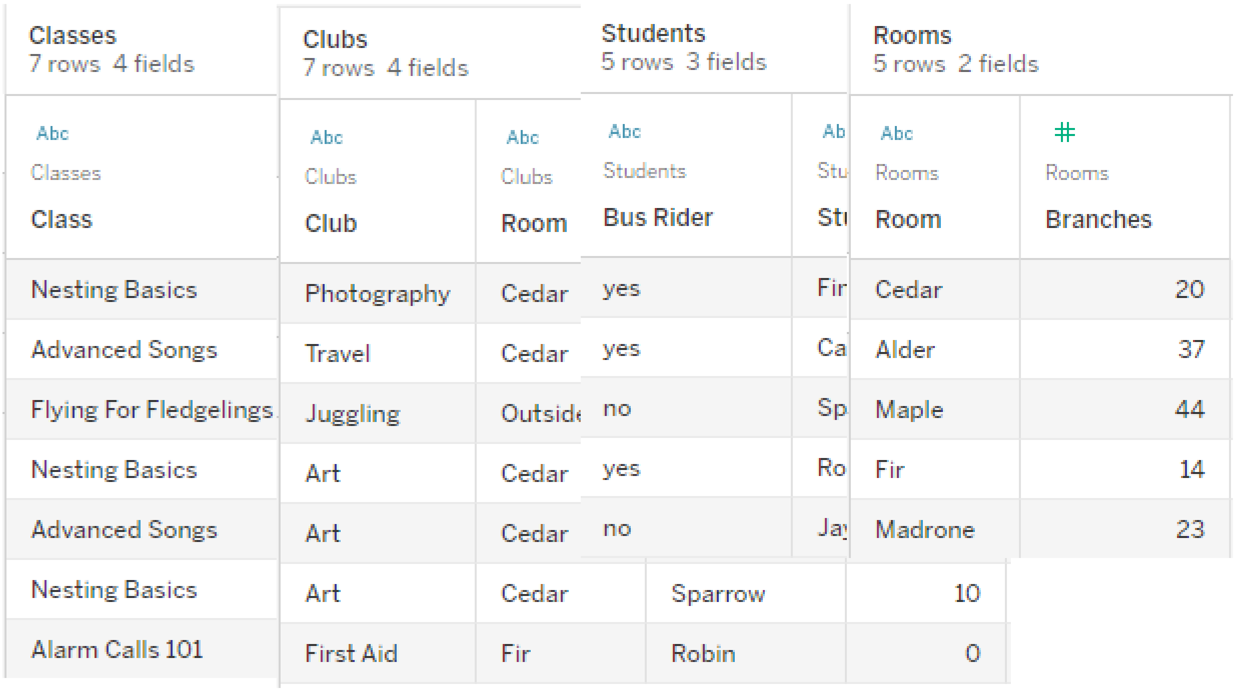
Know your data model

Whenever you're working with a data model that contains multi-fact relationships, it's useful to refer to the model regularly. Use the View Data Model option (**Worksheet** menu > **View Data Model**) to open a dialog with the data model you can refer to while on a sheet tab.

The examples in this topic are based on a data model with two base tables, Classes and Clubs, and two shared tables, Students and Rooms.



Classes **Clubs** **Students** **Rooms**



Classes
7 rows 4 fields

Abc Classes Class
Nesting Basics
Advanced Songs
Flying For Fledgelings
Nesting Basics
Advanced Songs
Nesting Basics
Alarm Calls 101

Clubs
7 rows 4 fields

Abc Clubs Club	Abc Clubs Room		
Photography	Cedar		
Travel	Cedar		
Juggling	Outsid		
Art	Cedar		
Art	Cedar		
Art	Cedar	Sparrow	10
First Aid	Fir	Robin	0

Students
5 rows 3 fields

Abc Students Bus Rider	Ab Stu St
yes	Fir
yes	Ca
no	Sp
yes	Ro
no	Ja

Rooms
5 rows 2 fields

Abc Rooms Room	# Rooms Branches
Cedar	20
Alder	37
Maple	44
Fir	14
Madrone	23

Fields:

- **Class**, a dimension with values of Nesting Basics, Advanced Songs, Flying for Fledglings, and Alarm Calls 101
- **Room**, a dimension used to relate to the

Fields:

- **Club**, a dimension with values of Photography, Travel, Juggling, Art, and First Aid
- **Room**, a dimension used to relate to the Rooms table
- **Student**, a dimension used to relate to the Students

Fields:

- **Bus Rider**, a dimension with values of yes or no
- **Student**, a dimension with values of Finch, Cardinal, Sparrow, Robin, and Jay. Used to relate to the base tables
- **Age**, a

Fields:

- **Room**, a dimension with values of Cedar, Alder, Maple, Fir, and Madrone
- **Branches**, a measure

Rooms table • **Student**, a dimension used to relate to the Students table • **Length**, a measure	table • **Dues**, a measure	measure

Unrelated dimension-dimension pair

Unrelated dimensions are cross joined, which can result in combinations of dimension members across the headers that do not reflect actual combinations of data in the underlying tables.

The message for an unrelated dimension-dimension pair is:

- **On a shelf**: Unrelated dimensions show all possible combinations of values. Unrelated to: <*list of dimensions*>
- **In the Data pane**: If used, this dimension will show all possible combinations of values with unrelated dimensions: <*list of dimensions*>
- **Grayed out in the Data pane**: This dimension isn't related to any dimensions in the viz. If used, it will show all possible combinations of values with other unrelated dimensions.

And for an unrelated filter, the message is:

- **In the viz**: This field isn't filtered by unrelated filters: <*filters*>
- **In the Data pane**: If used, this field will be ignored by unrelated filters: <*filters*>

Cross joins can be expensive operations that negatively impact performance. Because of this, Tableau also displays a Relatedness warning dialog if you add an unrelated dimension to the viz.

Stitching dimensions

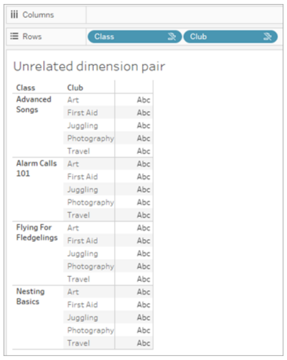
Although there are analytically relevant reasons to visualize unrelated dimensions alone, a common "happy path" for analysis with multiple base tables is to use a stitching dimension in addition. In the presence of a stitching dimension, the unrelated dimensions are no longer cross joined but are outer joined instead. Outer joins may still introduce nulls, but the dimension member headers are trimmed down from every possible combination to combinations that are relevant to at least one side of the outer join. They also don't have the same potential for performance impacts as cross joins. If there are no other relatedness issues that would call for an unrelated icon, a stitching dimension shows a related icon instead.

The message for a stitching dimension is:

- **On a shelf**: This dimension stitches together the following fields: *<list of fields>*
- **In the Data pane**: If used, this dimension will stitch together the following fields: *<list of fields>*
- **Grayed out in the Data pane**: *doesn't apply, stitching only occurs in a viz*

Comparing unrelated dimensions with stitched dimensions

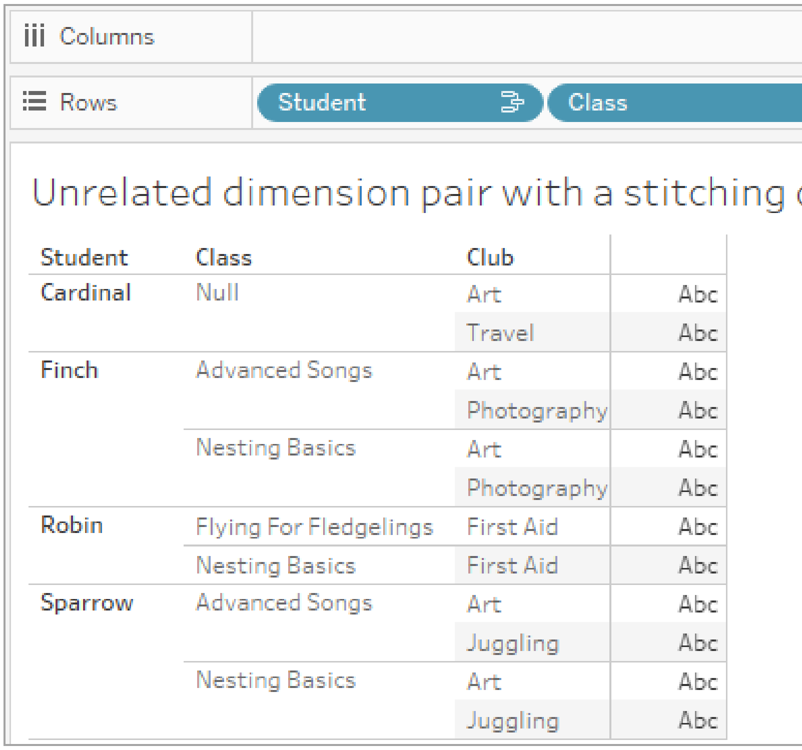
Unrelated: Cross join	Stitched: Outer join of intermediate inner joins



Unrelated dimension pair

Class	Club	
Advanced Songs	Art	Abc
	First Aid	Abc
	Juggling	Abc
	Photography	Abc
	Travel	Abc
Alarm Calls 101	Art	Abc
	First Aid	Abc
	Juggling	Abc
	Photography	Abc
	Travel	Abc
Flying For Fledgelings	Art	Abc
	First Aid	Abc
	Juggling	Abc
	Photography	Abc
	Travel	Abc
Nesting Basics	Art	Abc
	First Aid	Abc
	Juggling	Abc
	Photography	Abc
	Travel	Abc

A viz showing a cross join of Class and Club with rows for every combination of Advanced Songs/Alarm Calls 101/Flying for Fledglings/Nesting Basics with Art/First Aid/Juggling/Photography.



Unrelated dimension pair with a stitching

Student	Class	Club	
Cardinal	Null	Art	Abc
		Travel	Abc
Finch	Advanced Songs	Art	Abc
		Photography	Abc
	Nesting Basics	Art	Abc
		Photography	Abc
Robin	Flying For Fledgelings	First Aid	Abc
	Nesting Basics	First Aid	Abc
Sparrow	Advanced Songs	Art	Abc
		Juggling	Abc
	Nesting Basics	Art	Abc
		Juggling	Abc

A viz showing the results of an outer join of the Student-Class inner join and the Student-Club inner join. Not all combinations of classes and clubs are represented, and there are rows for students and clubs without a class.

Unrelated dimension-measure pair

For information about how measure values are computed and why relatedness of the dimensions matters, see An aside on how measure values are computed.

The message for the measure is:

- **On a shelf**: This measure can't be broken down by unrelated dimensions: *<list of dimensions>*.

- **In the Data pane**: If used, this measure won't be broken down by unrelated dimensions: *<list of dimensions>*
- **Grayed out in the Data pane**: This measure isn't related to any dimensions in the viz. If used, it won't be broken down.

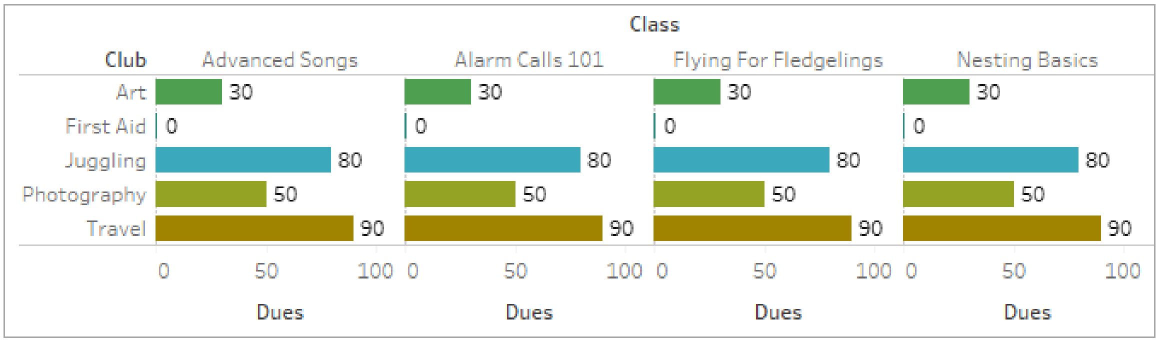
The message for the dimension is:

- **On a shelf**: This dimension can't break down unrelated measures: *<list of measures>*
- **In the Data pane**: If used, this dimension won't break down unrelated measures: *<list of measures>*
- **Grayed out in the Data pane**: This dimension isn't related to any measures in the viz. If used, it won't break down measure values.

And for an unrelated filter, the message is:

- **In the viz**: This field isn't filtered by unrelated filters: *<filters>*
- **In the Data pane**: If used, this field will be ignored by unrelated filters: *<filters>*

The result in a viz is a repeated value for the measure across the unrelated dimension's values. This behavior is similar to when an LOD expression is used to set the level of aggregation for a measure at a different level of detail from the native granularity of the viz. An unrelated dimension is essentially EXCLUDED from the computation of the measure's aggregated value.



Not yet related

Fields with potential relationships are called not yet related and are evaluated as unrelated in the viz. Resolving not yet related fields is done differently than resolving truly unrelated fields (which can only be stitched), so the tooltip calls out why they're considered unrelated.

The message for the dimension depends on if it's not yet related to another dimension, measure, or filter.

- For a dimension-dimension pair, the message for the dimension is:
  - **On a shelf**: Unrelated dimensions show all possible combinations of values. This dimension is not yet related to and so is treated as unrelated to the following: <*list of dimensions*>
  - **In the Data pane**: If used, this dimension won't yet be related to and so is treated as unrelated to the following: <*list of dimensions*>
- For a dimension-measure pair, the message for the dimension is:
  - **On a shelf**: This dimension is not yet related to and so can't break down the following: <*list of measures*>
  - **In the Data pane**: If used, this dimension will not yet be related to and so won't break down the following: <*list of measures*>
- For a dimension-filter pair, the message for the dimension is:
  - **On a shelf**: This field is not yet related to and so is ignored by these filters: <*list of filters*>
  - **In the Data pane**: If used, this field won't yet be related to and so will be ignored by unrelated filters: <*list of filters*>

The message for the measure depends on if it's not yet related to a dimension or a filter.

- For a measure-dimension pair, the message for the measure is:
  - **On a shelf**: This measure is not yet related to and so can't be broken down by the following: <*list of dimensions*>
  - **In the Data pane**: If used, this measure won't yet be related to and so won't be broken down by the following: <*list of dimensions*>
- For a measure-filter pair, the message for the measure is:
  - **On a shelf**: This field is not yet related to and so is ignored by these filters: <*list of filters*>
  - **In the Data pane**: If used, this field won't yet be related to and so will be ignored by unrelated filters: <*list of filters*>

  For information about how measure values are computed and why relatedness of the dimensions matters, see An aside on how measure values are computed.

Ambiguously related

Fields with more than one active possible relationship are called ambiguously related and are evaluated as unrelated in the viz. Resolving ambiguously related fields is done differently than resolving truly unrelated fields (which can only be stitched), so the tooltip calls out why they're considered unrelated.

The message for the dimension is:

- **On a shelf**: This dimension is ambiguously related to and so can't break down the following: *<list of measures>*
- **In the Data pane**: If used, this dimension will be ambiguously related to and so won't break down the following: *<list of measures>*

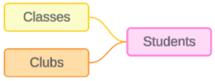
The message for the measure depends on if the ambiguity is with a dimension or a filter.

- For a measure-dimension pair, the message for the measure is:
  - **On a shelf**: This measure is ambiguously related to and so can't be broken down by the following: *<list of dimensions>*
  - **In the Data pane**: If used, this measure will be ambiguously related to and so won't be broken down by the following: *<list of dimensions>*
- For a measure-filter pair, the message for the measure is:
  - **On a shelf**: This measure is ambiguously related to and so is ignored by these filters: *<list of filters>*
  - **In the Data pane**:If used, this measure will be ambiguously related to and therefore ignored by the following filters: *<list of filters>*

For information about how measure values are computed and why relatedness of the dimensions matters, see An aside on how measure values are computed.

Measure from a shared table

When a dimension from a shared table (like Students) is used, it stitches together the dimensions from otherwise unrelated tables (such as Classes and Clubs). But what if instead of a dimension, you use a measure from the Students table instead? Measures can't stitch.



In a case where there are unrelated dimensions visualized together, the measure can't be broken down by those dimensions simultaneously. (For information about how measure values are computed and why relatedness of the dimensions matters, see An aside on how measure values are computed.) In this case, we treat the measure as unrelated to the combination of dimensions even though it would be related to any dimension individually.

To resolve this type of ambiguity and prevent the measure from being table scoped, the unrelated dimensions could be stitched or one or more dimensions could be removed until there is a clear relationship path for aggregating the measure.

All dimensions are unrelated to each other

The message for a measure shared across unrelated dimensions is:

- **On a shelf**: This measure can only be broken down by one of these dimensions at a time: <*bulleted list of dimensions*>
- **In the Data pane**: If used, this measure can only be broken down by one of these dimensions at a time: <*bulleted list of dimensions*>

The message for each of the dimensions is:

- **On a shelf**: This dimension can't break down the measure <*measure*> in combination with the following dimensions: <*bulleted list of dimensions*>
- **In the Data pane**: If used, this dimension can't break down the measure <*measure*> in combination with the following dimensions: <*bulleted list of dimensions*>

Some dimensions are related to each other

If some of the dimensions are related to each other, the related dimensions could break down the measure without the presence of the unrelated dimension. It's useful to know if any of the dimensions are related amongst themselves. (For example: If a viz is made with related dimensions Dim1 and Dim2 and a dimension DimA that's unrelated to both of them, a measure from the shared table isn't unrelated to all three dimensions equally. Dim1 and Dim2 don't conflict with each other, but both of them conflict with DimA. To resolve by removing fields, you could either remove DimA alone or both Dim1 and Dim2.)

In this situation, the dimensions are listed in groups in the tooltip message.

The message for the measure shared across groups of unrelated dimensions is:

- **On a shelf**: This measure can only be broken down by one of the following groups of dimensions at a time:<*bulleted list of dimensions*>
- **In the Data pane**: If used, this measure can only be broken down by one of the following groups of dimensions at a time: <*bulleted list of dimensions*>

The message for each of the dimensions is:

- **On a shelf**: This dimension can't break down the measure <*measure*> in combination with the following groups of dimensions: <*bulleted list of dimensions*>
- **In the Data pane**: If used, this dimension can't break down the measure <*measure*> in combination with the following groups of dimensions: <*bulleted list of dimensions*>

Related measure

When a measure is related to some dimensions in the viz but not others, the measure may have an additional message in the tooltip that explains what dimensions it is related to. This can help explain how the measure is aggregated. This message only appears when the measure is also unrelated to a dimension in the viz. Otherwise, it's standard behavior that the measure is aggregated to the level of detail of its related measures.

The message for the measure is:

- **On a shelf**: This measure is aggregated to the level of detail of related dimensions: <*dimensions in the viz this measure is related to*>
- **In the Data pane**: If used, this measure will be aggregated to the level of detail of related dimensions: <*dimensions in the viz this measure is related to*>

This message is intended to help identify which dimension or dimensions are considered when the measure value is computed. For information about how measure values are computed and why relatedness of the dimensions matters, see An aside on how measure values are computed.

Filters

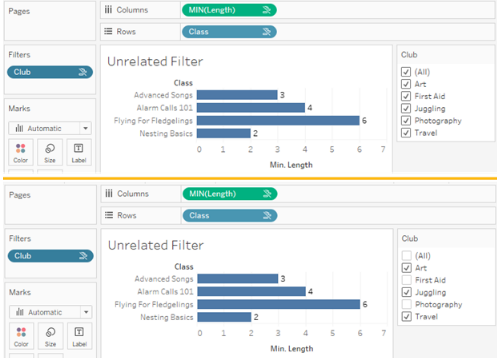
Relatedness is also evaluated for fields on the filter shelf compared to fields otherwise active in the viz.

An icon and tooltip appears when a filter is unrelated to at least one field in the viz. Both the filter field and field in the viz have a tooltip.

The message for a filter is:

- **Unrelated filter**: This filter doesn't apply to unrelated fields: <*fields*>
- **Ambiguous filter**: This filter ignores the following measures because it is ambiguously related to them: <*list of measures*>
- **Not yet related filter**: This filter ignores the following fields because it is not yet related to them: <*list of fields*>

The behavior of filters also depends on their relatedness to other fields in the viz. A filter doesn't impact the values of fields it isn't related to. Unless the filter is set to no values (excluding everything or including nothing), the viz will remain unchanged for any fields that aren't related to the filter. However, deselecting every option in the filter will return a blank viz.


Columns: MIN(Length)
Rows: Class
Filters: Club
Marks: Automatic

Club
☑ (All)
☑ Art
☑ First Aid
☑ Juggling
☑ Photography
☑ Travel

Columns: MIN(Length)
Rows: Class
Filters: Club
Marks: Automatic

Club
☐ (All)
☑ Art
☐ First Aid
☑ Juggling
☐ Photography
☑ Travel

Two screenshots of viz with an unrelated filter, showing that deselecting options in the interactive filter control doesn't impact the viz

Related fields are filtered as expected. In a more complex viz with a combination of related and unrelated fields (such as in a stitching context), the filter will only impact values that are related to the filter field.

An aside on how measure values are computed

When a measure isn't related to a dimension, it can't be broken down by that dimension's members (that is, you can't break down the average class length per club when clubs don't have a class length). Instead, the measure will be aggregated at a different level than the dimension member's headers in the view.

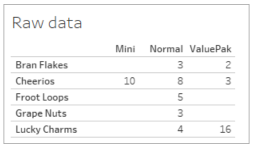
Terminology for dimensions and measures

In Tableau, *measures* are *aggregations*—they're aggregated up to the *granularity* set by the *dimensions* in the view. The value of a measure therefore depends on the context of the dimensions. For example, "number of cereal boxes" depends on if we mean the total inventory or the number of boxes per brand.

Dimensions are usually categorical fields, such as country or brand. In Tableau, dimensions set the granularity, or the *level of detail*, of the view. We typically want to group our data into marks by some combination of categories. What dimensions we use to build the view determines how many marks we have.

Aggregation refers to how the data is combined. Tableau's default aggregation is SUM. You can change the aggregation to other options, including: average, median, count distinct, minimum, and so on. *Granularity* refers to how detailed or broken down the measure is—which is controlled by the related dimensions. Unless the granularity of the measure is row level (aka disaggregated), its value must be aggregated.

Example



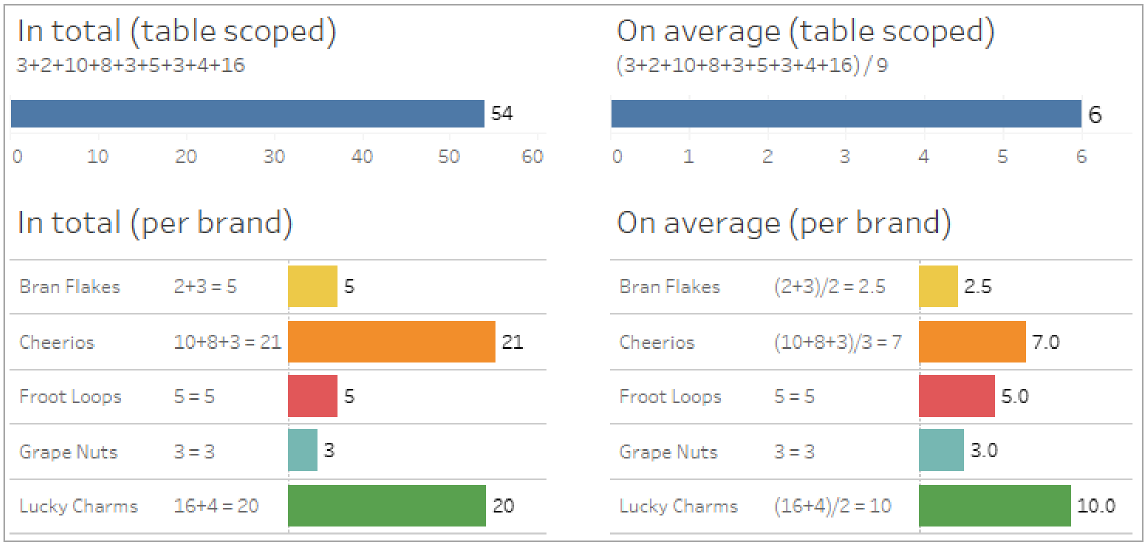
Raw data

	Mini	Normal	ValuePak
Bran Flakes		3	2
Cheerios	10	8	3
Froot Loops		5	
Grape Nuts		3	
Lucky Charms		4	16

What's the value of "number of boxes of cereal"?

Well, it depends on the aggregation type and the granularity as set by the dimensions.

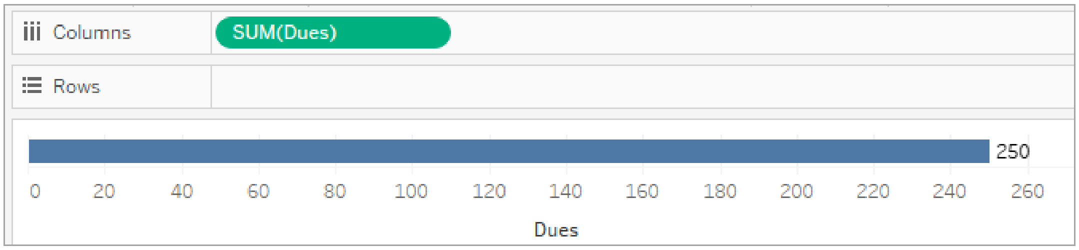
- Aggregations:
  - Sum (or total)
  - Average
- Granularity:
  - Table scoped / fully aggregated (the blue bars in the example)
  - Broken down by the **Brand** dimension (the colored bars in the example)



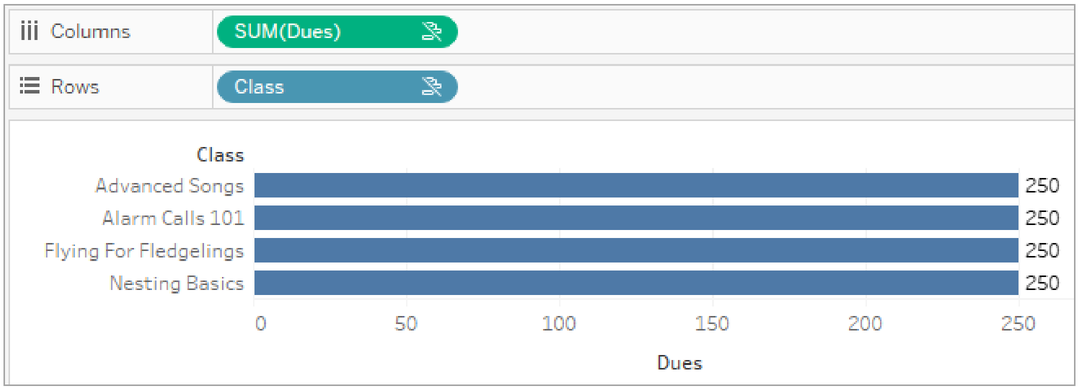
The value of a measure trails the dimension members

A measure's value is determined by the dimensions it is related to. A measure without a related dimension is table scoped. A measure with a related dimension is broken down by the related dimension's members (that is, the value of the measure is computed for each dimension member). If a related dimension's members are repeated due to the presence of an unrelated dimension, the measure's values are repeated based on its dimension members.

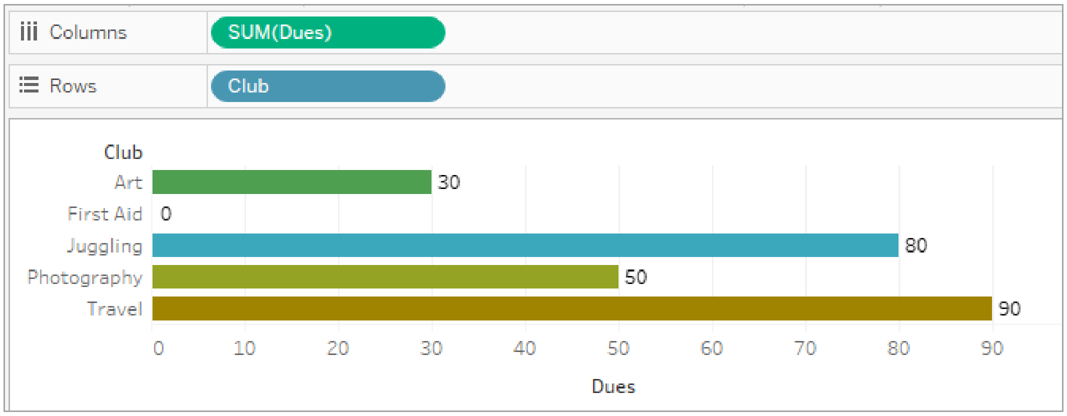
1. A measure without a dimension is table scoped to its overall value.


Columns
SUM(Dues)
Rows
250
0
20
40
60
80
100
120
140
160
180
200
220
240
260
Dues

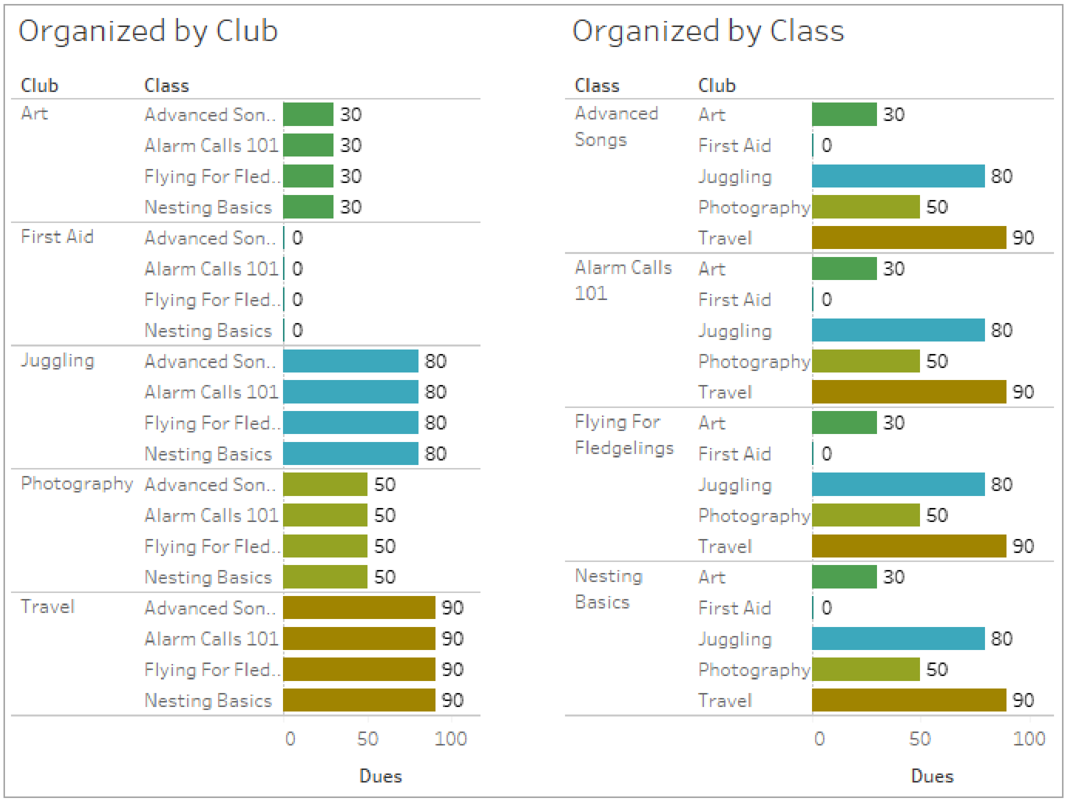
2. A measure, in the presence of an unrelated dimension alone, is table scoped and repeated for the unrelated dimension's members.


Columns
SUM(Dues)
Rows
Class
Class
Advanced Songs
Alarm Calls 101
Flying For Fledgelings
Nesting Basics
250
250
250
250
0
50
100
150
200
250
Dues

3. A measure in the presence of related dimension is broken down more granularly and its value is computed per member of the related dimension.


Columns
SUM(Dues)
Rows
Club
Club
Art
First Aid
Juggling
Photography
Travel
30
0
80
50
90
0
10
20
30
40
50
60
70
80
90
Dues

4. A measure, in the presence of an unrelated dimension and a related dimension, is broken down by the dimension it's related to. Wherever those related dimension members are repeated for unrelated dimensions, the measure value trails along with its related dimension member.



Because dues are per club, the value of dues for each club is repeated every time that club is repeated.

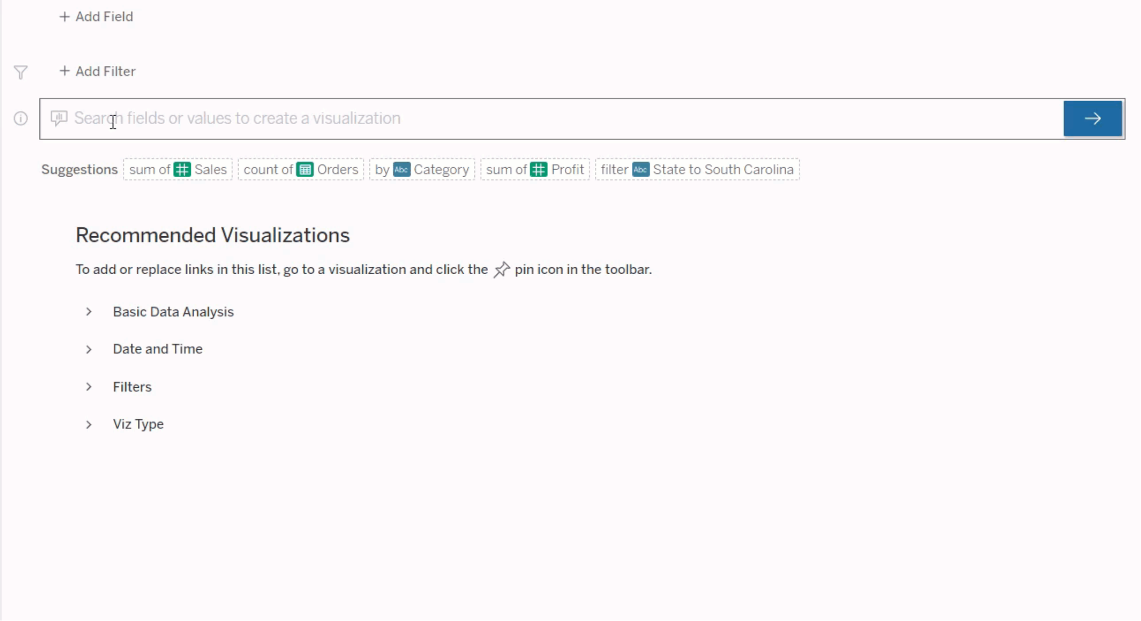
Automatically Build Views with Ask Data

Important changes for Ask Data and Metrics

Tableau's Ask Data and Metrics features were retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. With advances in natural language technologies, we're developing an improved interface that will make it easier to ask questions of your data and stay on top of changes. For more information, see *How Tableau AI and Tableau Pulse are reimagining the data experience.*

Ask Data lets you type a question in common language and instantly get a response right in Tableau. Answers come in the form of automatic data visualizations, with no need to manually drag-and-drop fields or understand the nuances of your data's structure.

Ask Data lets you ask sophisticated questions naturally, with support for key analytical concepts such as time series and spatial analysis, and an understanding of conversational phrases such as "last year" and "most popular."



+ Add Field

+ Add Filter

Search fields or values to create a visualization

Suggestions sum of Sales | count of Orders | by Category | sum of Profit | filter State to South Carolina

Recommended Visualizations

To add or replace links in this list, go to a visualization and click the pin icon in the toolbar.

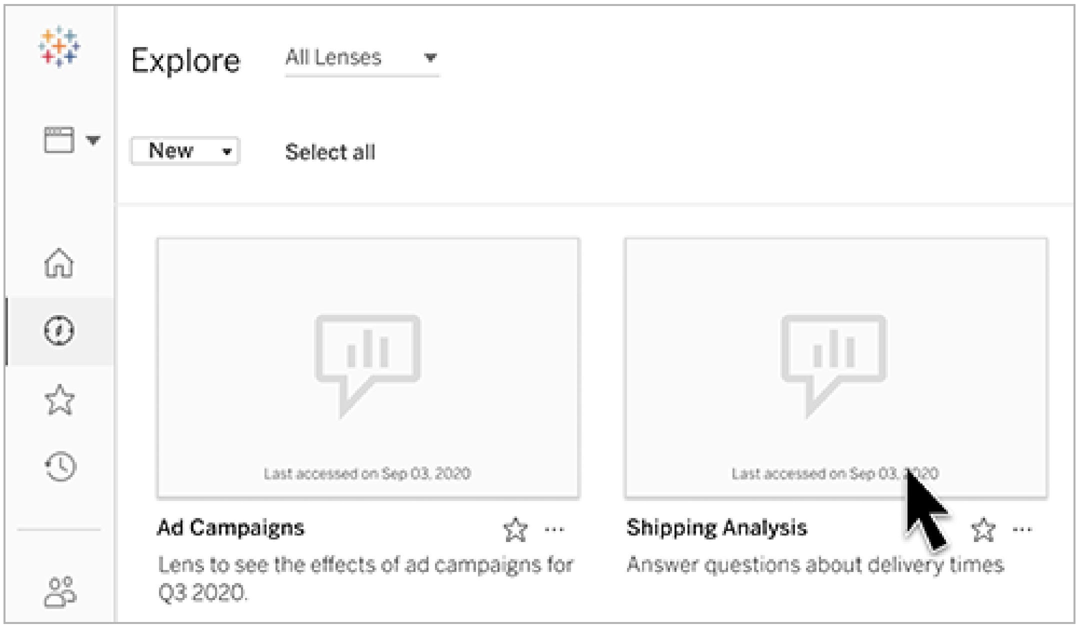
- Basic Data Analysis
- Date and Time
- Filters
- Viz Type

Navigating to Ask Data lenses

Before you can query a data source with Ask Data, a Tableau author must first create a lens that specifies the subset of data fields the lens uses.

In Tableau, here are all the places where you can access an Ask Data lens:

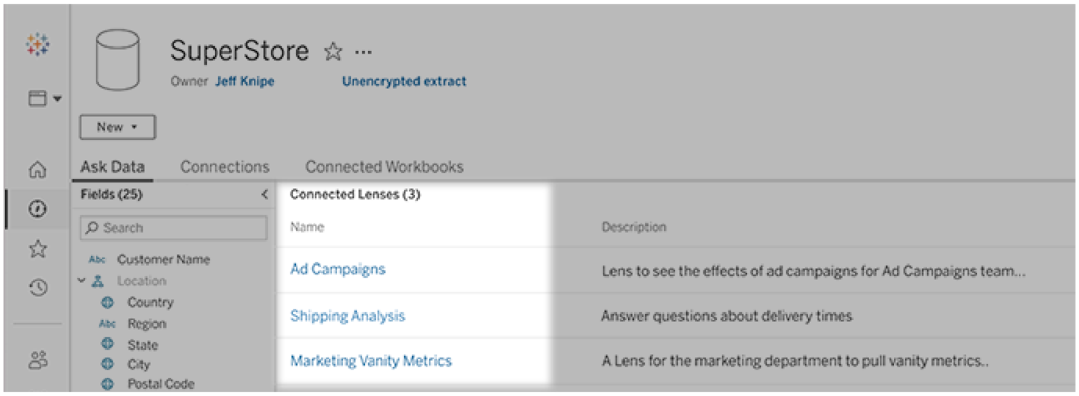
- On the All Lenses page at the top level of your Tableau Cloud or Tableau Server site.


Explore
All Lenses
New
Select all
Last accessed on Sep 03, 2020
Last accessed on Sep 03, 2020

Ad Campaigns
Lens to see the effects of ad campaigns for Q3 2020.

Shipping Analysis
Answer questions about delivery times

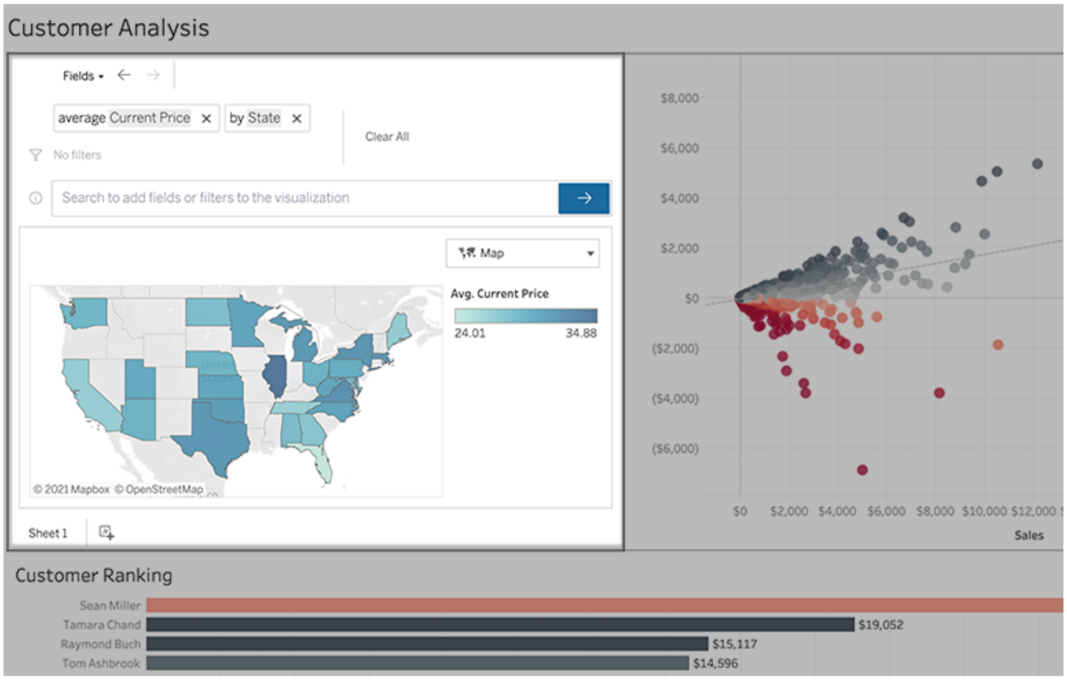
- On the Ask Data tab for a data source for which lenses have been created.


SuperStore
Owner Jeff Knipe
Unencrypted extract
New
Ask Data
Connections
Connected Workbooks
Fields (25)
Search
Customer Name
Location
Country
Region
State
City
Postal Code

Connected Lenses (3)

Name	Description
Ad Campaigns	Lens to see the effects of ad campaigns for Ad Campaigns team...
Shipping Analysis	Answer questions about delivery times
Marketing Vanity Metrics	A Lens for the marketing department to pull vanity metrics..

- In an Ask Data object on a dashboard.

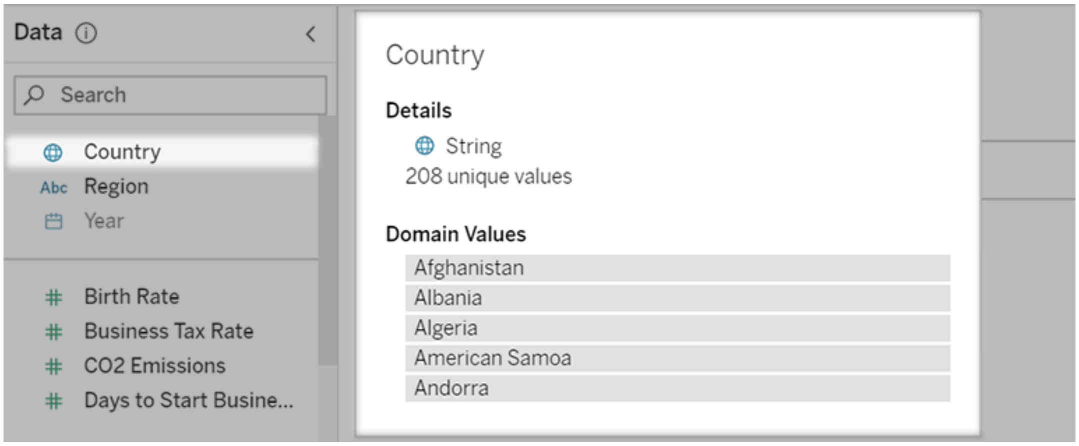

Customer Analysis
Fields
average Current Price ×
by State ×
Clear All
No filters
Search to add fields or filters to the visualization
Map
Avg. Current Price
24.01
34.88
© 2021 Mapbox © OpenStreetMap
Sheet 1
$8,000
$6,000
$4,000
$2,000
$0
($2,000)
($4,000)
($6,000)
$0 $2,000 $4,000 $6,000 $8,000 $10,000 $12,000
Sales
Customer Ranking
Sean Miller
Tamara Chand
Raymond Buch
Tom Ashbrook
$19,052
$15,117
$14,596

Ask Data from a lens page or dashboard object

Navigate to a lens and learn more about its data

1. Navigate to a lens via the All Lenses page for your Tableau site, the Ask Data tab for a data source, or an Ask Data object on a dashboard.
2. (Optional) Under **Recommended Visualizations**, click an entry to quickly see visualizations the lens author has created for your organization.

   If the recommendations don't address your current data analysis needs, build a query to create your own question.
3. In the Data pane at left, briefly hover over each field to learn more about the data it contains.



Data
Search
Country
Abc Region
Year
Birth Rate
Business Tax Rate
CO2 Emissions
Days to Start Busine...

Country

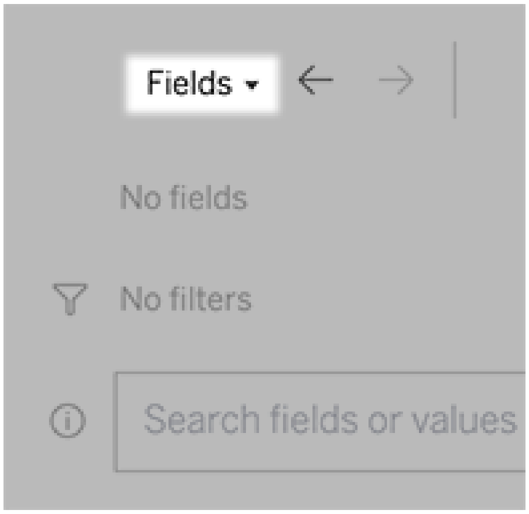
Details

String
208 unique values

Domain Values

Afghanistan
Albania
Algeria
American Samoa
Andorra

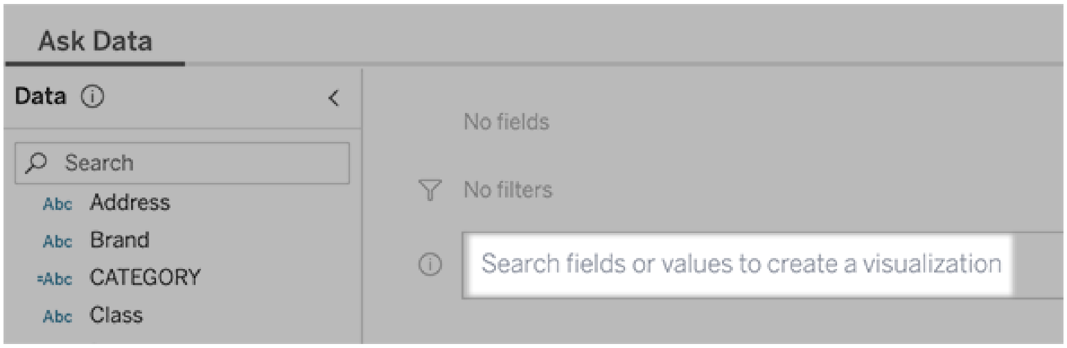
In a narrower dashboard object, the Data pane may be hidden, but you can see the same information by clicking the **Fields** drop-down menu.



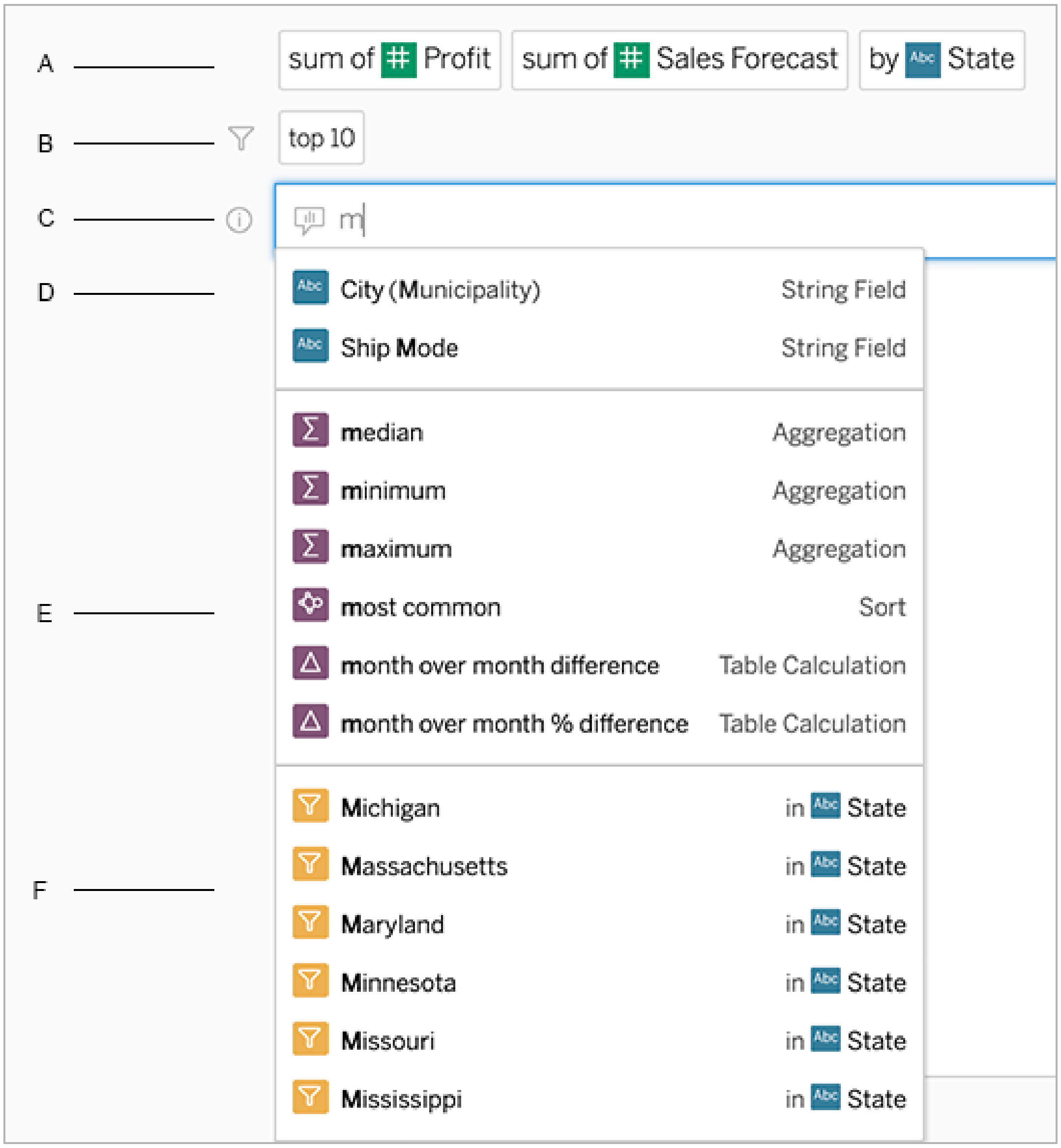
Fields
No fields
No filters
Search fields or values

Build queries by entering text

1. Type in the box reading **Search fields or values to create a visualization**.


Ask Data
Data
Search
Abc Address
Abc Brand
=Abc CATEGORY
Abc Class
No fields
No filters
Search fields or values to create a visualization

2. As you type, Ask Data searches data fields, functions, and string values and displays results in a drop-down list. Click items in the list to add them to your current entry, shown above the search box. To automatically create a viz using the current entry, press **Enter** at any time.


A
sum of Profit
sum of Sales Forecast
by State
B
top 10
C
m
D
City (Municipality) String Field
Ship Mode String Field
median Aggregation
minimum Aggregation
maximum Aggregation
E
most common Sort
month over month difference Table Calculation
month over month % difference Table Calculation
F
Michigan in State
Massachusetts in State
Maryland in State
Minnesota in State
Missouri in State
Mississippi in State

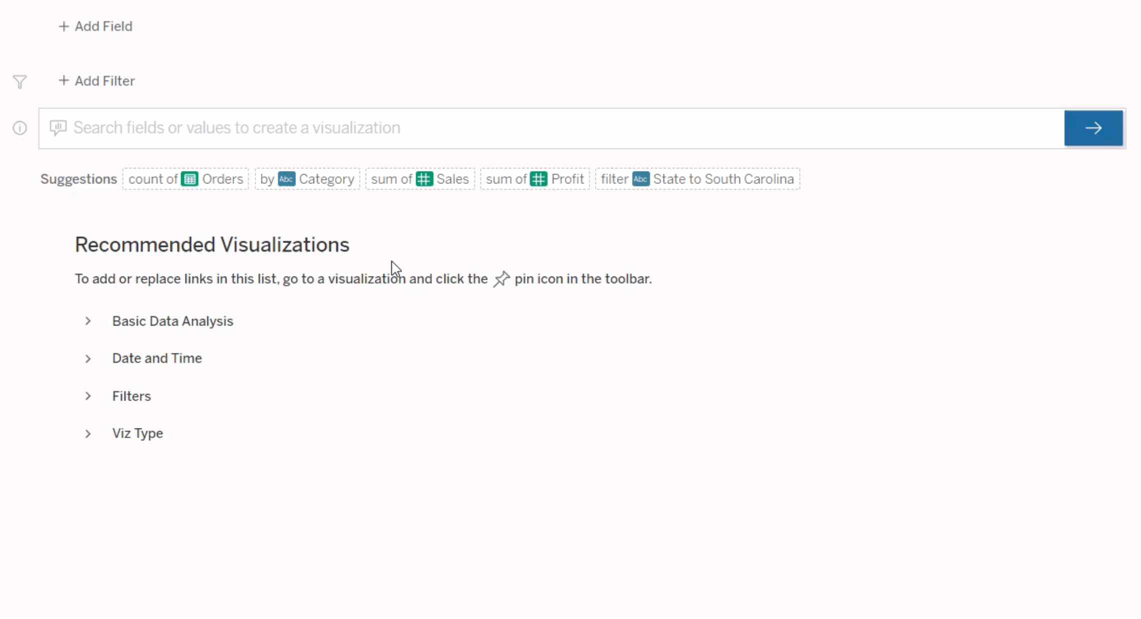
Modifying a query by searching for fields and analytical functions

A. Current entry B. Current filters C. Search box D. Returned fields E. Returned analytical functions F. Returned field values

Build queries by adding suggested phrases

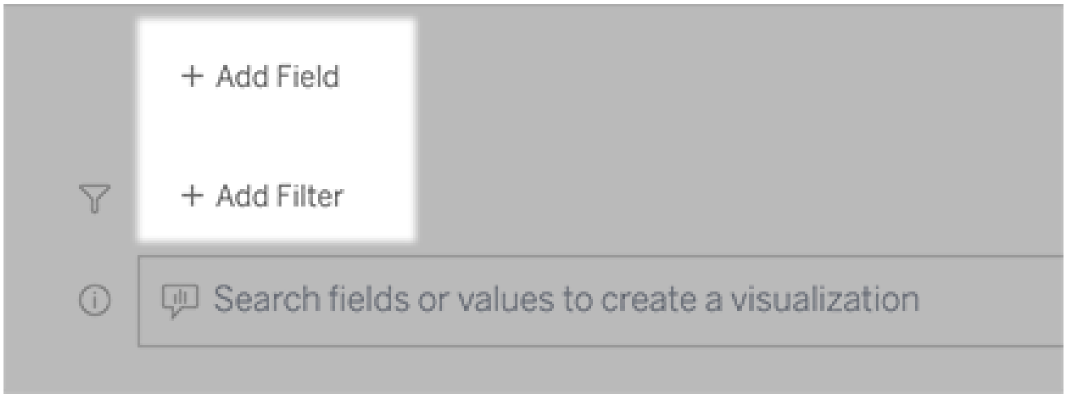
Tableau will suggest phrases based on the most common queries asked in your lens and by others in your organization. When you open your lens, you'll notice suggestions that will help you get quick answers to common questions.

You can add these suggestions to your query by clicking them. As you add phrases to your query, the suggestions dynamically update with more relevant phrases. The view automatically builds with each selection.

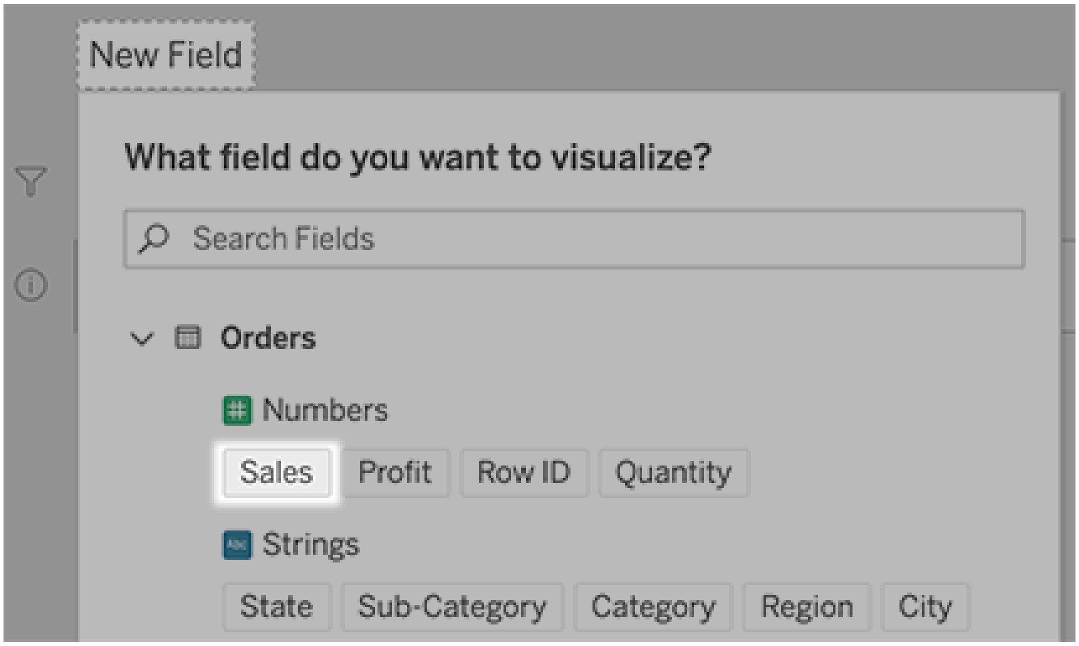

+ Add Field
+ Add Filter
Search fields or values to create a visualization
Suggestions
count of Orders
by Category
sum of Sales
sum of Profit
filter State to South Carolina
Recommended Visualizations
To add or replace links in this list, go to a visualization and click the pin icon in the toolbar.
Basic Data Analysis
Date and Time
Filters
Viz Type

Build queries by adding fields and filters

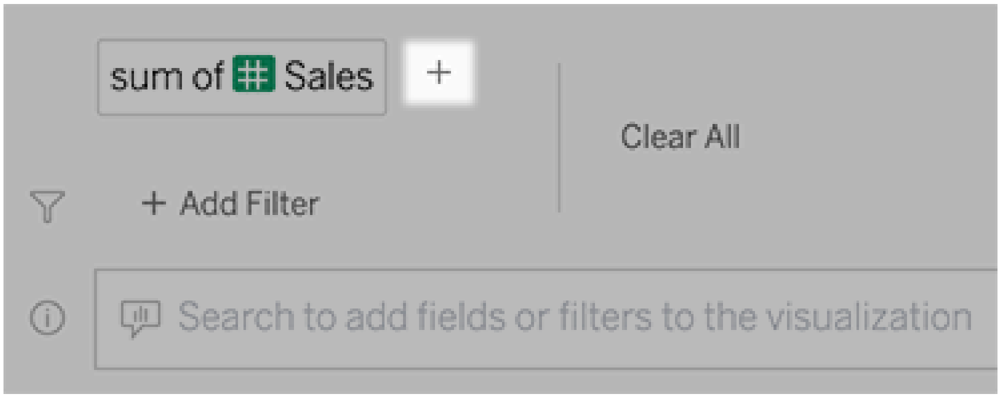
1. Click **Add Field** or **Add Filter**.


+ Add Field
+ Add Filter
Search fields or values to create a visualization

2. Click the desired field. (To narrow down a long list, first type in the **Search Fields** box.)

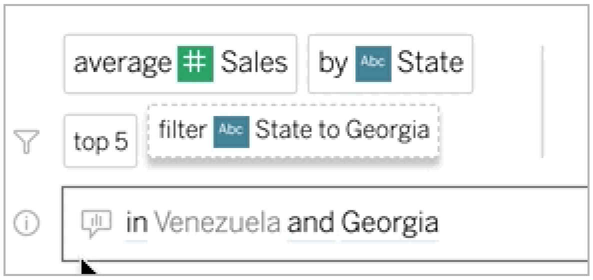

New Field
What field do you want to visualize?
Search Fields
Orders
Numbers
Sales
Profit
Row ID
Quantity
Strings
State
Sub-Category
Category
Region
City

3. Set any sub-options, such as aggregation type for a numeric field, or grouping for string and date fields.
4. To add more fields or filters, click the plus sign.


sum of Sales
+
Clear All
+ Add Filter
Search to add fields or filters to the visualization

See how elements of your query are applied

To see how elements of your query are applied, hover over them in the text box or the interpretation above it. Words that aren't used are grayed out, helping you rephrase your query in a way that’s clearer to Ask Data.


average # Sales
by Abc State
top 5
filter Abc State to Georgia
in Venezuela and Georgia

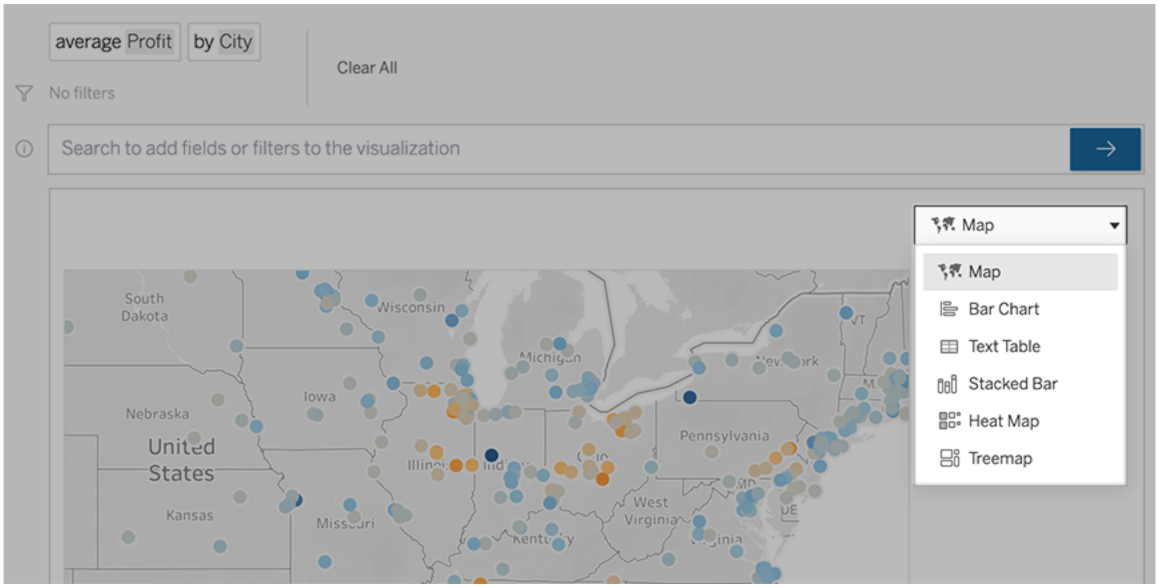
Rephrase your question

You can rephrase questions by clicking options, data fields, and filters in the user interface.

Change the viz type

If the default viz doesn't fully reveal your data, click the menu at upper right, and choose from these supported viz types:

- Bar Chart
- Gantt Bar
- Heat Map
- Histogram
- Line Chart
- Map
- Pie Chart
- Scatter
- Stacked Bar Chart
- Text Table
- Treemap

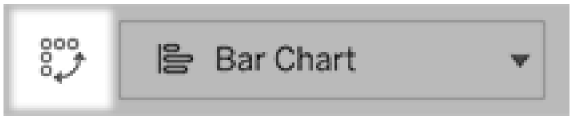

average Profit
by City
No filters
Clear All
Search to add fields or filters to the visualization
Map
Map
Bar Chart
Text Table
Stacked Bar
Heat Map
Treemap
South Dakota
Wisconsin
Michigan
New York
Iowa
Nebraska
United States
Pennsylvania
Illinois
Ind
Ohio
Kansas
Missouri
West Virginia
Kentucky
Virginia
VT
MD
DE

Note: To automatically create certain viz types, Ask Data sometimes adds fields such as "Number of Records" to your entries.

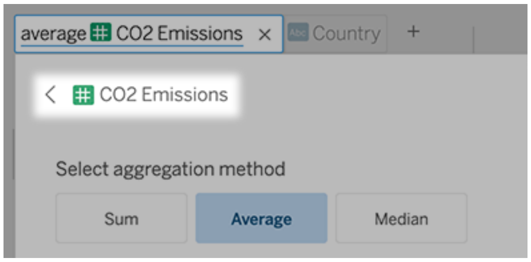
Change fields, filters, and displayed data

Ask Data gives you several ways to fine-tune how field values are displayed.

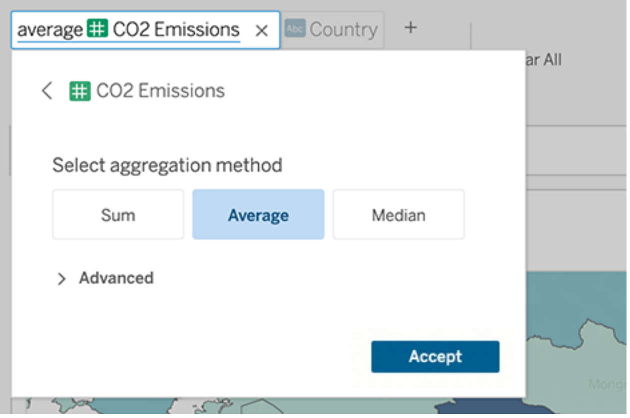
- To switch the fields used for the vertical and horizontal axes, click the Swap Axes button to the left of the viz selection menu:



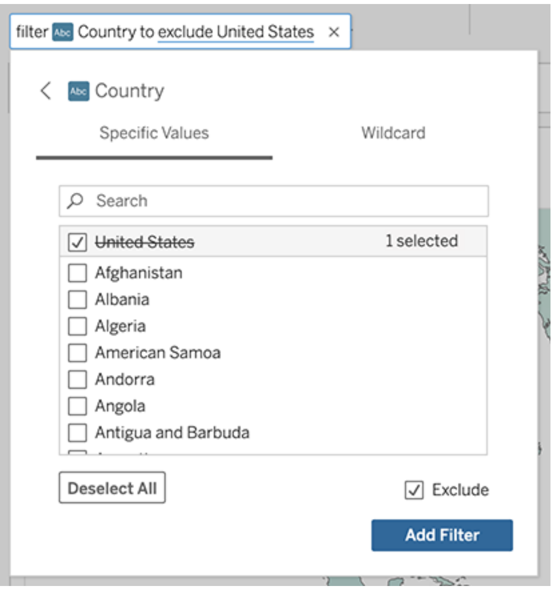
- To change a field, first click it in your query entry, and then click the field name below. (To change fields used in difference calculations, see Compare differences over time.)


average CO2 Emissions ×
Country
+
CO2 Emissions
Select aggregation method
Sum
Average
Median

- To change a field's aggregation or grouping type (for example, from average to sum), click the field name in the text box, and then choose a different aggregation or grouping.


average CO2 Emissions ×
Country
+
ar All
CO2 Emissions
Select aggregation method
Sum
Average
Median
Advanced
Accept

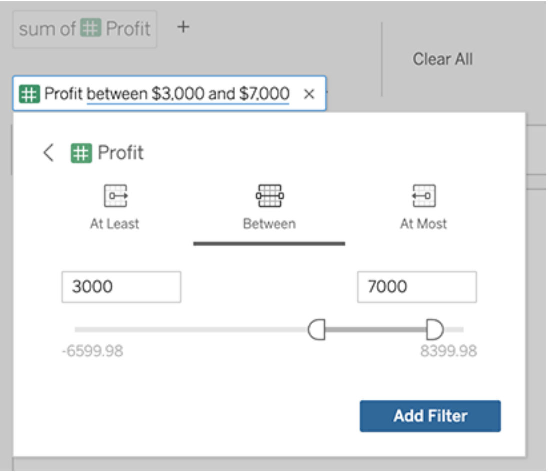
- For categorical filters, click values (for example, "exclude United States" in the example below) to change specific values or enter wildcard parameters.



filter Country to exclude United States

Country
Specific Values
Wildcard
Search
☑ ~~United States~~
1 selected
☐ Afghanistan
☐ Albania
☐ Algeria
☐ American Samoa
☐ Andorra
☐ Angola
☐ Antigua and Barbuda
Deselect All
☑ Exclude
Add Filter

- To adjust a numeric range, click words such as "high" or "cheap."



Profit between $3,000 and $7,000

sum of Profit
+
Clear All
Profit
At Least
Between
At Most
3000
7000
-6599.98
8399.98
Add Filter

- To delete a field or filter, hover over it and click the **X**.

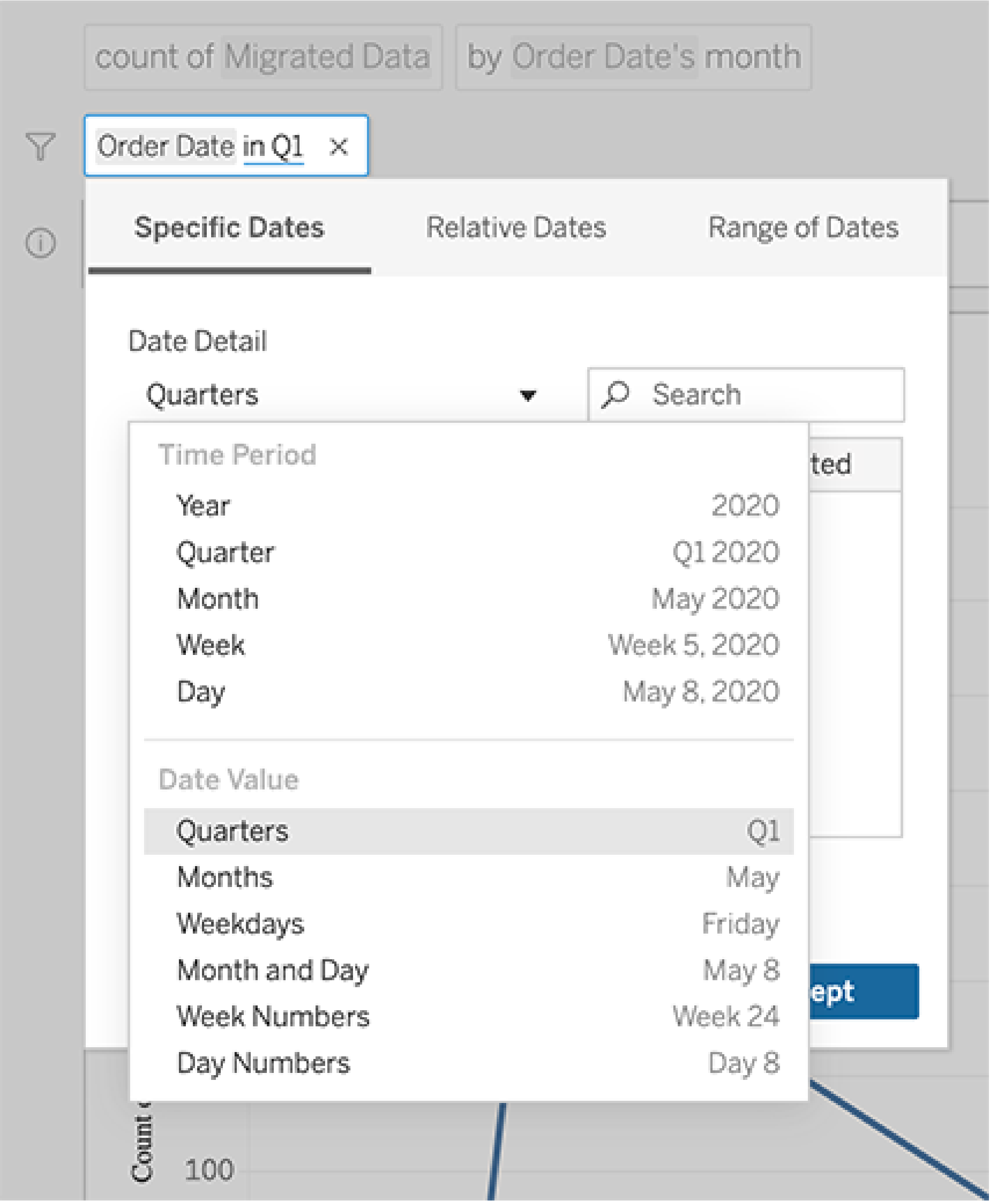
Adjust date filters

To adjust a date filter, click words such as "last" or "previous." Then click one of the following:

- **Specific Dates** to enter a specific time period or date value
- **Relative Dates** to show a date range relative to the present day
- **Range of Dates** to enter specific start and end points

Specific Dates offers some unique options in the **Date Detail** menu:

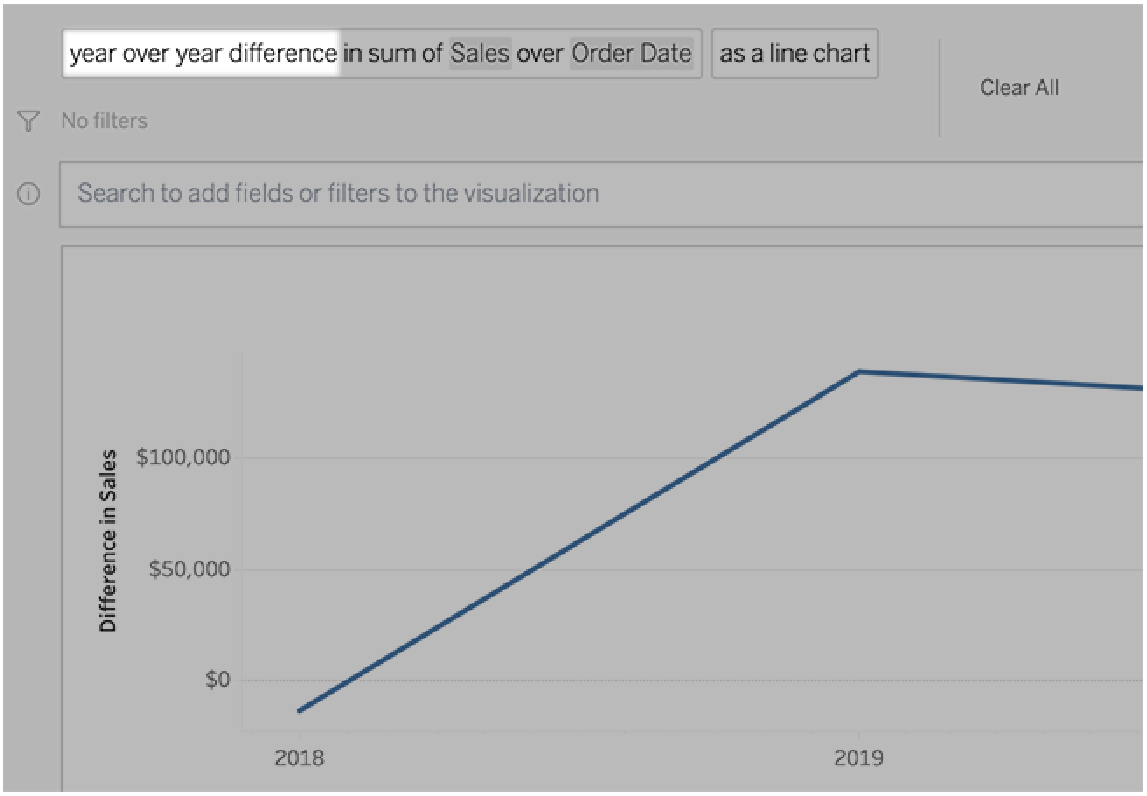
- **Time Period** options show a single continuous date range
- **Date Value** options show ranges that can repeat in multiple time periods. For example, to see combined sales performance for Q1 across multiple years, under Date Value, you would choose Quarters.



count of Migrated Data
by Order Date's month
Order Date in Q1 ×
Specific Dates
Relative Dates
Range of Dates
Date Detail
Quarters
Search
Time Period
Year 2020
Quarter Q1 2020
Month May 2020
Week Week 5, 2020
Day May 8, 2020
Date Value
Quarters Q1
Months May
Weekdays Friday
Month and Day May 8
Week Numbers Week 24
Day Numbers Day 8
ted
ept
Count
100

Compare differences over time

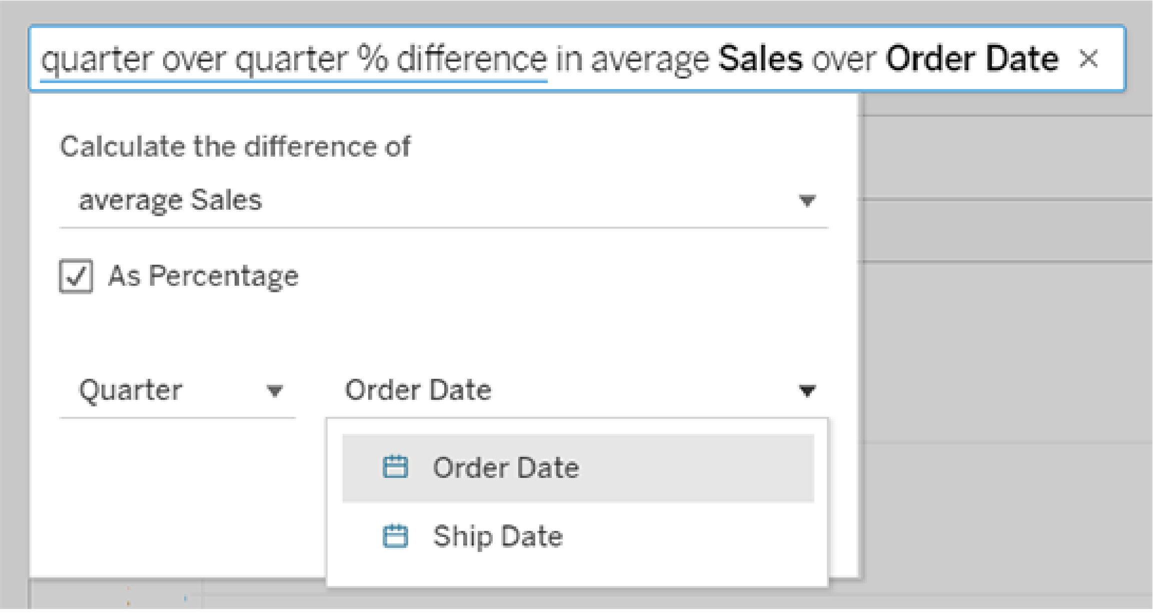
Ask Data lets you compare time periods with phrases such as "year over year" or "quarter over quarter." The results appear as difference or percent difference table calculations in workbooks you save from Ask Data.



year over year difference in sum of Sales over Order Date as a line chart

Clear All
No filters
Search to add fields or filters to the visualization
Difference in Sales
$100,000
$50,000
$0
2018
2019

In the text box, click a difference calculation to choose other fields, aggregation methods, and time periods.



quarter over quarter % difference in average **Sales** over **Order Date**

Calculate the difference of

average Sales

☑ As Percentage

Quarter

Order Date

Apply simple calculations

Ask Data supports simple calculations between two measures, which you can apply using these symbols:

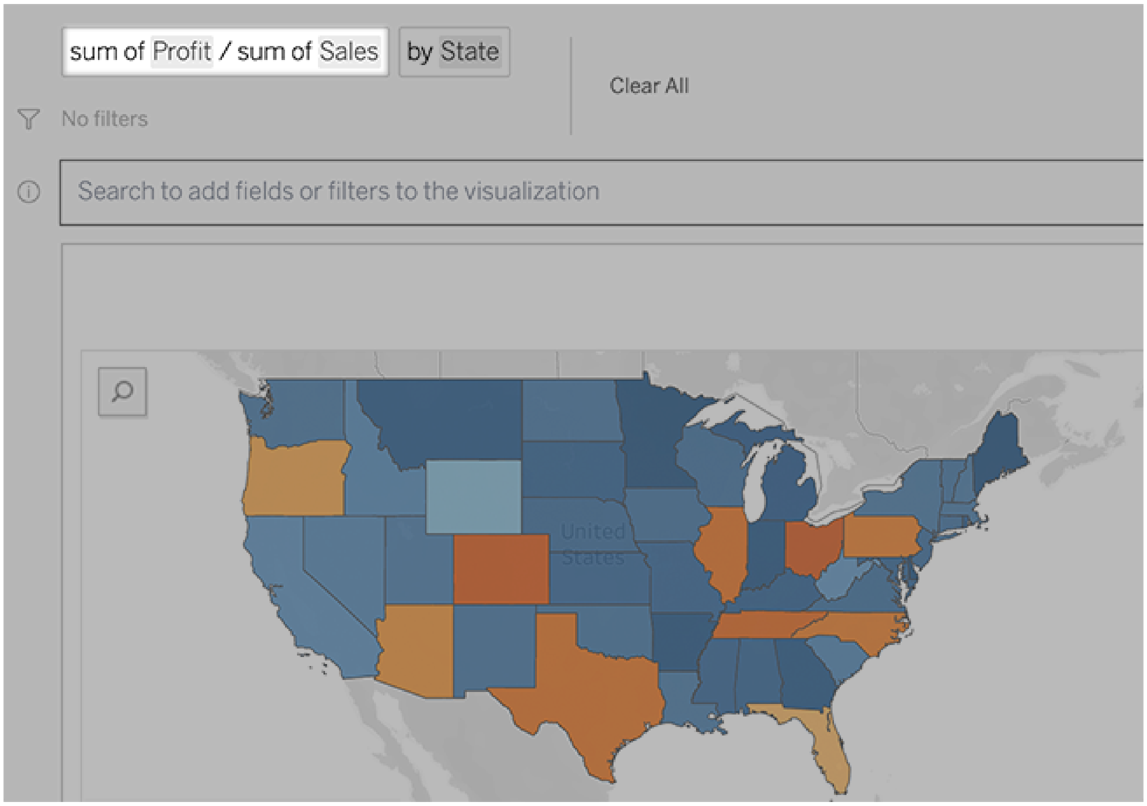
+ sums the measures

- produces the difference between them

***** multiplies

/ divides

In workbooks you save from Ask Data, these calculations don't become calculated fields but instead ad hoc calculations on the Columns, Rows, or Marks shelves.

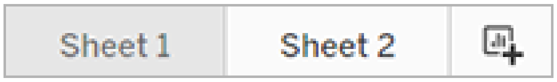

sum of Profit / sum of Sales
by State
Clear All
No filters
Search to add fields or filters to the visualization
United States

Add sheets with other vizzes

To quickly create multiple different vizzes from a lens, add sheets in Ask Data.

At the bottom of the web page, do any of the following:

- Click the **Add Sheet** icon to the right of named sheets.


Sheet 1
Sheet 2

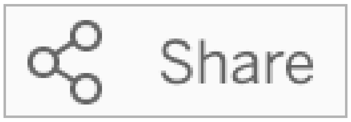
- Right-click a sheet name, and choose either **Duplicate** or **Delete**.

  (To rename sheets from Ask Data, you need to save them in a new workbook.)

Share Ask Data vizzes via email, Slack, or a link

You can quickly share Ask Data vizzes with anyone who has access to a lens.

1. In the upper right corner of the browser, click the Share icon.

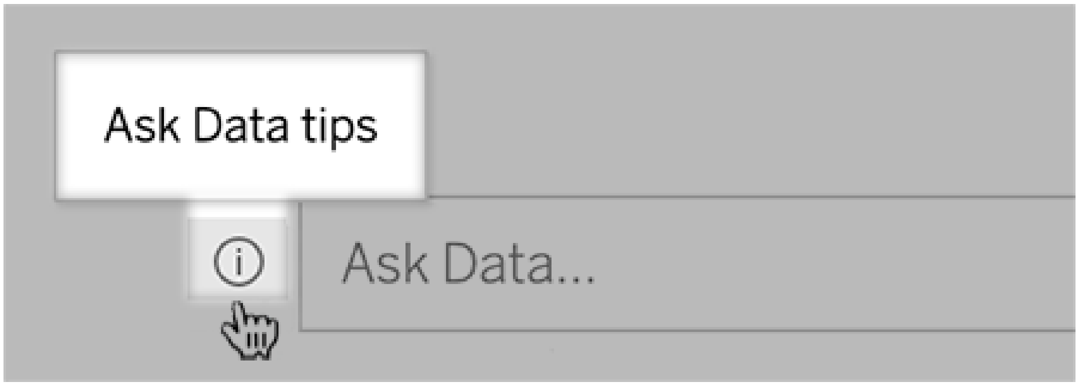


2. Do either of the following:
    - To share the viz via email or Slack, enter specific user names in the text box. (Email and Slack integration must previously be configured by your Tableau administrator.)
    - To copy a URL you can paste into custom emails and other messages, click **Copy Link**.

Send feedback to the lens owner

If you have questions about the structure of a lens or how best to use it with Ask Data, you can send feedback directly to the author. (This option is enabled by default, but lens authors may disable it.)

1. To the left of the query box for Ask Data, click the **Ask Data tips** icon.



2. At the bottom of the tips dialog, click **Contact the Lens Author**.

Tips for successful queries

As you structure questions for Ask Data, apply these tips to get better results.

- **Use keywords** — For example, instead of "I want to see all the countries that these airports are in, try "by airport and country."
- **Use exact wording for field names and values** — For example, if your lens includes Airport Code, Airport Name, and Airport Region fields, specify those by name.
- **See a ranked list** — Ask Data maps terms such as "best" and "worst" to Top 1 and Bottom 1, respectively. If you want to see broader rankings, use "high" and "low" instead. For example, enter "houses with low sale prices."
- **Query table calculations** — In query expressions for table calculation fields, note that you can't filter, limit, or include "year over year difference."
- **Surround unusually long values with quotation marks** — To analyze long field values that contain line returns, tabs, or more than ten words, surround them with quotation marks. To improve performance, Ask Data doesn't index fields of that length, or anything beyond the first 200,000 unique field values.

Create Lenses that Focus Ask Data for Specific Audiences

Important changes for Ask Data and Metrics

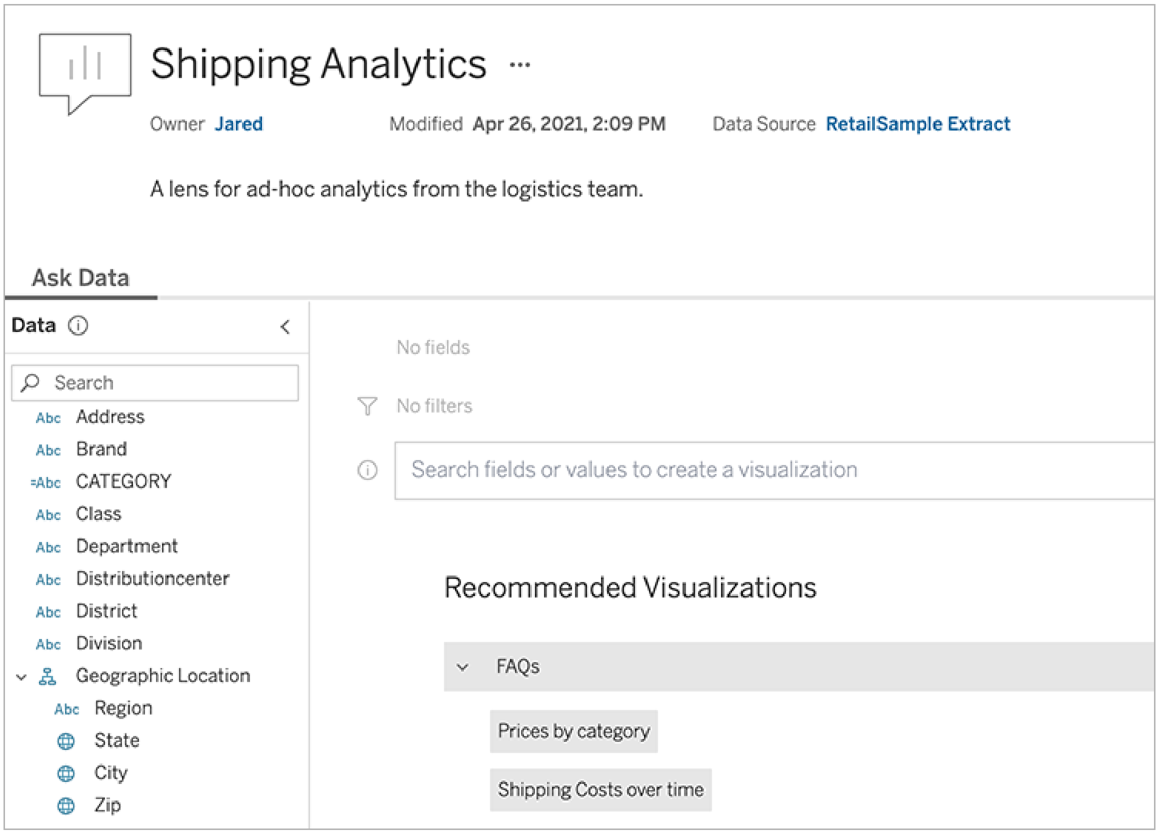
Tableau's Ask Data and Metrics features were retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. With advances in natural language technologies, we're developing an improved interface that will make it easier to ask questions of your data and stay on top of changes. For more information, see *How Tableau AI and Tableau Pulse are reimagining the data experience.*

Most people don’t need information from an entire data source but instead want data visualizations relevant to their job function, like sales, marketing, or support. To optimize Ask Data for different audiences like these, Tableau authors create separate Ask Data *lenses*, which query a selected subset of fields. For the selected fields, authors can specify synonyms for field names and values, reflecting terms the lens audience uses in common language (for example, "SF" for "San Francisco"). Lens authors then customize the recommended visualizations that appear below the Ask Data query box, which provide answers to users with a single click.

> **Note:** Ask Data lenses can be created only for data sources published separately to a Tableau site. Lenses can't be created for data sources embedded in workbooks or those with a virtual connection.

Create or configure a lens page on your Tableau site

On your Tableau site, each lens has a separate page where users can query Ask Data and authors can configure lens fields, synonyms, and suggested questions.



Shipping Analytics

Owner Jared Modified Apr 26, 2021, 2:09 PM Data Source RetailSample Extract

A lens for ad-hoc analytics from the logistics team.

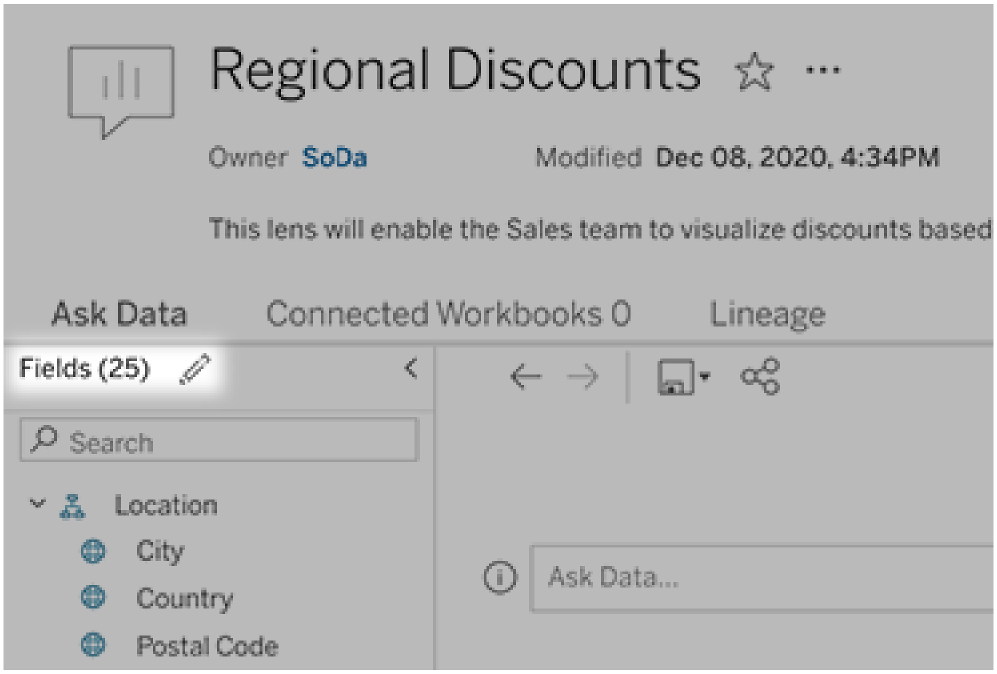
Ask Data
Data
Search
Abc Address
Abc Brand
=Abc CATEGORY
Abc Class
Abc Department
Abc Distributioncenter
Abc District
Abc Division
Geographic Location
Abc Region
State
City
Zip
No fields
No filters
Search fields or values to create a visualization
Recommended Visualizations
FAQs
Prices by category
Shipping Costs over time

A lens page on a Tableau site

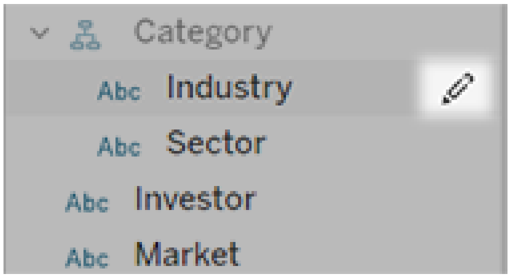
1. To create a lens page on your Tableau site, go to a data source page, and choose **New** > **Ask Data Lens**.

   To configure an existing lens, go to the lens page on your site. (From an Ask Data object in a dashboard, you can click the pop-up menu in the upper corner and choose **Go to Lens Page**.)

2. If you're creating a new lens, enter a name, description, and project location, and then click **Publish Lens**.
3. At the top of the Fields pane at left, click the pencil icon. Then select the relevant fields for lens users, and click **Save**.

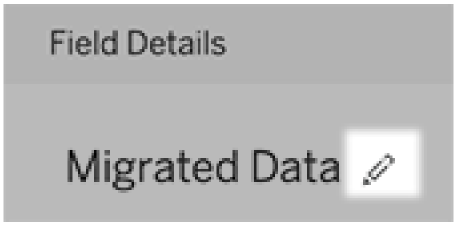

Regional Discounts
Owner SoDa
Modified Dec 08, 2020, 4:34PM
This lens will enable the Sales team to visualize discounts based
Ask Data
Connected Workbooks 0
Lineage
Fields (25)
Search
Location
City
Country
Postal Code
Ask Data...

4. At left, hover over individual tables or fields, and click the pencil icon:


Category
Abc Industry
Abc Sector
Abc Investor
Abc Market

Then do any of the following:

- Provide a more representative name by clicking the pencil icon to the right.


Field Details
Migrated Data

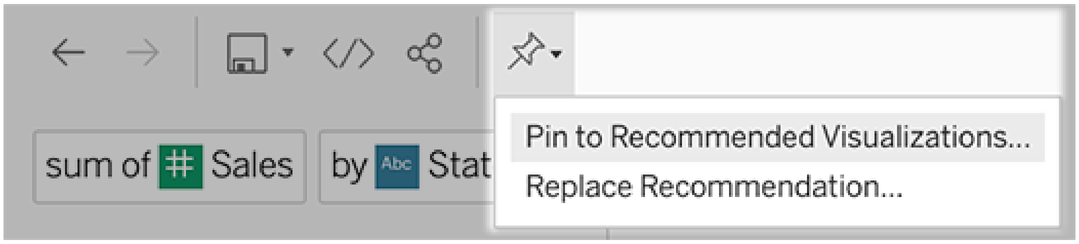
- Add common synonyms for field names and values that lens users may enter in their queries.
- Edit descriptions that appear when users hover over fields.

Change the list of recommended visualizations

To address common queries from lens users, you can customize the recommended visualizations that appear below the query box.

Add or replace a recommended visualization

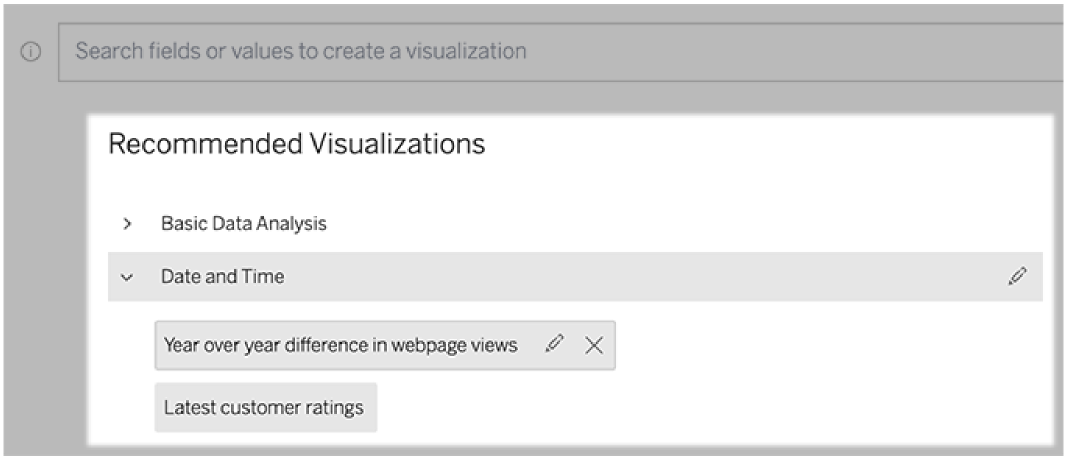
1. Enter a query into the text box, and press Enter or Return.
2. After the visualization appears, from the pin icon in the toolbar, choose either **Pin to Recommended Visualizations** or **Replace Recommendation**.


sum of # Sales
by Abc Stat
Pin to Recommended Visualizations...
Replace Recommendation...

3. For a new recommendation, enter a name, and choose the section in which you want it to appear. For a replacement recommendation, choose the existing one you want to overwrite.

Edit section titles and recommendation names, or delete recommendations

- To edit a section title, click the pencil icon ✎ to the right of the title.
- To change the name of a recommendation, hover over it and click the pencil icon ✎. To delete a recommendation, click the X.



Search fields or values to create a visualization

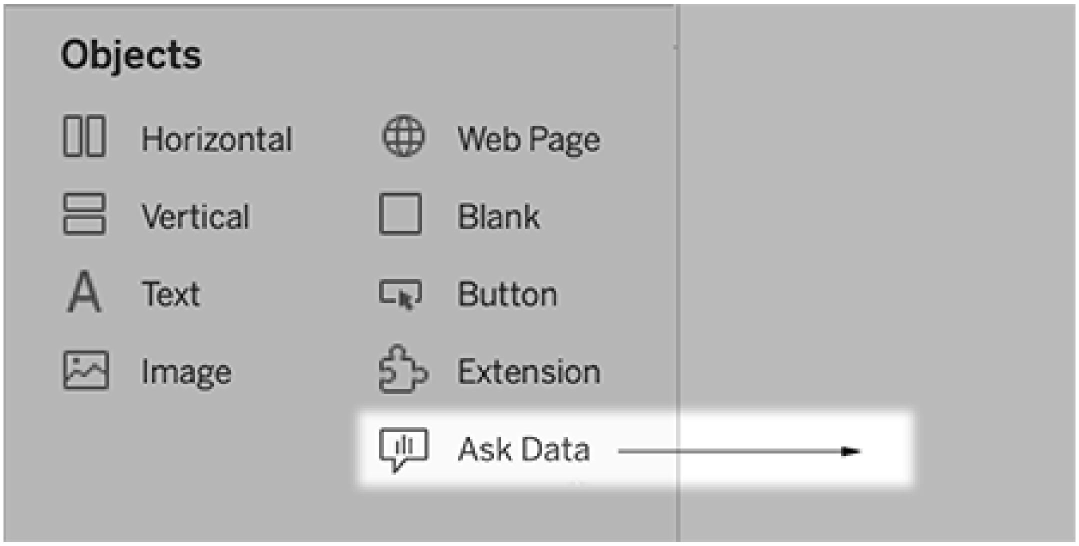
Recommended Visualizations

Add an Ask Data lens to a dashboard

On a dashboard, you can add an Ask Data object that lets users query a published data source via a lens on your Tableau site.

1. While editing a dashboard in Tableau Cloud or Tableau Server, drag the Ask Data object to the canvas.

> **Note:** In Tableau Desktop, you can also drag an Ask Data object to the canvas for placement purposes. But to select a lens, you will need publish to Tableau Cloud or Tableau Server and edit the object there.

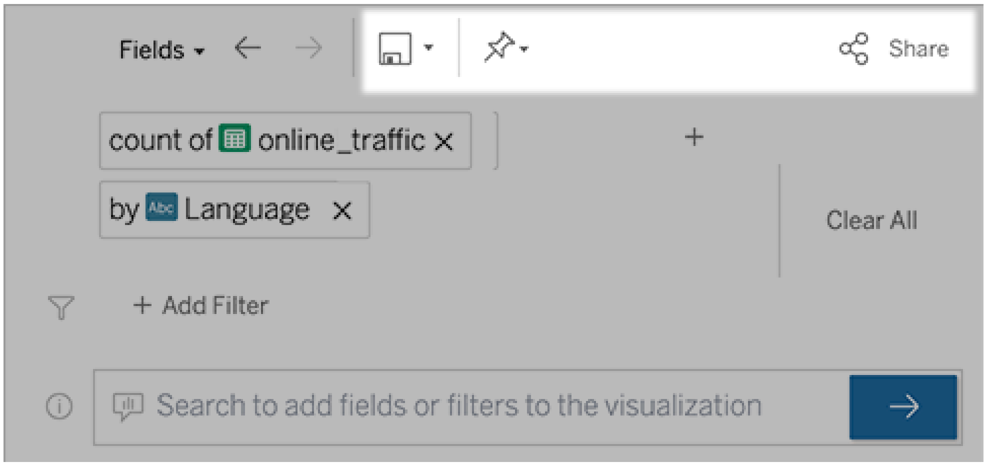
2. 

3. Select a published data source previously connected to the workbook.
4. To use an existing lens, select it, and click **Use Lens**.

   Or, to create a new lens, do one of the following:

   - If there are no lenses for the data source, click **Go to Data Source Page**.
   - If lenses already exist, click the data source name at the bottom of the dialog.
5. (New lenses only) Complete the steps in Create or configure a lens page on your Tableau site.
6. Under **Toolbar Options for Lens Users**, select the buttons you want available to users.
   - **Add Visualization to Pins** lets users add to the Recommended Visualizations list, which appears just below the query box.
   - **Publish as Workbook** lets users save visualizations as workbook sheets to their Tableau site.
   - **Share Visualization** lets users share via email, Slack, or a link.

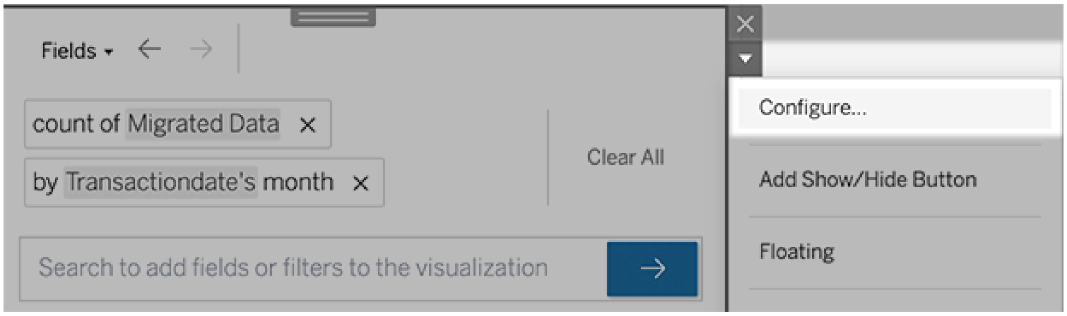
     In the lens, the publish (save icon), pin, and share options appear in the upper right corner:


Fields
Share
count of online_traffic
by Language
Clear All
+ Add Filter
Search to add fields or filters to the visualization

7. (New lenses only) After you finish creating the lens, return to the Lens object in your dashboard, and click **Refresh**. Then select the new lens, and click **Use Lens**.

Apply a different lens to an Ask Data dashboard object

1. From the pop-up menu at the top of the object, choose **Configure**.


Fields
count of Migrated Data
by Transactiondate's month
Clear All
Search to add fields or filters to the visualization
Configure...
Add Show/Hide Button
Floating

2. Go to Add an Ask Data lens to a dashboard, and repeat steps 2 onward.

Change a lens name, description, or project location

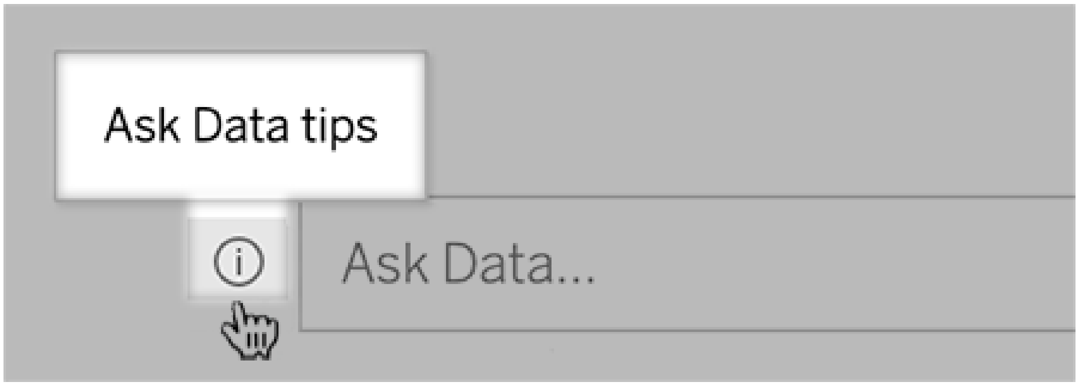
1. Navigate to the lens page on Tableau Cloud or Tableau Server.
2. To the right of the lens name at the top of the page, click the three dots (...), and choose **Edit Workbook**.
3. Click **Edit Lens Details**.

See how people use Ask Data with a lens

For data source owners and lens authors, Ask Data provides a dashboard that reveals the most popular queries and fields, the number of visualization results that users clicked, and other helpful information. Filters let you narrow data down to specific users and time ranges. These stats help you further optimize a lens to increase the success of your users.

> **Note:** If you use Tableau Server, you can access this data in the Tableau Server Repository to create custom dashboards.

1. In Tableau Server or Tableau Cloud, navigate to a lens page.
2. To the left of the Ask Data text box, click the "Ask Data tips" icon.



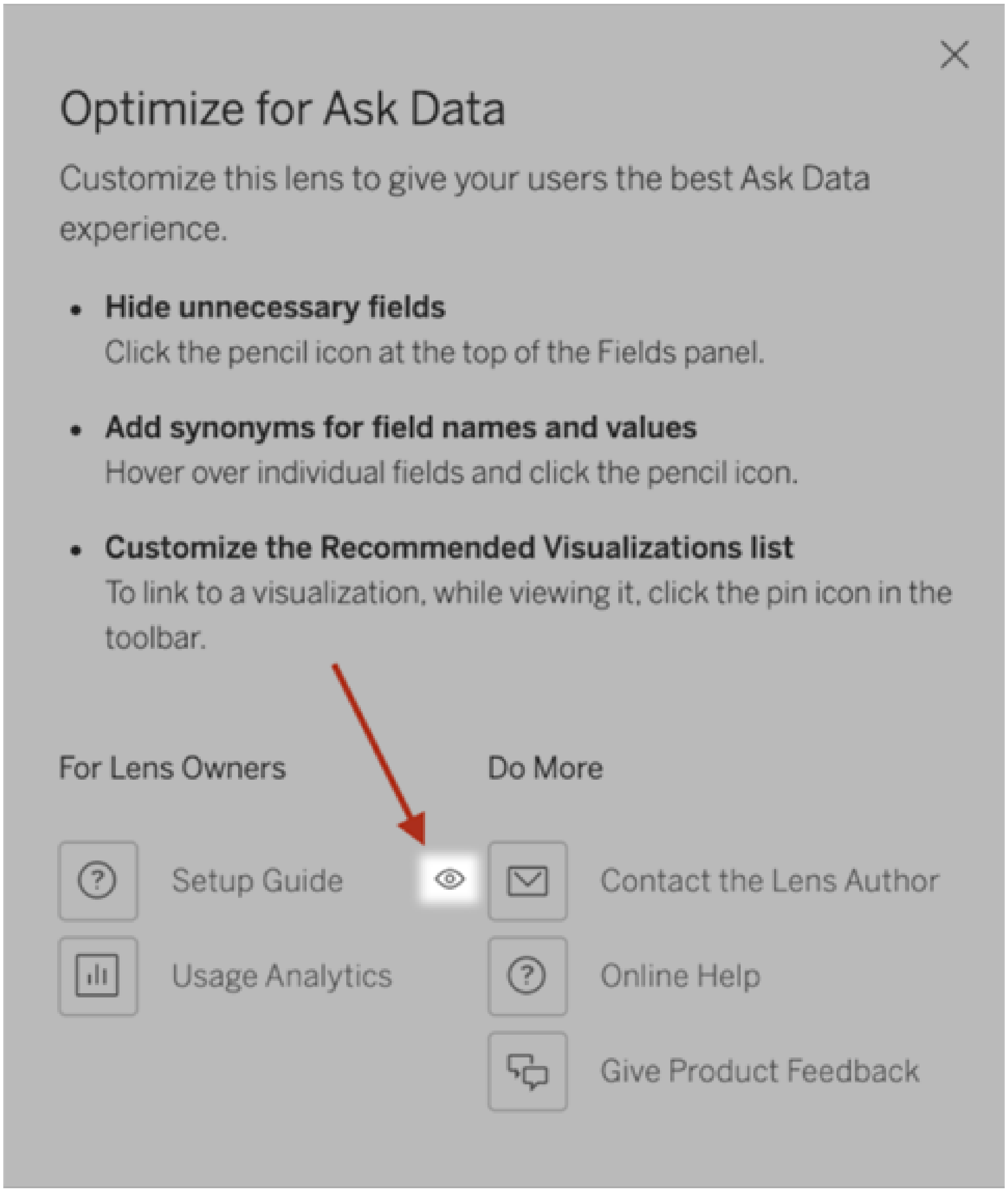
3. In the lower-left corner of the tips dialog, click **Usage Analytics**.

Let users email you questions about a lens

As a lens owner, you can allow users to email you with questions about data structure, expected results, and more. This option is on by default, but you can turn it off using the steps below.

1. In Tableau Server or Tableau Cloud, navigate to a lens page.
2. To the left of the Ask Data text box, click the "i" shown above in See how people use Ask Data with a lens.
3. At the bottom of the tips dialog, click the eye icon next to "Contact the Lens Author" to

enable or disable feedback.



Optimize for Ask Data

Customize this lens to give your users the best Ask Data experience.

- **Hide unnecessary fields**
  Click the pencil icon at the top of the Fields panel.
- **Add synonyms for field names and values**
  Hover over individual fields and click the pencil icon.
- **Customize the Recommended Visualizations list**
  To link to a visualization, while viewing it, click the pin icon in the toolbar.

For Lens Owners
Setup Guide
Usage Analytics
Do More
Contact the Lens Author
Online Help
Give Product Feedback

Permissions for publishing and viewing lenses

For Ask Data objects in dashboards, no change to permissions should be required: by default, existing workbook authors can create lenses, and existing dashboard audiences can view them. But for reference, here's a detailed outline of required lens permissions for both dashboards and direct access via a data source page.

To create and publish a lens, a user needs:

- The Creator or Explorer user role
- Lens Creation permission for the data source (inherited by default from the Connect permission)
- Write permission for the parent project to which the lens is published

To access and interact with a published lens, a user needs:

- The Viewer role or above
- Connect permission for the data source
- View permission for the lens

> **Note:** By default, lens permissions like View reflect a project's permissions for workbooks. If Tableau administrators want to change default lens permissions, they can do so either individually for each project, or in bulk using the permissions API.

Disable or Enable Ask Data for a Site

Important changes for Ask Data and Metrics

Tableau's Ask Data and Metrics features were retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. With advances in natural language technologies, we're developing an improved interface that will make it easier to ask questions of your data and stay on top of changes. For more information, see *How Tableau AI and Tableau Pulse are reimagining the data experience.*

Ask Data is enabled for sites by default, but Tableau administrators may disable it.

1. Go to the **General** site settings.
2. (Tableau Server only) In the **Web Authoring** section, select **Let users edit workbooks in their browser**.

3. In the **Availability of Ask Data** section, choose from these options:
    - **Enabled** enables creation of Ask Data lenses for all published data sources.
    - **Disabled** hides Ask Data throughout the site, while preserving information about previously created lenses so they can be restored if Ask Data is re-enabled.

Optimize Data for Ask Data

Important changes for Ask Data and Metrics

Tableau's Ask Data and Metrics features were retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. With advances in natural language technologies, we're developing an improved interface that will make it easier to ask questions of your data and stay on top of changes. For more information, see *How Tableau AI and Tableau Pulse are reimagining the data experience.*

If you manage and publish data sources, here are some tips to help make users of Ask Data more successful. By spending a little extra time on this process, you'll open up data analysis to a wider range of people at your organization, helping them independently answer questions and gain deeper insights.

Optimize data in Ask Data

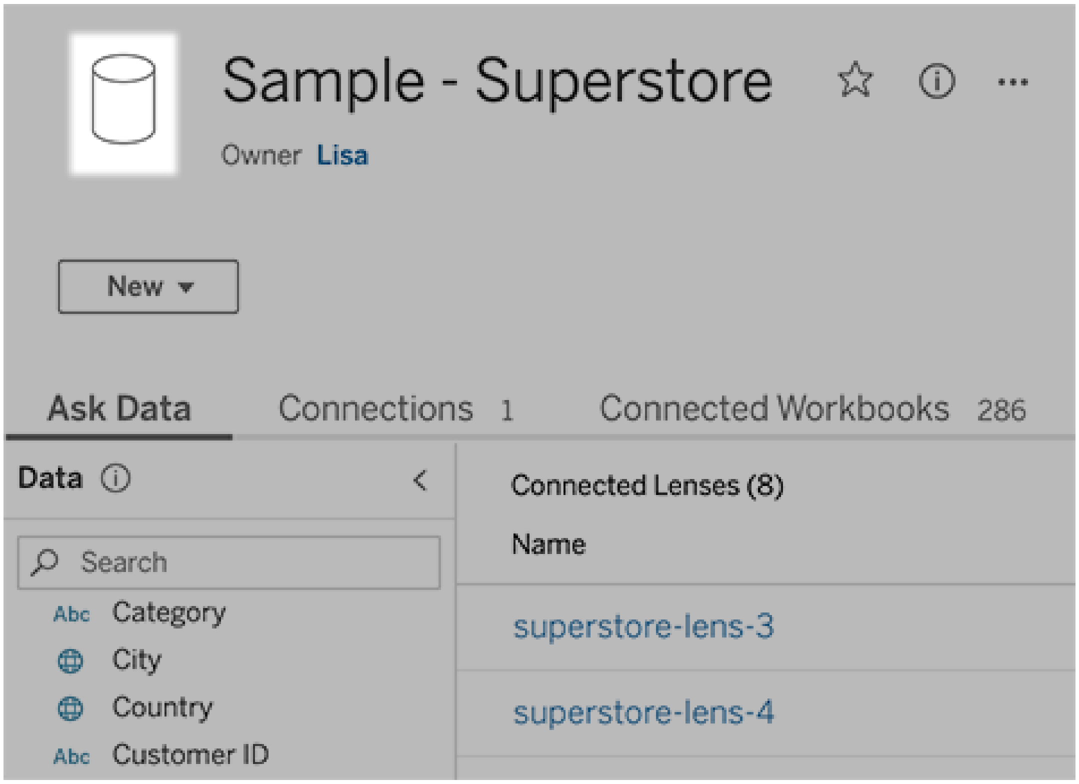
In the Data pane on the left of the Ask Data interface, data source owners can add synonyms for fields and exclude irrelevant values.

Changing settings at the data source or lens level

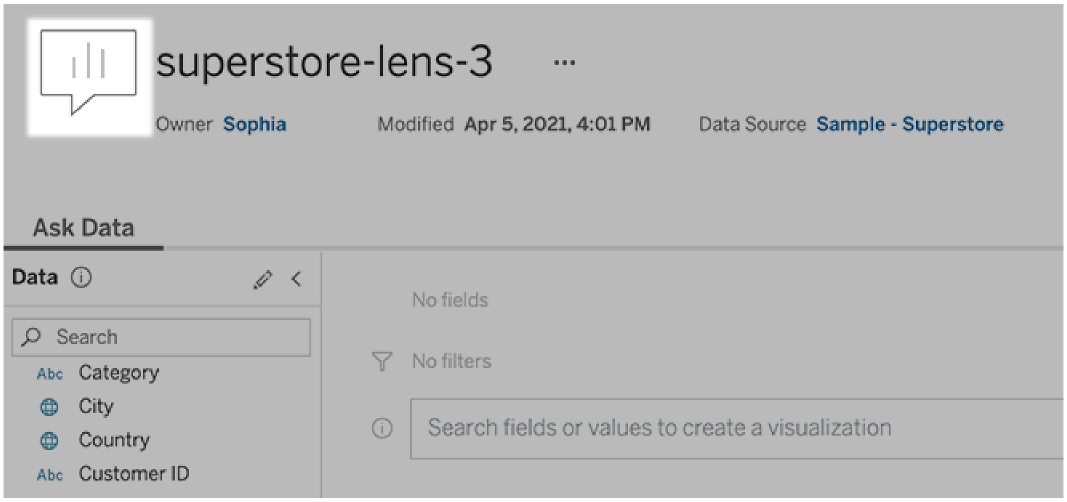
When changing settings in the Data pane for Ask Data, pay close attention to whether you're at the data source or lens level. (For more information, see Create Lenses that Focus Ask Data for Specific Audiences.)

- At the data source level, you'll see the cylindrical data source icon in the upper left corner. Here, changes you make in the Data pane will apply by default to all subsequently created lenses.

Note: For extracts, two cylinders will appear.


Sample - Superstore
Owner Lisa
New
Ask Data
Connections 1
Connected Workbooks 286
Data
Search
Abc Category
City
Country
Abc Customer ID
Connected Lenses (8)
Name
superstore-lens-3
superstore-lens-4

- For an individual lens, you'll see the quotation icon in the upper left corner. Here, changes you make in the Data pane will apply to this lens alone.


superstore-lens-3 ...
Owner Sophia
Modified Apr 5, 2021, 4:01 PM
Data Source Sample - Superstore
Ask Data
Data
Search
Abc Category
City
Country
Abc Customer ID
No fields
No filters
Search fields or values to create a visualization

Add synonyms for field names and values

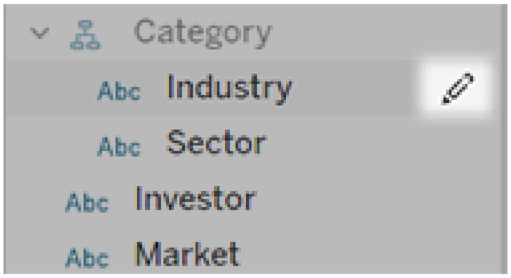
People may not use the same terminology found in your data source, so data source owners and Tableau administrators can add synonyms for specific data field names and values. Synonyms you enter are available throughout your organization, making data analysis quicker and easier for everyone.

Exclude values of specific fields from search results

To improve the usability of search results in Ask Data, you can exclude the values of specific fields from indexing. Though Ask Data doesn't add non-indexed values to search results, the values still appear in visualization results when relevant. For example, if you don't index values from a "Product" field because they add unnecessary detail to search results, Ask Data can still display values such as "iPhone 12" in resulting data visualizations. And users can manually add non-indexed values to queries by surrounding them with quotation marks (for example, "Sales for Product containing "iPhone 12"").

> **Note:** This field-level setting is ignored if the value indexing setting for the data source is set to Disabled. Field names and related synonyms are always indexed.

1. Go to the Ask Data tab for a data source or individual lens.
2. Hover over a data source field at left, and click the **Edit Field Details** icon (the pencil).


Category
Abc Industry
Abc Sector
Abc Investor
Abc Market

3. Deselect **Index field values.**

   Either click the text box that appears to reindex the data source now, or let it reindex based on its regular indexing schedule.

Optimize data sources

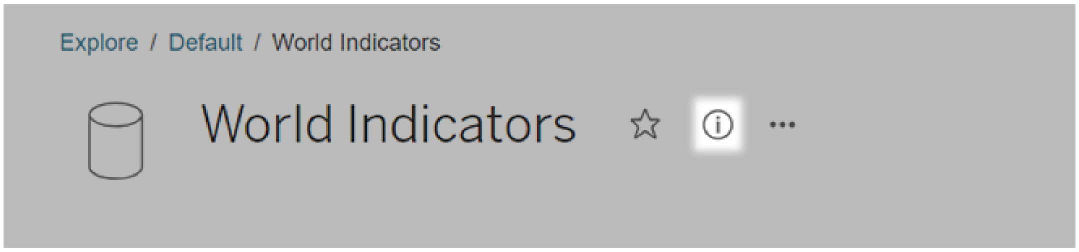
To create the best experience for Ask Data users, optimize the original data source.

> **Note:** Ask Data doesn't support multidimensional cube data sources, or non-relational data sources like Google Analytics, or data sources with a virtual connection.

Optimize indexing for Ask Data

Data source owners can change how often field values are indexed for Ask Data, optimizing system performance.

1. At the top of a data source page, click the Details icon:


Explore / Default / World Indicators
World Indicators

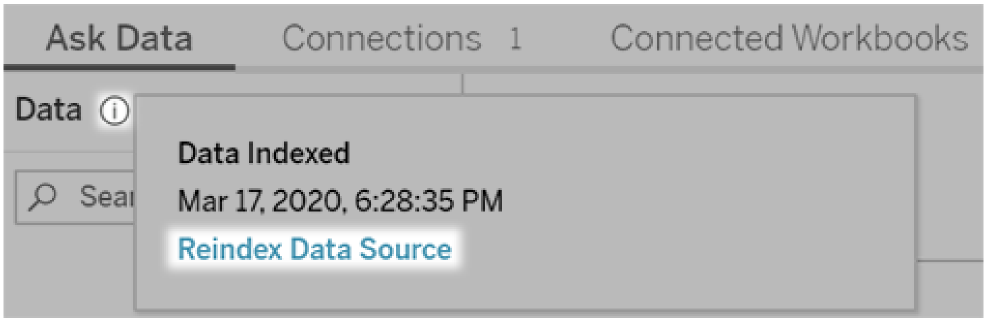
2. In the Ask Data section, click **Edit**.

3. Choose an indexing option for field values:

    - **Automatic** checks for changes every 24 hours and analyzes the data source if it is live, has had an extract refreshed, or has been republished. Choose this option for a data source frequently used with Ask Data, so it will be ready before users query it.

    - **Manual** analyzes the data source only when Tableau creators manually trigger indexing on the data source page. Choose this option if the data source changes frequently but users query it with Ask Data only occasionally.

      To trigger manual indexing, go to the data source page, click the circled “i” in the Data pane at left, and then click **Reindex Data Source**.

      Data Indexed
      Mar 17, 2020, 6:28:35 PM
      Reindex Data Source

    - **Disabled** analyzes only field names, not values.

4. Click **Save**

Use data extracts for faster performance

For improved performance and support for large data sets, use Ask Data with published extracts rather than live data sources. For more information, see Create an extract.

Ensure that users can access the data source

To use Ask Data, users must have permission to connect to the individual data source. If a data source has row-level permissions, those permissions also apply to Ask Data, which won’t recognize secure values or make related statistical recommendations.

Be aware of unsupported data source features

Ask Data supports all Tableau data source features except the following. If your data source contains these, Ask Data users won't be able to query related fields.

- Sets
- Combined fields
- Parameters

Anticipate user questions

Anticipate the kinds of questions your users will ask, and then optimize your data source for those questions using these techniques:

- Clean and shape data in Tableau Prep or a similar tool.
- Join data to include all fields users may have questions about in one table, improving performance.
- Add calculated fields that answer common user questions.
- Create bins with appropriate sizes for quantitative variables that users are likely to want to see as a histogram or another binned form.

Simplify the data

To make data easier to understand by both users and Ask Data, simplify the data source as much as possible during the data prep process.

1. Remove any unnecessary fields to improve performance.
2. Give each field a unique and meaningful name.
    - For example, if there are five field names that start with “Sales …”, better distinguish them so Ask Data can properly interpret the term “sales”.
    - Rename “Number of records” to something more meaningful. For example, use “Number of earthquakes” in a data source where each record is an earthquake.
    - Avoid field names that are numbers, dates, or boolean (“true” or “false”) values.
    - Avoid names which resemble analytical expressions such as “Sales in 2015” or “Average Products Sold”.
3. Create meaningful aliases for field values, reflecting terms people would use in conversation.

Set appropriate field defaults

To help Ask Data analyze data correctly, ensure that default field settings reflect the content of each field.

- Set data types for text, time, date, geographic, and other values.
- Assign the proper data role: dimension or measure, continuous or discrete.
- For each measure, assign appropriate default settings in Tableau Desktop, such as color, sort order, number format (percentage, currency, etc.), and aggregation function. For example, SUM may be appropriate for “Sales”, but AVERAGE might be a better default for “Test Score”.

> **Tip:** It's particularly helpful to set a default comment for each field, because these comments appear as informative descriptions when users hover over fields in Ask Data.

Create hierarchies for geographic and categorical fields

For time data, Tableau automatically creates hierarchies, which let users quickly drill up and down in vizzes (for example, from day to week to month). For geographic and categorical data, however, we recommend that you create custom hierarchies to help Ask Data produce visualizations that reflect the relationships between fields. Be aware that Ask Data won't show the hierarchies in the data pane.

Ask Data doesn't index hierarchy names, only names of fields within hierarchies. For example, if a geographic hierarchy named “Location” contains “Country” and “City” fields, users should enter “Country” and “City” in their questions for Ask Data.

Discover Insights Faster with Explain Data

Explain Data in the Data Guide helps you to inspect, uncover, and dig deeper into the marks in a viz as you explore your data. You can use Explain Data to analyze dashboards, sheets, or selected marks for possible outliers and correlations in the underlying data. Explain Data builds statistical models and proposes possible explanations for individual marks in a viz, including potentially related data from the data source that isn't used in the current view.

For information on running Explain Data and exploring explanations, see Get Started with Explain Data.

Note: This topic describes how Explain Data works in Tableau 2021.2 and later versions. If you have a previous version of Tableau, read this topic in version 2021.1 of Explain Data help.

As you build different views, use Explain Data as a jumping-off point to help you explore your data more deeply and ask better questions. For more information, see How Explain Data helps to augment your analysis. For information on what characteristics make a data source more interesting for use with Explain Data, see Requirements and Considerations for Using Explain Data.

Access to Explain Data

Explain Data is enabled by default at the site level. Server administrators (Tableau Server) and site administrators (Tableau Cloud) can control whether Explain Data is available for a site. For more information, Disable or Enable Explain Data for a Site.

Authors who can edit workbooks and have the Run Explain Data permission capability for a workbook can run Explain Data in editing mode. All users with the Run Explain Data capability can run Explain Data in viewing mode in Tableau Cloud and Tableau Server.

When allowed by site administrators, explanations can be shared in viewing mode via email or Slack with other Tableau Cloud and Tableau Server users. For more information, see Configure Tableau to allow users to share explanations via email and Slack.

Authors can use Explain Data Settings to control which explanation types are displayed in the Data Guide pane.

For information on controlling access to Explain Data, explanation types, and fields, see Control Access to Explain Data.

How Explain Data helps to augment your analysis

Explain Data is a tool that uncovers and describes relationships in your data. It can't tell you what is causing the relationships or how to interpret the data. **You are the expert on your data.** Your domain knowledge and intuition are key in helping you decide what characteristics might be interesting to explore further using different views. For related information, see How Explain Data Works and Requirements and Considerations for Using Explain Data.

For more information on how Explain Data works and how to use Explain Data to augment your analysis, see these Tableau Conference presentations:

- From Analyst to Statistician: Explain Data in Practice (1 hour)
- Leveraging Explain Data (45 minutes)

Get Started with Explain Data

Use Explain Data in your flow of analysis as you are exploring the marks in a viz. Explain Data runs automatically when the Data Guide pane is open and updates based on the current selection (dashboard, sheet, or mark).

Use Explain Data

- Run Explain Data on a dashboard, sheet, or mark
- Drill into explanations
- View analyzed fields
- Terms and concepts in explanations
- Explanation Types

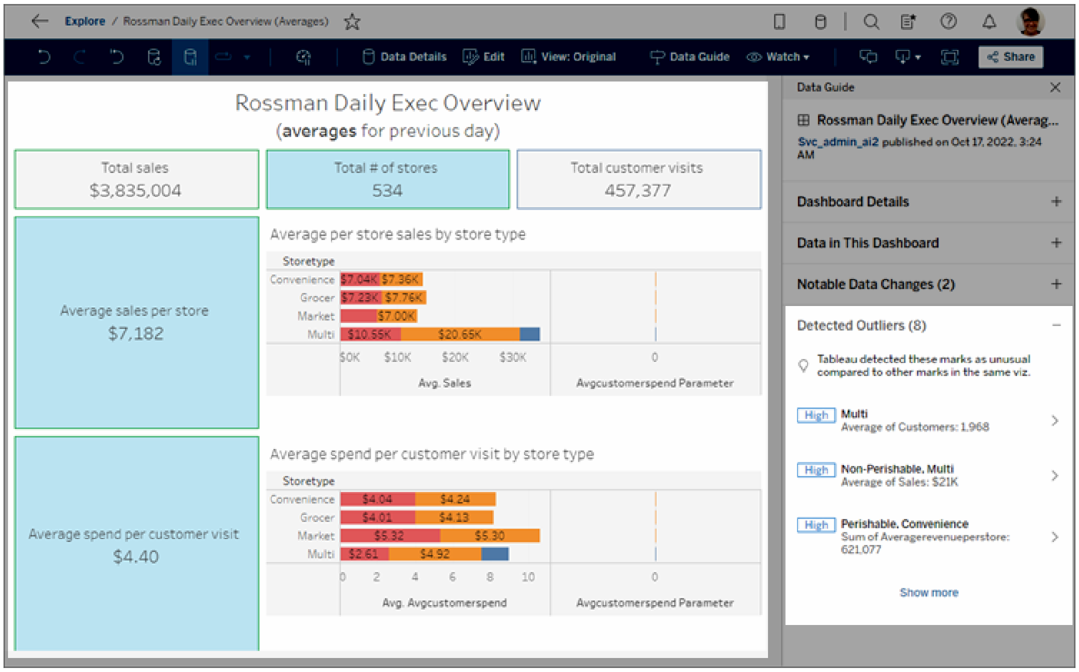
Author Workbooks and Control Access

- Requirements and Considerations for Using Explain Data
- Change Explain Data Settings (Authors-only)
- Control Access to Explain Data
- Disable or Enable Explain Data for a Site
- How Explain Data Works

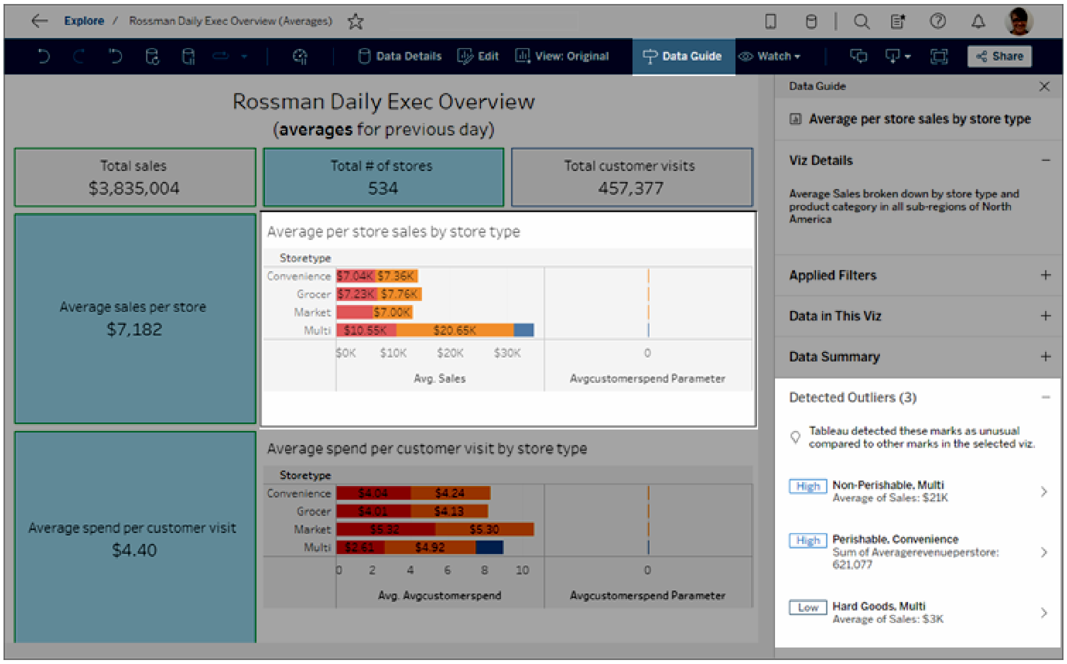
Run Explain Data on a dashboard, sheet, or mark

These are the basic steps to run Explain Data in Tableau Desktop, Tableau Cloud, and Tableau Server:

1. Open a dashboard or sheet in a workbook.
2. In the view toolbar, select **Data Guide** to open the Data Guide pane.
3. If you open a dashboard, Explain Data will analyze it for outliers.


Explore / Rossman Daily Exec Overview (Averages)
Data Details
Edit
View: Original
Data Guide
Watch
Share
Rossman Daily Exec Overview
(averages for previous day)
Total sales
$3,835,004
Total # of stores
534
Total customer visits
457,377
Average sales per store
$7,182
Average per store sales by store type
Storetype
Convenience
Grocer
Market
Multi
$7.04K
$7.36K
$7.23K
$7.76K
$7.00K
$10.55K
$20.65K
$0K
$10K
$20K
$30K
Avg. Sales
0
Avgcustomerspend Parameter
Average spend per customer visit
$4.40
Average spend per customer visit by store type
$4.04
$4.24
$4.01
$4.13
$5.32
$5.30
$2.61
$4.92
0
2
4
6
8
10
Avg. Avgcustomerspend
Data Guide
Rossman Daily Exec Overview (Averag...
Svc_admin_ai2 published on Oct 17, 2022, 3:24 AM
Dashboard Details
Data in This Dashboard
Notable Data Changes (2)
Detected Outliers (8)
Tableau detected these marks as unusual compared to other marks in the same viz.
High
Multi
Average of Customers: 1,968
High
Non-Perishable, Multi
Average of Sales: $21K
High
Perishable, Convenience
Sum of Averagerevenueperstore: 621,077
Show more

If you select a sheet in the dashboard, Explain Data analyzes the marks in that sheet for outliers.


Explore / Rossman Daily Exec Overview (Averages)
Data Details
Edit
View: Original
Data Guide
Watch
Share
Rossman Daily Exec Overview
(averages for previous day)
Total sales
$3,835,004
Total # of stores
534
Total customer visits
457,377
Average sales per store
$7,182
Average spend per customer visit
$4.40
Average per store sales by store type
Storetype
Convenience
Grocer
Market
Multi
$7.04K
$7.36K
$7.23K
$7.76K
$7.00K
$10.55K
$20.65K
$0K
$10K
$20K
$30K
Avg. Sales
Avgcustomerspend Parameter
Average spend per customer visit by store type
$4.04
$4.24
$4.01
$4.13
$5.32
$5.30
$2.61
$4.92
Avg. Avgcustomerspend
Data Guide
Average per store sales by store type
Viz Details
Applied Filters
Data in This Viz
Data Summary
Detected Outliers (3)

Average Sales broken down by store type and product category in all sub-regions of North America

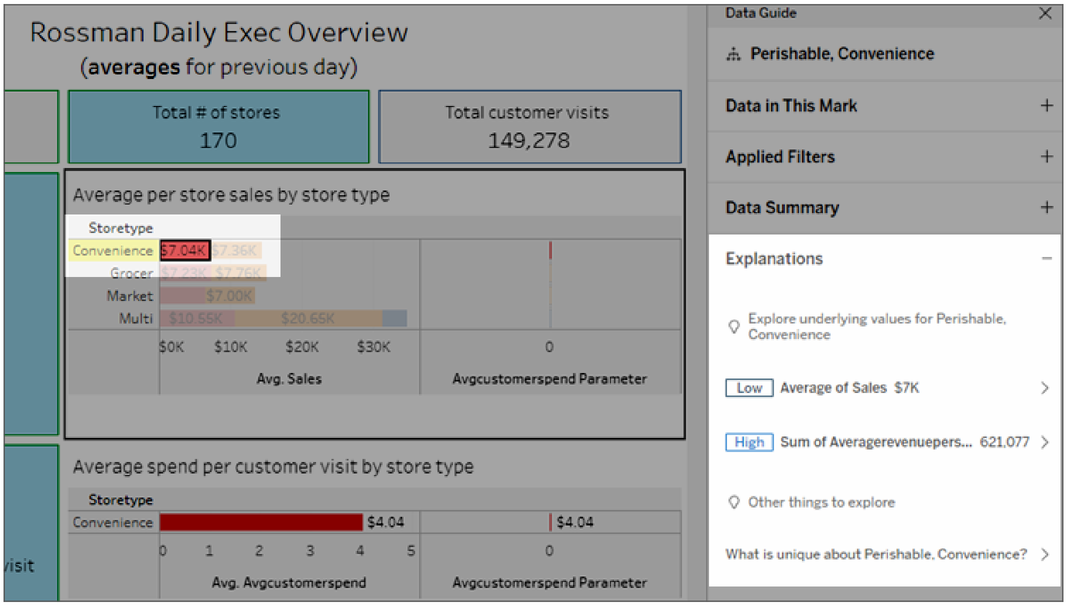
Tableau detected these marks as unusual compared to other marks in the selected viz.

High Non-Perishable, Multi
Average of Sales: $21K

High Perishable, Convenience
Sum of Averagerevenueperstore: 621,077

Low Hard Goods, Multi
Average of Sales: $3K

If you select a mark in the dashboard, Explain Data specifically analyzes that mark for explanations.


Rossman Daily Exec Overview
(averages for previous day)
Total # of stores
170
Total customer visits
149,278
Average per store sales by store type
Storetype
Convenience
Grocer
Market
Multi
$7.04K
$7.36K
$7.23K
$7.76K
$7.00K
$10.55K
$20.65K
$0K
$10K
$20K
$30K
Avg. Sales
Avgcustomerspend Parameter
Average spend per customer visit by store type
$4.04
Avg. Avgcustomerspend
visit
Data Guide
Perishable, Convenience
Data in This Mark
Applied Filters
Data Summary
Explanations

Explore underlying values for Perishable, Convenience

Low Average of Sales $7K

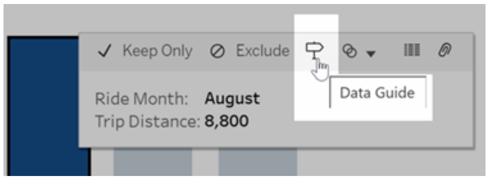
High Sum of Averagerevenuepers... 621,077

Other things to explore

What is unique about Perishable, Convenience?

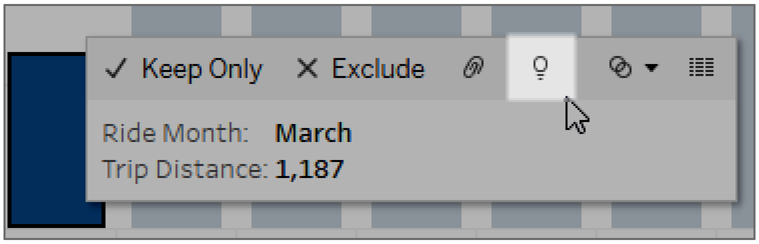
The marks that are being explained are highlighted in the viz as you select corresponding explanations.

Optionally, you can select a mark in a viz, hover the cursor over the mark. In the tooltip menu, select **Data Guide**.



Ride Month: **August**
Trip Distance: **8,800**

In Tableau Public, select the lightbulb in the tooltip menu to run Explain Data.



Ride Month: **March**
Trip Distance: **1,187**

Possible explanations for the value of the analyzed mark are displayed in the Data Guide pane. Select different explanation names to expand the details and start exploring.

Explain Data permissions required for seeing explanations

If you see Detected Outliers with a note to contact the owner of the viz, it is because you need permission to see these types of explanations. Select the owner name to go to their Tableau content page with their email address. Contact the owner to ask them to give you Explain Data permissions for the workbook or view.

If you are the owner of the workbook, for more information on setting permissions, see Control who can use Explain Data and what they can see.

Tips for using Explain Data

- Multiple marks can't be selected for comparison with each other.
- The view must contain marks that are aggregated using SUM, AVG, COUNT, COUNTD, or AGG (a calculated field).
- When Explain Data cannot analyze the type of mark selected, a message is displayed to indicate why. For more information, see Situations where Explain Data is not available.
- The data you analyze must be drawn from a single, primary data source. Explain Data does not work with blended or cube data sources.
- For information on what characteristics make a data source more interesting for use with Explain Data, see Requirements and Considerations for Using Explain Data.

Drill into explanations

1. In the Data Guide pane, select an explanation name to see more details.

   Select an explanation to expand or contract its details.

2. Scroll to see more explanation details.

3. Hover over charts in the explanations to see details on different data points. Select the **Open** icon to see a larger version of the visualization.

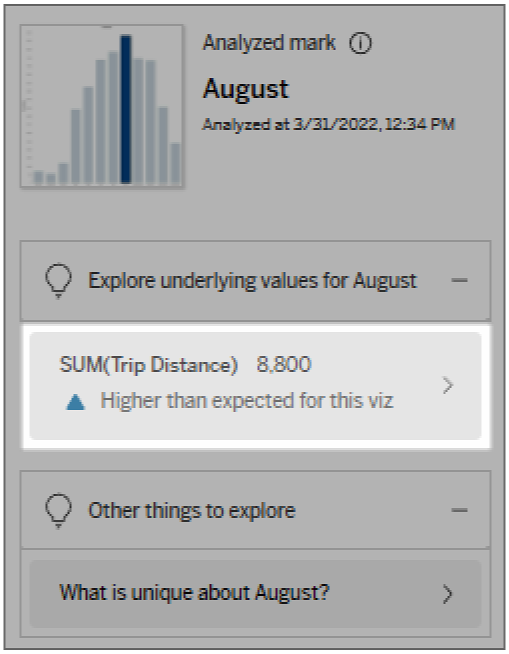
   Creators or Explorers who open the view for editing can select the **Open** icon to open the visualization as a new worksheet and explore the data further.

   > **Note**: Creators and Explorers who have editing permissions can also control Explain Data Settings. For more information, see Control Access to Explain Data.

4. Hover over a Help icon ⓘ to see tooltip help for an explanation. Select the Help icon ⓘ to keep the tooltip open. Select a **Learn More** link to open the related help topic.

View analyzed fields

1. Run Explain Data on a dashboard, sheet, or mark.
2. In the Data Guide pane, under **Explore underlying values for**, select a target measure name.


Analyzed mark ⓘ

August

Analyzed at 3/31/2022, 12:34 PM

Explore underlying values for August

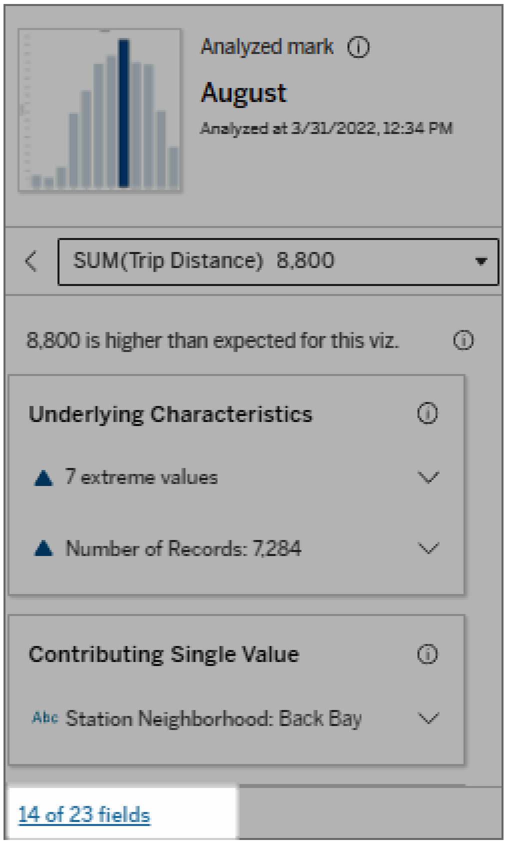
SUM(Trip Distance) 8,800

▲ Higher than expected for this viz

Other things to explore

What is unique about August?

3. Select the *number-of-fields* link at the bottom of the pane.



Analyzed mark

August

Analyzed at 3/31/2022, 12:34 PM

SUM(Trip Distance) 8,800

8,800 is higher than expected for this viz.

Underlying Characteristics

▲ 7 extreme values

▲ Number of Records: 7,284

Contributing Single Value

Station Neighborhood: Back Bay

14 of 23 fields

Authors have the option to open Explain Data Settings to control which fields are included in the analysis. For more information, see Change fields used for statistical analysis.

Terms and concepts in explanations

The following terms and concepts appear frequently in explanations. You may find it helpful to become acquainted with their meaning in the context of using Explain Data.

What is a mark?

A mark is a selectable data point that summarizes some underlying record values in your data. A mark can be made of a single record or multiple records aggregated together. Marks in Tableau can be displayed in many different ways such as lines, shapes, bars, and cell text.

Tableau gets the records that make up the mark based on the intersection of the fields in the view.

The **analyzed mark** refers to a mark in a dashboard or sheet that was analyzed by Explain Data.

For more information on marks, see Marks.

What does expected mean?

The expected value for a mark is the median value in the expected range of values in the underlying data in your viz. The expected range is the range of values between the 15th and 85th percentile that the statistical model predicts for the analyzed mark. Tableau determines the expected range each time it runs a statistical analysis on a selected mark.

If an expected value summary says the mark is *lower than expected* or *higher than expected*, it means the aggregated mark value is outside the range of values that a statistical model is predicting for the mark. If an expected value summary says the mark is *slightly lower* or *slightly higher* than expected or *within the range of natural variation*, it means the aggregated mark value is within the range of predicted mark values, but is lower or higher than the median.

For more information, see What is an expected range?

What are dimensions and measures?

Each column name in a database is a field. For example, Product Name and Sales are each fields. In Tableau, fields like Product Name that categorize data are called dimensions; fields with quantifiable data like Sales are called measures. Tableau aggregates measures by default when you drag them into a view.

Some explanations describe how the underlying record values and the aggregations of those values may be contributing to the value of the analyzed mark. Other explanations may mention the distribution of values across a dimension for the analyzed mark.

When you run Explain Data on mark, the analysis considers dimensions and measures in the data source that aren't represented in the view. These fields are referred to as unvisualized dimensions and unvisualized measures.

For more information on dimensions and measures, see Dimensions and Measures.

What is an aggregate or aggregation?

An aggregate is a value that is a summary or total. Tableau automatically applies aggregations such as SUM or AVG whenever you drag a measure onto Rows, Columns, a Marks card option, or the view. For example, measures are displayed as SUM(Sales) or AVG(Sales) to indicate how the measure is being aggregated.

To use Explain Data, your visualization must use a measure that is aggregated with SUM, AVG, COUNT, COUNTD, or AGG.

For more information about aggregation, see Data Aggregation in Tableau.

What is a record value?

A record is a row in a database table. A row contains values that correspond to each field. In this example, Category, Product Name, and Sales are fields (or columns). Furniture, Floor Lamp, and $96 are the values.

Category	Product Name	Sales
Furniture	Floor Lamp	$96.00

What is a distribution?

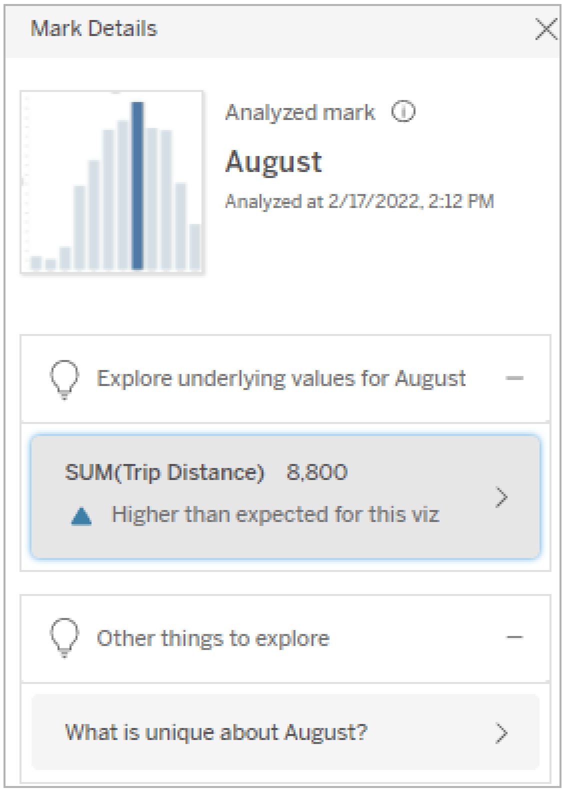
A distribution is a list of all the possible values (or intervals) of the data. It also indicates how often each value occurs (frequency of occurrence).

Explanation Types in Explain Data

Each time you select a new mark in a viz or dashboard and run Explain Data, Tableau runs a new statistical analysis considering that mark and the underlying data in the workbook. Possible explanations are displayed in expandable sections for the Data Guide pane. For information about how Explain Data analyzes and evaluates explanations, see How Explain Data Works.

Explore underlying values

This section lists explanations for each measure that can be explained (referred to as *target measures*). Each explanation listed here describes a relationship with the values of the target measure that are tested on the analyzed mark. Use your real-world, practical understanding of the data to determine if the relationships found by Explain Data are meaningful and worth exploring.



Mark Details
Analyzed mark
August
Analyzed at 2/17/2022, 2:12 PM
Explore underlying values for August
SUM(Trip Distance) 8,800
Higher than expected for this viz
Other things to explore
What is unique about August?

In this example, Trip Distance is the target measure

Underlying Characteristics

These explanations describe how underlying records of the marks in the view may be contributing to the aggregated value of the measure being explained. Mark attributes can include Extreme Values, Null Values, Number of Records, or the Average Value of the mark.

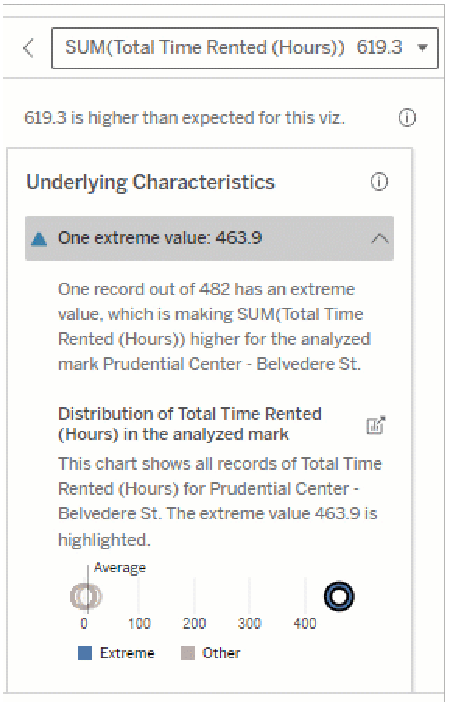
> **Note**: For definitions of common terms used in explanations, see Terms and concepts in explanations.

Extreme Values

This explanation type indicates if one or more records have values that are significantly higher or lower than most records. If the explanation is supported by a model, it indicates the extreme value is affecting the target measure of the analyzed mark.

When a mark has extreme values, it doesn't automatically mean it has outliers or that you should exclude those records from the view. That choice is up to you depending on your analysis. The explanation is simply pointing out an extreme value in the mark. For example, it could reveal a mistyped value in a record where a banana cost 10 dollars instead of 10 cents. Or, it could reveal that a particular sales person had a great quarter.

> **Note**: This explanation must be enabled by the author to be visible in viewing mode for a published workbook. For more information, see Control Access to Explain Data.



619.3 is higher than expected for this viz.

Underlying Characteristics

One extreme value: 463.9

One record out of 482 has an extreme value, which is making SUM(Total Time Rented (Hours)) higher for the analyzed mark Prudential Center - Belvedere St.

Distribution of Total Time Rented (Hours) in the analyzed mark

This chart shows all records of Total Time Rented (Hours) for Prudential Center - Belvedere St. The extreme value 463.9 is highlighted.

In this example, a single extreme value of 463 hours rented is contributing to the higher than expected sum of Total Time Rented of 613 hours.

This explanation shows:

- The number of underlying records in the analyzed mark.
- The extreme value or values contributing to the value of the target measure.
- The distribution of values in the mark.
- The record details that correspond to each distribution value.

Exploration options:

- Hover over a circle in the chart to see its corresponding value.
- Select the left or right arrow below the details list to scroll through record details.
- If available, select **View Full Data**, and then select the **Full Data** tab to see all records in a table.
- Select the **Open** icon to see a larger version of the visualization.

Next steps for analysis:

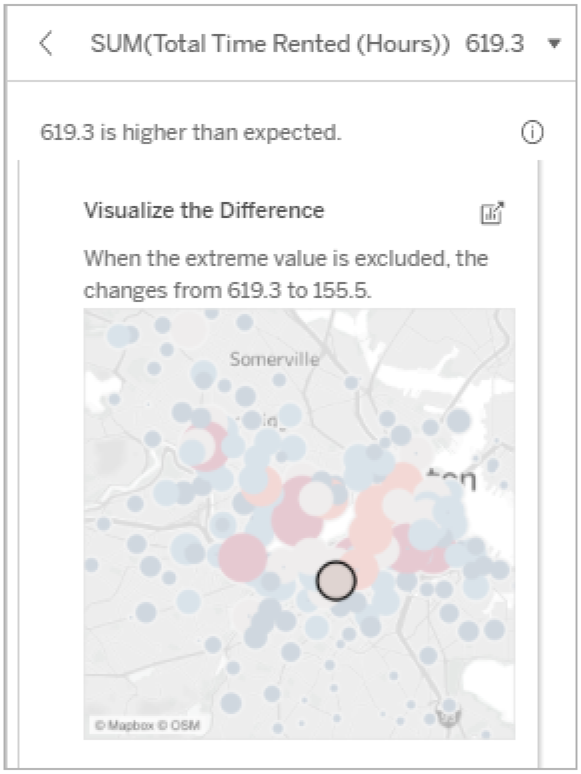
- If the number of records is low, examine these values compared to the extreme value.
- If the extreme value is significantly higher or lower than the other record values, exclude it and consider how it changes the value of the analyzed mark.
- When considering the data with and without the extreme value, use this as an opportunity to apply your practical knowledge about the data.

A likely reason for this high value could be that someone forgot to dock the bike when they returned it. In this case, the author might want to exclude this value for future analysis.

Visualize the Difference

This section shows:

- How the analyzed mark value changes when the extreme value is excluded.



SUM(Total Time Rented (Hours)) 619.3

619.3 is higher than expected.

Visualize the Difference

When the extreme value is excluded, the changes from 619.3 to 155.5.

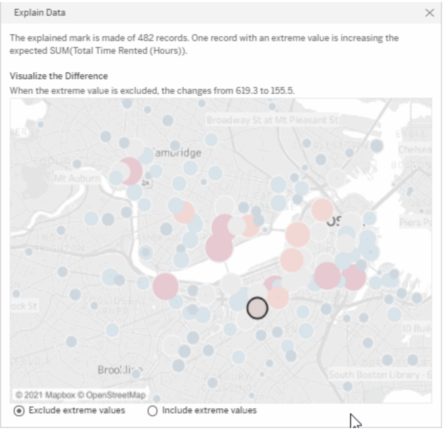
Exploration options:

- Select the **Open** icon to see a larger version of the visualization.

- Explore the difference with and without the extreme value (or values).
- Authors can open the view as a new sheet and apply a filter to exclude the extreme value.

Next steps for analysis:

- If the extreme value is significantly higher or lower than the other record values, exclude it and see how it changes the value of the analyzed mark.
- When considering the data with and without the extreme value, use this as an opportunity to apply your practical knowledge about the data.



Explain Data

The explained mark is made of 482 records. One record with an extreme value is increasing the expected SUM(Total Time Rented (Hours)).

Visualize the Difference

When the extreme value is excluded, the changes from 619.3 to 155.5.

● Exclude extreme values ○ Include extreme values

Broadway St at Mt Pleasant St
Cambridge
Mt Auburn
Chelsea
Piers Pa
ock St
ID Buil
Brookline
South Boston Library
© 2021 Mapbox © OpenStreetMap

In this example, when the extreme value of 483 is excluded, the analyzed mark is no longer high compared to other marks in the view. Other marks now stand out. The author might want to explore the other marks to consider why these other locations have higher hours for bike rentals.

Null Values

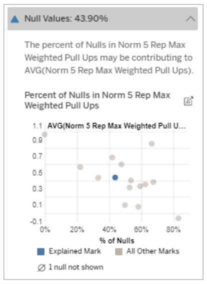
The Null Values explanation type calls out situations where there is a higher than expected amount of missing data in a mark. It indicates the fraction of target measure values that are null and how the null values might be contributing to the aggregate value of that measure.

This explanation shows:

- The percent of values that are null in the target measure for the analyzed mark (blue circle).

Exploration options:

- Hover over each circle in the scatter



Null Values: 43.90%

The percent of Nulls in Norm 5 Rep Max Weighted Pull Ups may be contributing to AVG(Norm 5 Rep Max Weighted Pull Ups).

Percent of Nulls in Norm 5 Rep Max Weighted Pull Ups

AVG(Norm 5 Rep Max Weighted Pull U...
1.1
0.9
0.7
0.5
0.3
0.1
-0.1
0%
20%
40%
60%
80%
% of Nulls
Explained Mark
All Other Marks
1 null not shown

plot to see its details.
- Scroll to see more of the chart.
- Select the **Open** icon to see a larger version of the visualization.

Next steps for analysis:

- Optionally exclude null values in the mark for further analysis.

In this example, the percent of null values in the target measure is shown as a blue circle.

Number of Records

This explanation type describes when the count of the underlying records is correlated to the sum. The analysis found a relationship between the number of records that are being aggregated in a mark and the mark's actual value.

While this might seem obvious, this explanation type helps you explore whether the mark's value is being affected by the magnitude of the values in its records or simply because of the number of records in the analyzed mark.

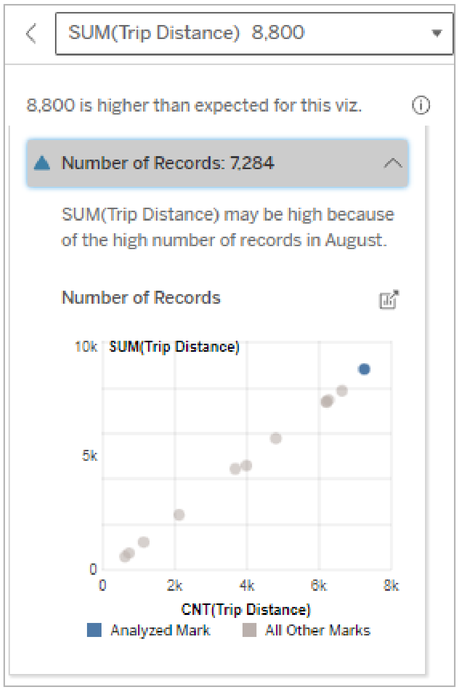
This explanation shows:

- The number of records in the target measure for the analyzed mark (dark blue bar).
- The number of records in the target measure for other marks in the source visualization (light blue bar).

Exploration options:

- Hover over each bar to see its details.
- Scroll to see more of the chart.
- Select the **Open** icon to see a larger version of the visualization.

Next steps for analysis:



SUM(Trip Distance) 8,800

8,800 is higher than expected for this viz.

Number of Records: 7,284

SUM(Trip Distance) may be high because of the high number of records in August.

Number of Records

- Compare whether the individual values of records are low or high, or the number of records in the analyzed mark is low or high.
- Authors, if you are surprised by a high number of records, you might need to normalize the data.

In this example, the number of records for Trip Distance is listed for each value of Ride Month, which is a dimension in the original visualization. August has the highest total trip distance value.

You might explore whether August has the highest value for trip distance because more rides occurred in August, or if it has the highest trip distance because some rides were longer.

Average Value of Mark

This explanation type describes when the average of a measure is correlated to the sum. Compare whether the average value is low or high, or the number of records is low or high.

This explanation shows:

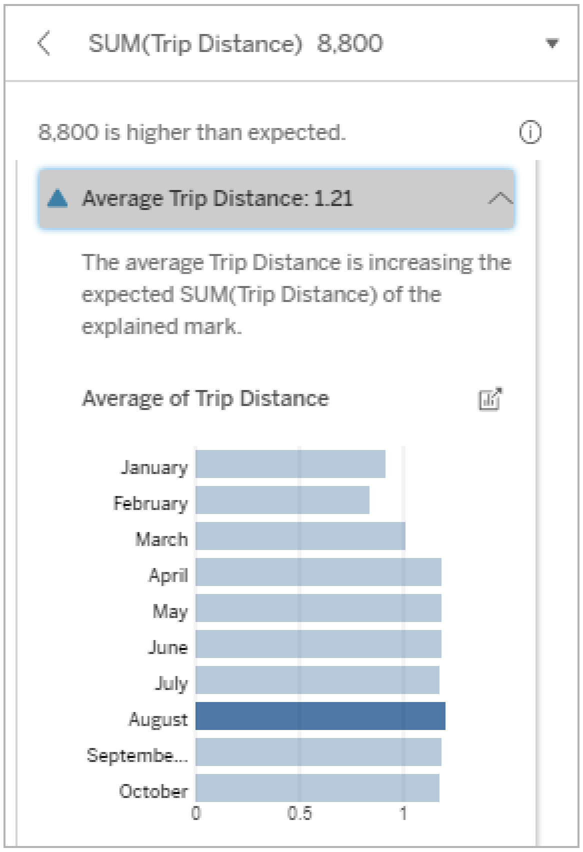
- The average of the target measure for each value of a dimension used in the source visualization.

Exploration options:

- Hover over each bar to see its details.
- Scroll to see more of the chart.
- Select the **Open** icon to see a larger version of the visualization.

Next steps for analysis:

- Compare whether the average value is low or high, or the number of records is low or high. For example, are profits high because you sold a lot of items or because you sold expensive items?
- Try to figure out why the analyzed mark has a significantly higher or lower average value.



SUM(Trip Distance) 8,800

8,800 is higher than expected.

Average Trip Distance: 1.21

The average Trip Distance is increasing the expected SUM(Trip Distance) of the explained mark.

In this example, the average trip distance for August is not significantly higher or lower than most months. This suggests that trip distance is higher for August because there were more rides in August, rather than from people taking longer rides.

Contributing Single Value

Use this explanation to understand the composition of the record values that make up the analyzed mark.

This explanation type identifies when a single value in an unvisualized dimension may be contributing to the aggregate value of the analyzed mark. An unvisualized dimension is a dimension that exists in the data source, but isn't currently being used in the view.

This explanation indicates when every underlying record of a dimension has the same value, or when a dimension value stands out because either many or few of the records have the same single value for the analyzed mark.

Note: For definitions of common terms used in explanations, see Terms and concepts in explanations.

This explanation shows:

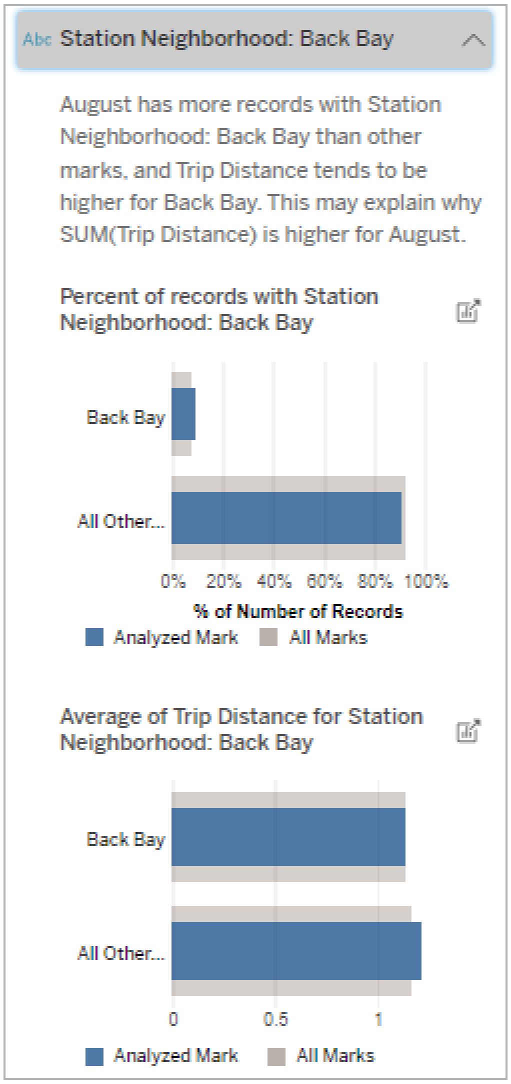
- The percent of the number of records for a single value of a dimension for the analyzed mark (blue bar) versus all marks (gray bar) in the source visualization.
- The percent of the number of records for all other values of a dimension for the analyzed mark (blue bar) versus all marks (gray bar) in the source visualization.
- The average of the target measure for the single value of a dimension in the analyzed mark (blue bar) versus all marks (gray bar).
- The average of the target measure for all other values of a dimension for the analyzed mark (blue bar) versus all marks (gray bar) in the source visualization.

Exploration options:

- Hover over each bar to see its details.
- Select the **Open** icon to see a larger version of the visualization.

Next steps for analysis:

- Use this explanation to understand the composition of the record values that make up the analyzed mark.
- Authors might want to create a new visualization to explore any unvisualized dimension surfaced in this explanation.



Station Neighborhood: Back Bay

August has more records with Station Neighborhood: Back Bay than other marks, and Trip Distance tends to be higher for Back Bay. This may explain why SUM(Trip Distance) is higher for August.

Percent of records with Station Neighborhood: Back Bay

Average of Trip Distance for Station Neighborhood: Back Bay

In this example, the statistical analysis has exposed that many of the rides come from the station neighborhood of Back Bay. Note that Station Neighborhood is an unvisualized dimension that has some relationship to Trip Distance in the underlying data for the source visualization.

Top Contributors

Use this explanation to see the values that make up the largest fraction of the analyzed mark.

For a COUNT aggregation, the top contributors show dimension values with the most records. For SUM, this explanation shows dimension values with the largest partial sum.

Contributing Dimensions

Use this explanation to understand the composition of the record values that make up the analyzed mark.

This explanation type shows that the distribution of an unvisualized dimension may be contributing to the aggregate value of the analyzed mark. This type of explanation is used for target measure sums, counts, and averages. An unvisualized dimension is a dimension that exists in the data source, but isn't currently being used in the view.

Note: For definitions of common terms used in explanations, see Terms and concepts in explanations.

This explanation shows:

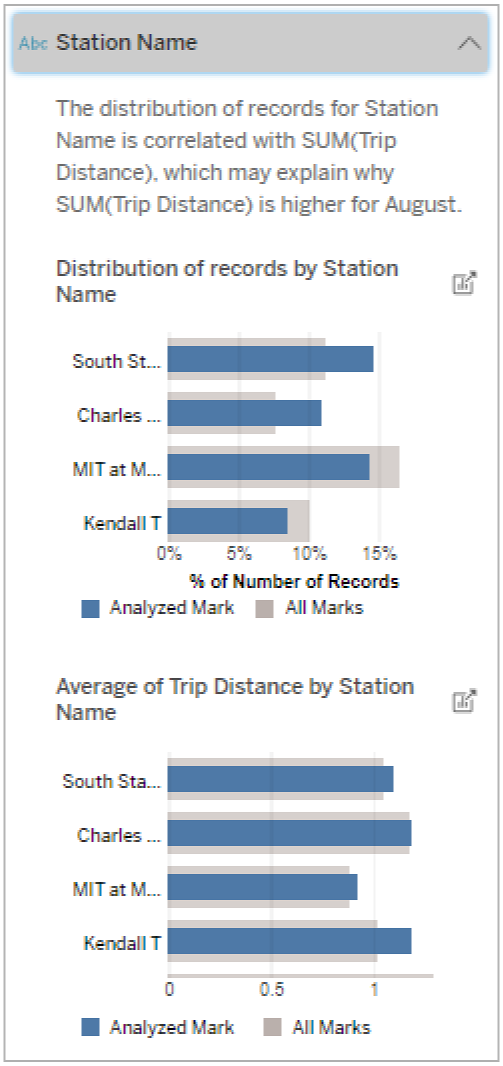
- The percent of the number of records for all values of a dimension for the analyzed mark (blue bar) versus all values of a dimension for all marks (gray bar) in the source visualization.
- The average of the target measure for all values of a dimension for the analyzed mark (blue bar) all values of a dimension for all marks (gray bar).

Exploration options:

- Hover over each bar to see its details.
- Scroll to see more of the chart.
- Select the **Open** icon to see a larger version of the visualization.

Next steps for analysis:

- Use this explanation to understand the composition of the record values that make up the analyzed mark.
- Authors might want to create a new visualization to explore any unvisualized dimensions surfaced in this explanation.



Abc Station Name

The distribution of records for Station Name is correlated with SUM(Trip Distance), which may explain why SUM(Trip Distance) is higher for August.

Distribution of records by Station Name

South St...
Charles ...
MIT at M...
Kendall T
0%
5%
10%
15%
% of Number of Records
Analyzed Mark
All Marks

Average of Trip Distance by Station Name

South Sta...
Charles ...
MIT at M...
Kendall T
0
0.5
1
Analyzed Mark
All Marks

In this example, the statistical analysis has exposed that more rides were taken from South Station and MIT and fewer rides were taken from Charles Circle and Kendall, compared to rides taken for marks overall.

Note that Station Name is an unvisualized dimension that has some relationship to Trip Distance in the underlying data for the source visualization.

Contributing Measures

This explanation type shows that the average of an unvisualized measure may be contributing to the aggregate value of the analyzed mark. An unvisualized measure is a measure that exists in the data source, but isn't currently being used in the view.

This explanation can reveal a linear or quadratic relationship between the unvisualized measure and the target measure.

Note: For definitions of common terms used in explanations, see Terms and concepts in explanations.

This explanation shows:

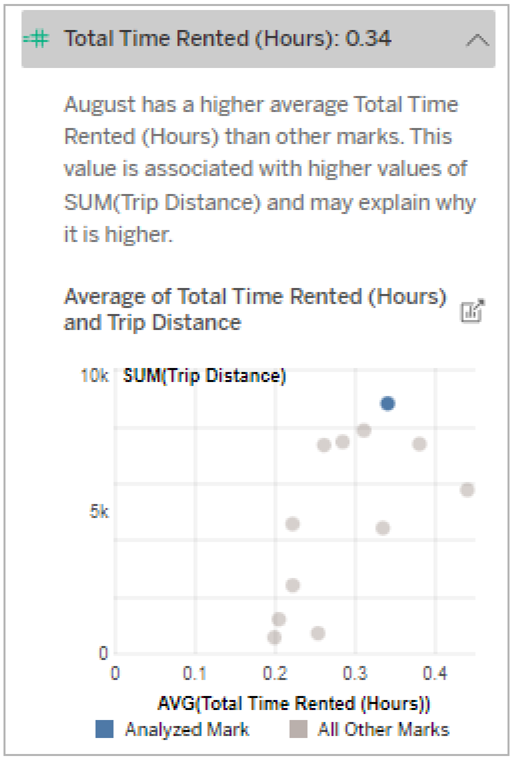
- The relationship between the sum of the target measure and the average of an unvisualized measure for the analyzed mark (blue circle) and all marks (gray circles) in the view.
- If the sum of the target measure is high or low because the average value of the unvisualized measure is high or low.

Exploration options:

- Hover over each circle to see its details.
- Select the **Open** icon to see a larger version of the visualization.

Next steps for analysis:

- Authors might want to create a new visualization to explore any unvisualized measures surfaced in this explanation.



Total Time Rented (Hours): 0.34

August has a higher average Total Time Rented (Hours) than other marks. This value is associated with higher values of SUM(Trip Distance) and may explain why it is higher.

Average of Total Time Rented (Hours) and Trip Distance

In this example, one possible reason why trip distance is high is because the average total time rented is also high.

Other things to explore

This section provides possible reasons why the analyzed mark is unique or unusual. These explanations:

- Do not explain why the value of this mark is what it is.
- Are not related in any way to the value of the measures in the source visualization.
- Do not take any target measures into account.

Other Dimensions of Interest

Use this explanation to understand the composition of the record values that make up the analyzed mark.

The distribution of an unvisualized dimension in the analyzed mark is unusual compared to the distribution of values for all other marks in the view. An unvisualized dimension is a dimension that exists in the data source, but isn't currently being used in the view.

> **Note**: For definitions of common terms used in explanations, see Terms and concepts in explanations.

This explanation shows:

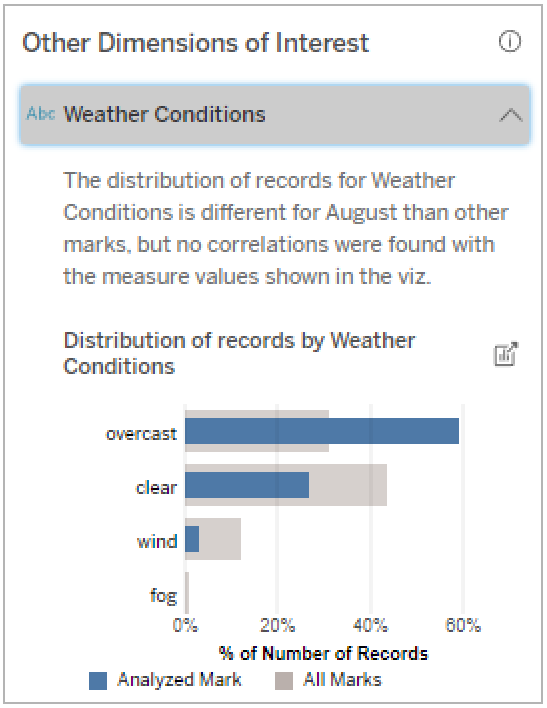
- The percent of the number of records for all values of a dimension for the analyzed mark (blue bar) versus all values of a dimension for all marks (gray bar) in the source visualization.

Exploration options:

- Hover over each bar to see its details.
- Scroll to see more of the chart.
- Select the **Open** icon to see a larger version of the visualization.

Next steps for analysis:

- Use this explanation to understand the composition of the record values that make up the analyzed mark.
- Authors might want to create a new visualization to explore any unvisualized dimensions surfaced in this explanation.



Other Dimensions of Interest

Weather Conditions

The distribution of records for Weather Conditions is different for August than other marks, but no correlations were found with the measure values shown in the viz.

Distribution of records by Weather Conditions

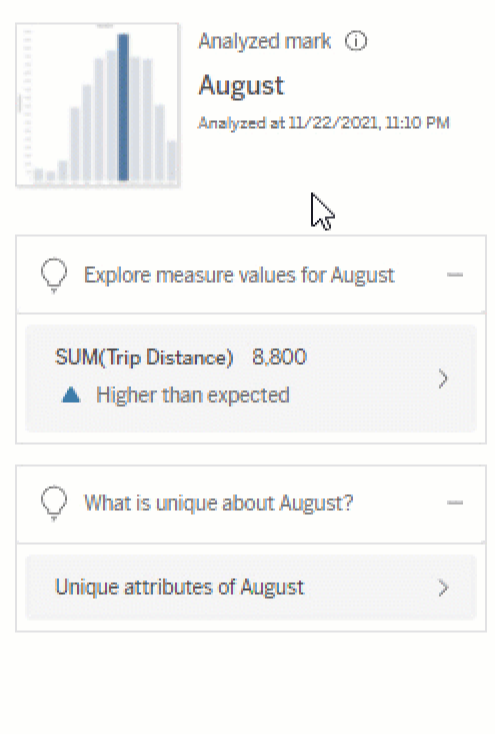
In this example, a high percentage of records are associated with overcast weather. Because the data is about bike rentals in Boston, and the analyzed mark is Trip Distance for

August, we can assume that the weather is typically warm and humid. People might have rented bikes more often on overcast days to avoid the heat. It's also possible there were more overcast days in August.

Analyzed Fields in Explain Data

Explain Data runs a statistical analysis on a dashboard or sheet to find marks that are outliers, or specifically on a mark you select. The analysis also considers possibly related data points from the data source that aren't represented in the current view.

Explain Data might not include every column from the data source in the analysis. In many cases, certain types of fields will be automatically excluded from the analysis. For more information, see Fields excluded by default.



Analyzed mark

August

Analyzed at 11/22/2021, 11:10 PM

Explore measure values for August

SUM(Trip Distance) 8,800

▲ Higher than expected

What is unique about August?

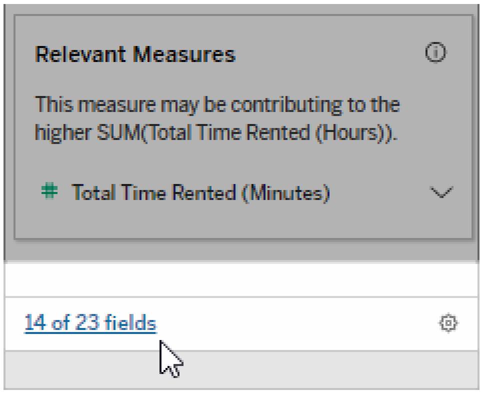
Unique attributes of August

Note: Dimensions with more than 500 unique values won't be considered for analysis (unless allowed by the author in Explain Data Settings).

All users can view information on which fields are included or excluded in the current analysis. Creators and Explorers who have editing permissions can edit the fields used by Explain Data for statistical analysis.

View fields analyzed by Explain Data

When you expand an explanation for a measure that is contributing to the value of the mark, a link that indicates the number of fields considered in the analysis is displayed at the bottom of the Data Guide pane.



Relevant Measures

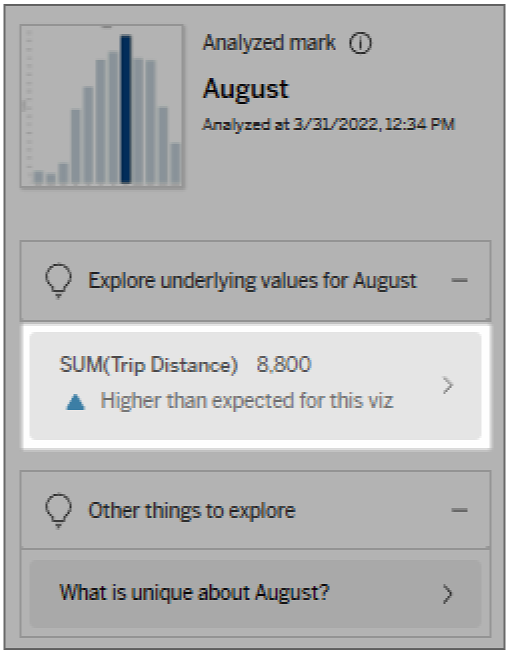
This measure may be contributing to the higher SUM(Total Time Rented (Hours)).

Click the link to see the list of fields included in or excluded from the current statistical analysis.

When a data source contains more than 1000 unvisualized dimensions or measures, you might see an alert asking if you want Explain Data to consider more fields. Click **Explain All** to run an analysis that includes more fields. The analysis may take longer to complete.

To view fields used by Explain Data for statistical analysis

1. Run Explain Data on dashboard, sheet, or mark.
2. In the Data Guide pane, under **Contributing to the value of**, click a measure name.



Analyzed mark

August

Analyzed at 3/31/2022, 12:34 PM

Explore underlying values for August

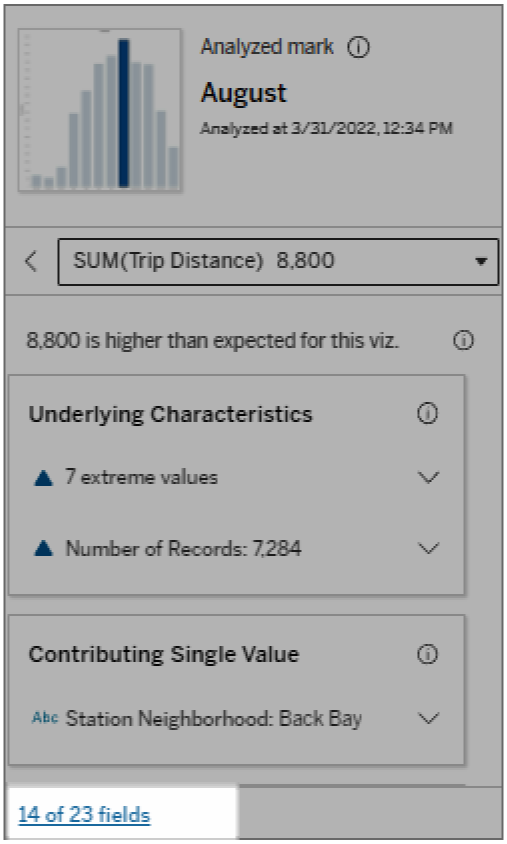
SUM(Trip Distance) 8,800

▲ Higher than expected for this viz

Other things to explore

What is unique about August?

3. Click the *number-of-fields* link at the bottom of the pane.



Analyzed mark

August

Analyzed at 3/31/2022, 12:34 PM

SUM(Trip Distance) 8,800

8,800 is higher than expected for this viz.

Underlying Characteristics

▲ 7 extreme values

▲ Number of Records: 7,284

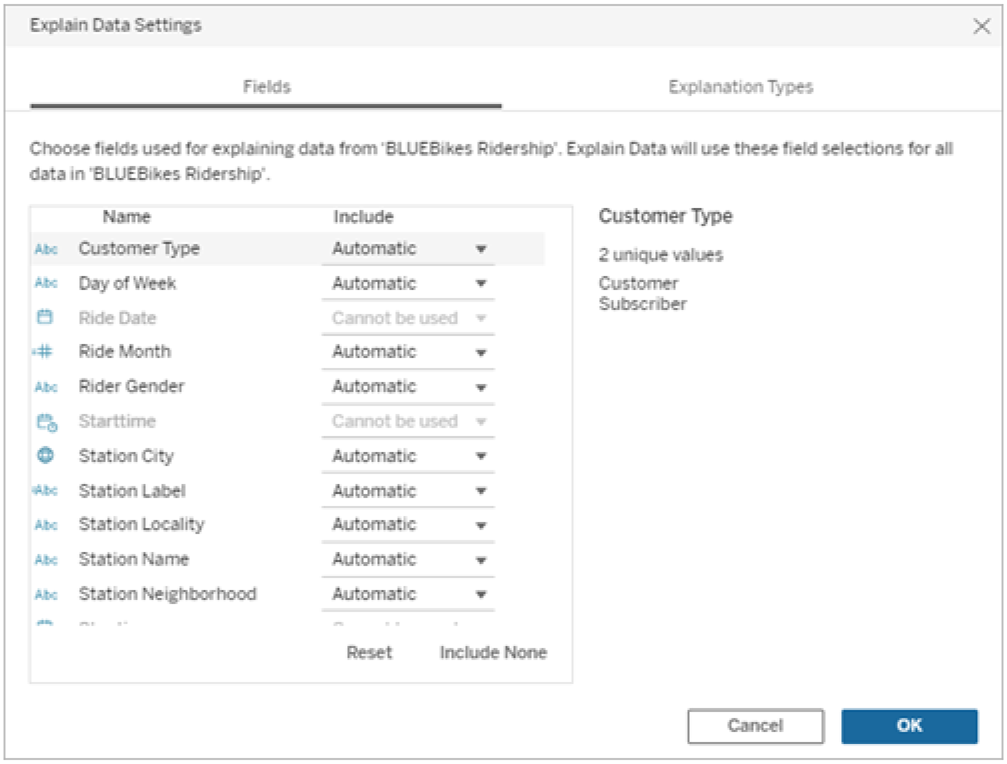
Contributing Single Value

Abc Station Neighborhood: Back Bay

14 of 23 fields

Change fields used for statistical analysis

Creators and Explorers who have editing permissions can select fields to be included or excluded from the statistical analysis in the Fields tab of the Explain Data Settings dialog box.



Choose fields used for explaining data from 'BLUEBikes Ridership'. Explain Data will use these field selections for all data in 'BLUEBikes Ridership'.

Name	Include
Customer Type	Automatic
Day of Week	Automatic
Ride Date	Cannot be used
Ride Month	Automatic
Rider Gender	Automatic
Starttime	Cannot be used
Station City	Automatic
Station Label	Automatic
Station Locality	Automatic
Station Name	Automatic
Station Neighborhood	Automatic

Customer Type

2 unique values

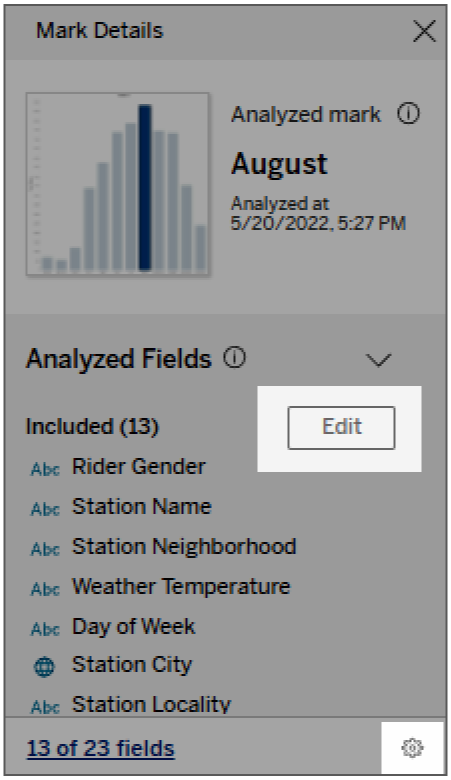
Customer
Subscriber

When a data source contains dimensions with a large number of unique values (up to 500), those fields won't be considered for analysis.

To edit the fields used by Explain Data for statistical analysis

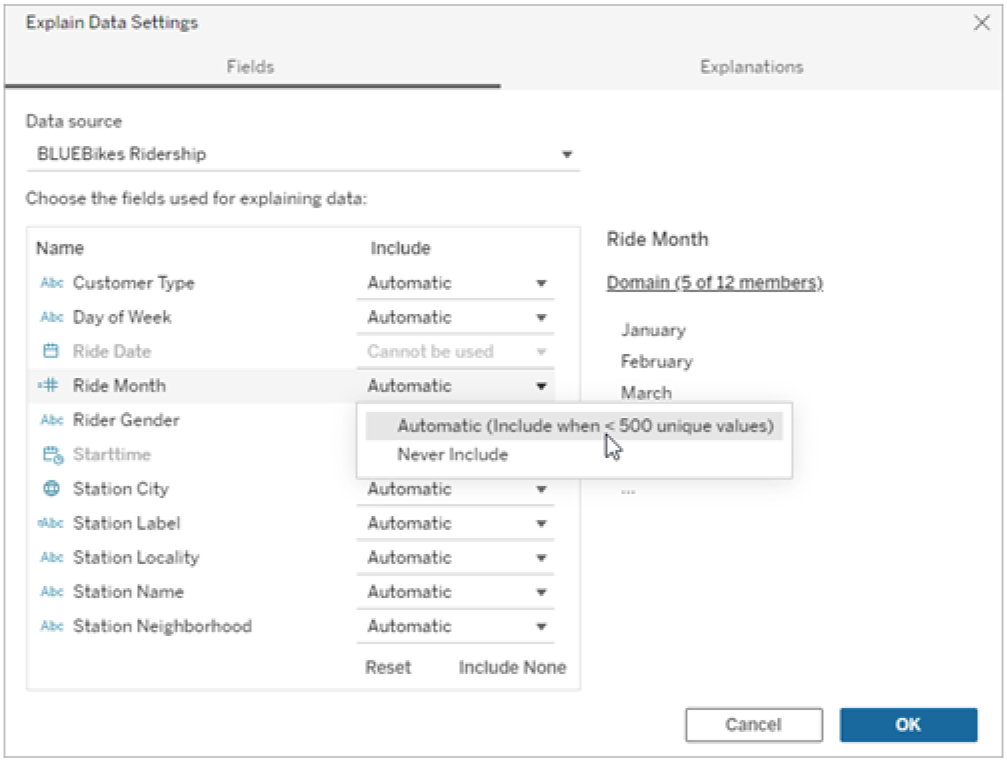
Settings for analyzed fields are applied at the data source level.

1. Run Explain Data on a mark when editing a view.
2. In the Data Guide pane, click the settings icon at the bottom of the pane. Or, click the **Edit** button in the Analyzed Fields view (how to open analyzed fields).


Mark Details
Analyzed mark
August
Analyzed at
5/20/2022, 5:27 PM
Analyzed Fields
Included (13)
Edit
Rider Gender
Station Name
Station Neighborhood
Weather Temperature
Day of Week
Station City
Station Locality
13 of 23 fields

3. In the Explain Data Settings dialog box, click the **Fields** tab.
4. Click a drop-down arrow next to a field name, select **Automatic** or **Never Include**, and then click **OK**.

   Note that fields must have less than 500 unique values to be included in the analysis.



Explain Data Settings

Data source: BLUEBikes Ridership

Choose the fields used for explaining data:

Name	Include
Customer Type	Automatic
Day of Week	Automatic
Ride Date	Cannot be used
Ride Month	Automatic
Rider Gender	
Starttime	
Station City	Automatic
Station Label	Automatic
Station Locality	Automatic
Station Name	Automatic
Station Neighborhood	Automatic

Ride Month

Domain (5 of 12 members)

January
February
March
...

Fields excluded by default

Fields excluded by default	Reasons for exclusion
All unvisualized measures when there are more than 1,000 measures in the data source.	Computing explanations for more than 1000 unvisualized measures or dimensions can take longer to compute, sometimes several minutes. These fields are excluded by default for initial analysis, but you can choose to include them for further analysis. In this situation, you might see an alert asking if you want Explain Data to consider more fields. Click the alert link to get more information. Click **Explain All** to run an analysis that includes more fields.
All unvisualized dimensions when there are more than 1,000 dimensions in the data source.	

Fields excluded by default	Reasons for exclusion
Fields that use geometry, latitude, or longitude	Geometry, latitude, or longitude by themselves can never be explanations. It is highly likely that an explanation that calls out the latitude or the longitude as an explanation is due to a spurious correlation and not a probable explanation.
Dimensions with high cardinality (dimensions with > 500 members)	High cardinality dimensions take longer to compute. Dimensions with more than 500 unique values will not be considered for analysis.
Groups, bins, or sets	Not currently supported.
Table calculations	Table calculations cannot be analyzed when table calculations are at a different level of detail than the view.
Unvisualized measures that can't be averaged	Unvisualized measures that can't be averaged include measures that are calculated fields where the calculation expression includes aggregations (display as AGG() fields when added to the sheet).
Discrete measures and continuous dimensions	Not currently supported.
Hidden fields	Not available.
Calculated fields with errors	No values present to analyze.

Requirements and Considerations for Using Explain Data

Explain Data is always available to authors in Tableau Desktop.

For Tableau Cloud and Tableau Server: When Explain Data is enabled for a site, Creators and Explorers with the appropriate permissions can run Explain Data when editing a workbook. All users with the appropriate permissions can run Explain Data in viewing mode in published workbooks. For more information, see Control Access to Explain Data.

What makes a viz a good candidate for Explain Data

Explain Data works best on visualizations that require deeper exploration and analysis, rather than infographic-style, descriptive vizzes that communicate summarized data.

- Row-level data is necessary for Explain Data to create models of your data and generate explanations. Vizzes with underlying, row-level data, where relationships might exist in unvisualized fields are good candidates for running Explain Data.
- Vizzes based on pre-aggregated data without access to row-level data are not ideal for the statistical analysis performed by Explain Data.

What data works best for Explain Data

When you are using Explain Data in a worksheet, remember that Explain Data works with:

- **Single marks only**—Explain Data analyzes single marks. Multiple mark analysis is not supported.
- **Aggregated data**—The view must contain one or more measures that are aggregated using SUM, AVG, COUNT, or COUNTD. At least one dimension must also be present in the view.
- **Single data sources only**—The data must be drawn from a single, primary data source. Explain Data does not work with blended or cube data sources.

When preparing a data source for a workbook, keep the following considerations in mind if you plan to use Explain Data during analysis.

- Use a data source with underlying data that is sufficiently wide. An ideal data set has at least 10-20 columns in addition to one (or more) aggregated measures to be explained.
- Give columns (fields) names that are easy to understand.
- Eliminate redundant columns and data prep artifacts. For more information, see Change fields used for statistical analysis.

- Don't discard unvisualized columns in the data source. Explain Data considers fields in the underlying data when is analyzes a mark.
- Low cardinality dimensions work better. The explanation of a categorical dimension is easier to interpret if its cardinality is not too high (< 20 categories). Dimensions with more than 500 unique values will not be considered for analysis.
- Don't pre-aggregate data as a general rule. But if the data source is massive, consider pre-aggregating the data to an appropriate level of detail.
- Use extracts over live data sources. Extracts run faster than live data sources. With live data sources, the process of creating explanations can create many queries (roughly one query per each candidate explanation), which can result in explanations taking longer to be generated.

Situations where Explain Data is not available

Sometimes Explain Data will not be available for a selected mark, depending on the characteristics of the data source or the view. If Explain Data cannot analyze the selected mark, the Explain Data icon and context menu command will not be available.

Explain Data can't be run in views that use:	• Map coordinate filters • Blended data sources • Data sources with parameters • Data sources that don't support COUNTD or COUNT(DISTINCT ...) syntax, such as Access. • Filters on aggregate measures • Disaggregated measures
Explain Data can't be run if you select:	• Multiple marks • Axis • Legend • Grand total • Trend line or reference line • A mark in a view that contains a very low number of marks
Explain Data can't be run when the measure to be used for an explan-	• Isn't aggregated using SUM, AVG, COUNT, COUNTD

ation:	• Is a table calculation • Is used in measure values
Explain Data can't offer explanations for a dimension when it is:	• A calculated field • A parameter • Used in Measure Names and Measure Values • A field with more than 500 unique values. Dimensions with more than 500 unique values will not be considered for analysis.

Control Access to Explain Data

Your access to Explain Data will vary depending on your site role and content permissions. Explain Data is always available to authors in Tableau Desktop. Authors with appropriate permissions can run Explain Data in editing mode in Tableau Cloud and Tableau Server.

Authors can also control whether Explain Data is available in viewing mode in published workbooks and which explanation types are displayed.

Be aware that Explain Data can surface values from dimensions and measures in the data source that aren't represented in the view. As an author, you should run Explain Data and test the resulting explanations to make sure that sensitive data isn't being exposed in your published workbooks.

Who can access Explain Data

Explain Data is enabled by default at the site level. Server administrators (Tableau Server) and site administrators (Tableau Cloud) can control whether Explain Data is available for a site. For more information, Disable or Enable Explain Data for a Site.

Mode	Who Can Access
Viewing mode	Tableau **Viewers**, **Explorers**, and **Creators** who have the Run Explain Data permission capability can run and explore Explain Data explanations in viewing mode.

Mode	Who Can Access
Editing mode	Tableau **Creators** can run Explain Data when editing a view in Tableau Desktop, Tableau Cloud, or Tableau Server. **Explorers** who have the Run Explain Data permission capability and editing permissions can run Explain Data when editing a workbook in Tableau Cloud or Tableau Server. Creators and Explorers who have editing permissions can open new worksheets for further analysis. They also can use Explain Data Settings to control who can use Explain Data and what they can see.

Control who can use Explain Data and what they can see

A combination of settings must be enabled to make Explain Data available in editing mode and viewing mode in Tableau Cloud and Tableau Server.

Editing mode

Requirements for authors to run Explain Data or edit Explain Data settings in editing mode:

- Site setting: **Availability of Explain Data** set to **Enable**. Enabled by default.
- Site role: Creator, Explorer (can publish)
- Permissions: **Run Explain Data** capability set to **Allowed**. Unspecified by default. If you open a workbook (Tableau version 2022.1 or earlier) that used this permission in Tableau version 2022.2 or later, you will need to reset the Run Explain Data capability to Allowed.

Note: The **Download Full Data** capability for a Creator or Explorer (can publish) controls whether they see the View Full Data option in Extreme Values explanations. Viewers are always denied the Download Full Data capability. However, all users can see record-level details when the Extreme Values explanation type is enabled in Explain Data settings.

Creators and Explorers with editing permissions and the Run Explain Data permission capability can access **Explain Data Settings**, which provide options for controlling:

- The explanation types that are displayed in the Data Guide pane.
- The fields that are included in, or excluded from statistical analysis.

These options are set for the entire workbook and can only be set in the Explain Data Settings dialog box.

Viewing mode

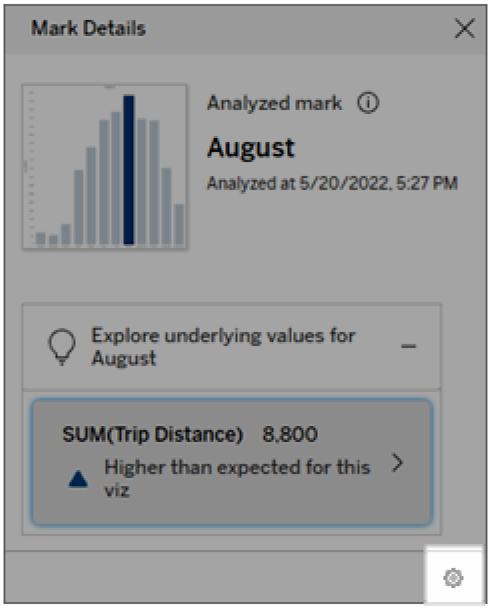
Requirements for all users to run Explain Data in viewing mode:

- Site setting: **Availability of Explain Data** set to **Enable**. Enabled by default.
- Site role: Creator, Explorer, or Viewer
- Permissions: **Run Explain Data** capability set to **Allowed**. Unspecified by default. If you open a workbook (Tableau version 2022.1 or earlier) that used this permission in Tableau version 2022.2 or later, you will need to reset the Run Explain Data capability to Allowed.

Note: To see explanations of Detected Outliers in the Data Guide, users of a viz must have the Explain Data permission allowed for the workbook or view. The owner of the workbook will need to open the permissions settings for this workbook in Tableau Server or Tableau Cloud and allow the Explain Data permission to that user.

Open the Explain Data Settings dialog box

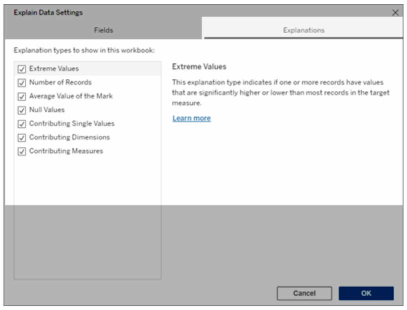
1. From the **Analysis** menu, choose **Explain Data Settings**. Or, in the Data Guide pane, click the settings icon (bottom right).


Mark Details
Analyzed mark
August
Analyzed at 5/20/2022, 5:27 PM
Explore underlying values for August
SUM(Trip Distance) 8,800
Higher than expected for this viz

Include or exclude explanation types displayed by Explain Data

Creators and Explorers who have editing permissions can choose to exclude (or include) explanation types displayed for all workbook users.

1. In the Explain Data Settings dialog box, click the **Explanation Types** tab.


Explain Data Settings
Fields
Explanations
Cancel
OK

Explanation types to show in this workbook:

☑ Extreme Values
☑ Number of Records
☑ Average Value of the Mark
☑ Null Values
☑ Contributing Single Values
☑ Contributing Dimensions
☑ Contributing Measures

Extreme Values

This explanation type indicates if one or more records have values that are significantly higher or lower than most records in the target measure.

Learn more

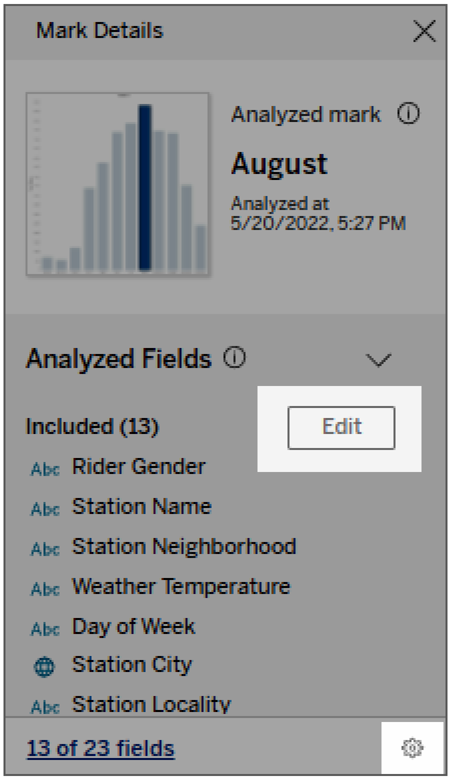
2. In the list of explanation types, select or clear an explanation type.
3. Click **OK**.

Test the setting by saving and closing the published workbook, and then opening a view from the workbook in viewing mode. Select a mark that typically has Extreme Value explanations, and then run Explain Data to check the explanation results.

Include or exclude fields used for statistical analysis

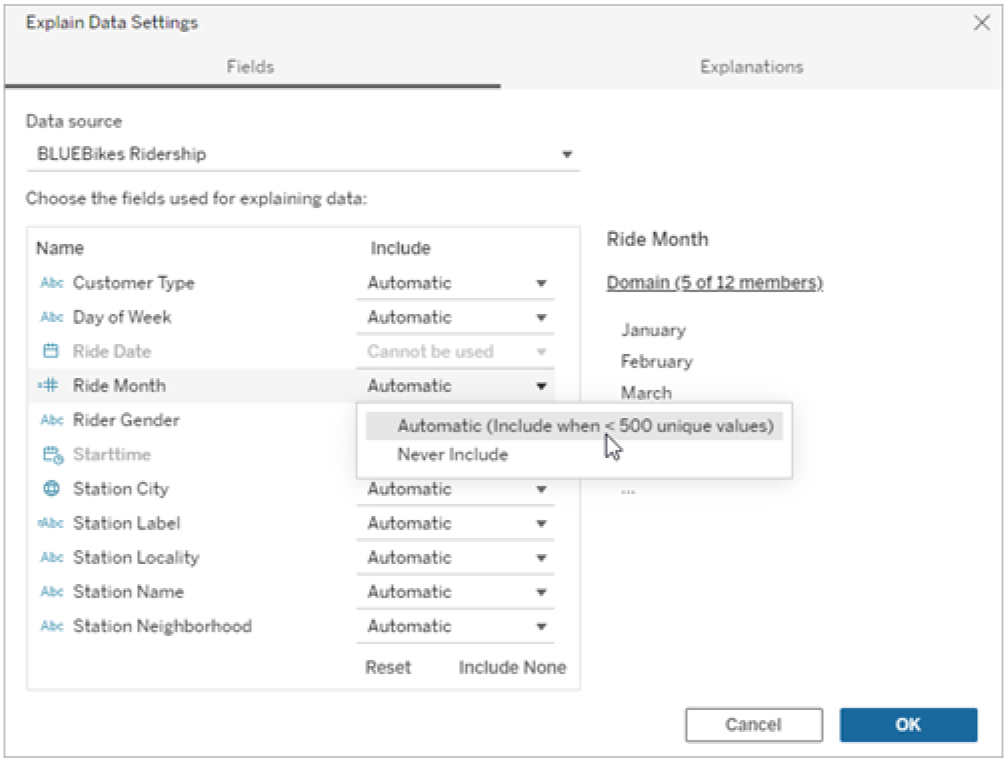
Creators or Explorers who have editing permissions can choose to exclude (or include) fields that are eligible for analysis.

1. In the Data Guide pane (bottom right), choose the settings icon. Or, choose the **Edit** button in the Analyzed Fields view.


Mark Details
Analyzed mark
August
Analyzed at
5/20/2022, 5:27 PM
Analyzed Fields
Included (13)
Edit
Rider Gender
Station Name
Station Neighborhood
Weather Temperature
Day of Week
Station City
Station Locality
13 of 23 fields

2. In the Explain Data Settings dialog box, click the **Fields** tab.
3. In the list of fields under **Include**, click the drop-down arrow and select **Automatic** to include an eligible field every time Explain Data runs for that workbook.

   Note that fields must have less than 500 unique values to be included in the analysis.


Explain Data Settings
Fields
Explanations
Cancel
OK

Data source: BLUEBikes Ridership

Choose the fields used for explaining data:

Name	Include
Customer Type	Automatic
Day of Week	Automatic
Ride Date	Cannot be used
Ride Month	Automatic
Rider Gender	
Starttime	
Station City	Automatic
Station Label	Automatic
Station Locality	Automatic
Station Name	Automatic
Station Neighborhood	Automatic

Automatic (Include when < 500 unique values)
Never Include
Reset
Include None
Ride Month
Domain (5 of 12 members)
January
February
March
...

Select **Never Include** to explicitly exclude the field.
Select **Include None** to run a statistical analysis on the data without considering fields.
Select **Reset** to return to the default settings.

4. Click **OK**.

Test the setting by saving the published workbook. Select a mark, and then run Explain Data to check the explanation results.

Configure Tableau to allow users to share explanations via email and Slack

Tableau administrators can control whether explanations can be shared in viewing mode via email or Slack to other Tableau users.

Follow these steps to allow notifications and sharing via email and Slack in Tableau Cloud or Tableau Server:

1. Click **Settings**.
2. On the General tab, scroll down to **Manage Notifications**.
3. For Collaboration, select **Share** for **On Tableau**, **Email**, and **Slack**.

To share explanations via Slack, the Tableau app must be set up for your Slack workspace. Sharing explanations with Slack is enabled by default in Tableau Cloud.

In Tableau Server, an administrator will need to set up the Tableau app for Slack. For more information, see Integrate Tableau with a Slack Workspace.

How Explain Data Works

Use Explain Data as an incremental, jumping-off point for further exploration of your data. The possible explanations that it generates help you to see the different values that make up or relate to an analyzed mark in a view. It can tell you about the characteristics of the data points in the data source, and how the data might be related (correlations) using statistical modeling. These explanations give you another tool for inspecting your data and finding interesting clues about what to explore next.

Note: Explain Data is a tool that uncovers and describes relationships in your data. It can't tell you what is causing the relationships or how to interpret the data. **You are the expert on your data.** Your domain knowledge and intuition is key in helping you decide what characteristics might be interesting to explore further using different views.

For related information on how Explain Data works, and how to use Explain Data to augment your analysis, see these Tableau Conference presentations:

- From Analyst to Statistician: Explain Data in Practice (1 hour)
- Leveraging Explain Data (45 minutes)

What Explain Data is (and isn’t)

Explain Data is:

- A tool and a workflow that leverages your domain expertise.
- A tool that surfaces relationships in your data and recommends where to look next.

- A tool and a workflow that helps expedite data analysis and make data analysis more accessible to a broader range of users.

Explain Data is not:

- A statistical testing tool.
- A tool to prove or disprove hypotheses.
- A tool that is giving you an answer or telling you anything about causality in your data.

When running Explain Data on marks, keep the following points in mind:

- **Consider the shape, size, and cardinality of your data**. While Explain Data can be used with smaller data sets, it requires data that is sufficiently wide and contains enough marks (granularity) to be able to create a model.

- **Don't assume causality**. Correlation is not causation. Explanations are based on models of the data, but are not causal explanations.

  A correlation means that a relationship exists between some data variables, say A and B. You can't tell just from seeing that relationship in the data that A is causing B, or B is causing A, or if something more complicated is actually going on. The data patterns are exactly the same in each of those cases and an algorithm can't tell the difference between each case. Just because two variables seem to change together doesn't necessarily mean that one causes the other to change. A third factor could be causing them both to change, or it may be a coincidence and there might not be any causal relationship at all.

  However, you might have outside knowledge that is not in the data that helps you to identify what's going on. A common type of outside knowledge would be a situation where the data was gathered in an experiment. If you know that B was chosen by flipping a coin, any consistent pattern of difference in A (that isn't just random noise) must be caused by B. For a longer, more in-depth description of these concepts, see the article Causal inference in economics and marketing by Hal Varian.

How explanations are analyzed and evaluated

Explain Data runs a statistical analysis on a dashboard or sheet to find marks that are outliers, or specifically on a mark you select. The analysis also considers possibly related data points from the data source that aren't represented in the current view.

Explain Data first predicts the value of a mark using only the data that is present in the visualization. Next, data that is in the data source (but not in the current view) is considered and added to the model. The model determines the range of predicted mark values, which is within one standard deviation of the predicted value.

What is an expected range?

The expected value for a mark is the median value in the expected range of values in the underlying data in your viz. The expected range is the range of values between the 15th and 85th percentile that the statistical model predicts for the analyzed mark. Tableau determines the expected range each time it runs a statistical analysis on a selected mark.

Possible explanations are evaluated on their explanatory power using statistical modeling. For each explanation, Tableau compares the expected value with the actual value.

value	Description
Higher than expected / Lower than expected	If an expected value summary says the mark is *lower than expected* or *higher than expected*, it means the aggregated mark value is outside the range of values that a statistical model is predicting for the mark. If an expected value summary says the mark is *slightly lower* or *slightly higher* than expected, or *within the range of natural variation*, it means the aggregated mark value is within the range of predicted mark values, but is lower or higher than the median.
Expected Value	If a mark has an expected value, it means its value falls within the expected range of values that a statistical model is predicting for the mark.
Random Variation	When the analyzed mark has a low number of records, there may

value	Description
	not be enough data available for Explain Data to form a statistically significant explanation. If the mark's value is outside the expected range, Explain Data can't determine whether this unexpected value is being caused by random variation or by a meaningful difference in the underlying records.
No Explanation	When the analyzed mark value is outside of the expected range and it does not fit a statistical model used for Explain Data, no explanations are generated.

Models used for analysis

Explain Data builds models of the data in a view to predict the value of a mark and then determines whether a mark is higher or lower than expected given the model. Next, it considers additional information, like adding additional columns from the data source to the view, or flagging record-level outliers, as potential explanations. For each potential explanation, Explain Data fits a new model, and evaluates how unexpected the mark is given the new information. Explanations are scored by trading off complexity (how much information is added from the data source) against the amount of variability that needs to be explained. Better explanations are simpler than the variation they explain.

Explanation type	Evaluation
Extreme values	Extreme values are aggregated marks that are outliers, based on a model of the visualized marks. The selected mark is considered to contain an extreme value if a record value is in the tails of the distribution of the expected values for the data. An extreme value is determined by comparing the aggregate mark with and without the extreme value. If the mark becomes less surprising by removing a value, then it receives a higher score.

Explanation type	Evaluation
	When a mark has extreme values, it doesn't automatically mean it has outliers, or that you should exclude those records from the view. That choice is up to you depending on your analysis. The explanation is simply pointing out an interesting extreme value in the mark. For example, it could reveal a mistyped value in a record where a banana cost 10 dollars instead of 10 cents. Or, it could reveal that a particular sales person had a great quarter.
Number of records	The number of records explanation models the aggregate sum in terms of the aggregate count; average value of records models it in terms of the aggregate average. The better the model explains the sum, the higher the score. This explanation describes whether the sum is interesting because the count is high or low, or because the average is high or low.
Average value of the mark	This type of explanation is used for aggregate marks that are sums. It explains whether the mark is consistent with the other marks because in terms of its aggregate count or average, noting the relation SUM(X) = COUNT(X) * AVG(X). This explanation describes whether the sum is interesting because the count is high or low, or because the average is high or low.
Contributing Dimensions	This explanation models the target measure of the analyzed mark in terms of the breakdown among categories of the unvisualized dimension. The analysis balances the complexity of the model with how well the mark is explained. An *unvisualized dimension* is a dimension that exists in the data source, but isn't currently being used in the view. This type of explanation is used for sums, counts and averages.

Explanation type	Evaluation
	The model for unvisualized dimensions is created by splitting out marks according to the categorical values of the explaining column, and then building a model with the value that includes all of the data points in the source visualization. For each row, the model attempts to recover each of the individual components that made each mark. The analysis indicates whether the model predicts the mark better when components corresponding to the unvisualized dimension are modeled and then added up, versus using a model where the values of the unvisualized dimension are not known. Aggregate dimension explanations explore how well mark values can be explained without any conditioning. Then, the model conditions on values for each column that is a potential explanation. Conditioning on the distribution of an explanatory column should result in a better prediction.
Contributing Measures	This explanation models the mark in terms of this unvisualized measure, aggregated to its mean across the visualized dimensions. An *unvisualized measure* is a measure that exists in the data source, but isn't currently being used in the view. A Contributing Measures explanation can reveal a linear or quadratic relationship between the unvisualized measure and the target measure.

Disable or Enable Explain Data for a Site

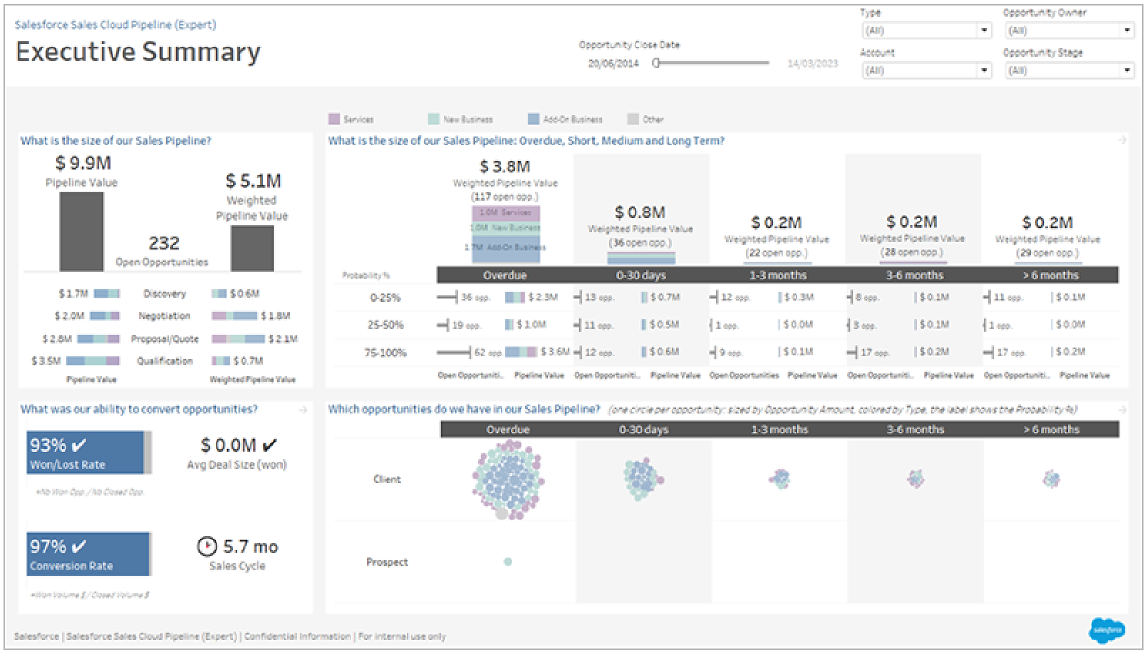
Explain Data is enabled for sites by default, but Tableau administrators may disable it.

1. Go to the **General** site settings.
2. (Tableau Server only) In the **Web Authoring** section, select **Let users edit workbooks in their browser**.

3. In the **Availability of Explain Data** section, select from these options:
   - **Enable** lets Creators and Explorers with the appropriate permissions run Explain Data in editing mode. Lets all users with appropriate permissions run Explain Data when it is enabled for viewing mode.
   - **Disable** prevents all users from running Explain Data or accessing Explain Data settings in workbooks.
4. In Tableau Cloud and Tableau Server 2023.3 or later, to use Explain Data:
   - In the **Availability of Data Guide** section, select **Show**. For more information about Data Guide, see Explore Dashboards with Data Guide.

Use Accelerators to Quickly Visualize Data

Tableau Accelerators are pre-built dashboards designed to help you get a jumpstart on data analysis. Tailored to specific industries and enterprise applications, Accelerators are built with sample data that you can swap out for your own data, allowing you to discover insights with minimal setup.


Salesforce Sales Cloud Pipeline (Expert)
Executive Summary
What is the size of our Sales Pipeline?
$ 9.9M Pipeline Value
$ 5.1M Weighted Pipeline Value
232 Open Opportunities
What is the size of our Sales Pipeline: Overdue, Short, Medium and Long Term?
Overdue
0-30 days
1-3 months
3-6 months
> 6 months
What was our ability to convert opportunities?
93% Won/Lost Rate
$ 0.0M Avg Deal Size (won)
97% Conversion Rate
5.7 mo Sales Cycle
Which opportunities do we have in our Sales Pipeline?
Client
Prospect

Salesforce Sales Cloud Pipeline Accelerator

Where to find Accelerators

You can access the complete set of Accelerators on the Tableau Exchange and in Tableau Desktop. Additionally, select Accelerators are available to use when you create a workbook in Tableau Cloud.

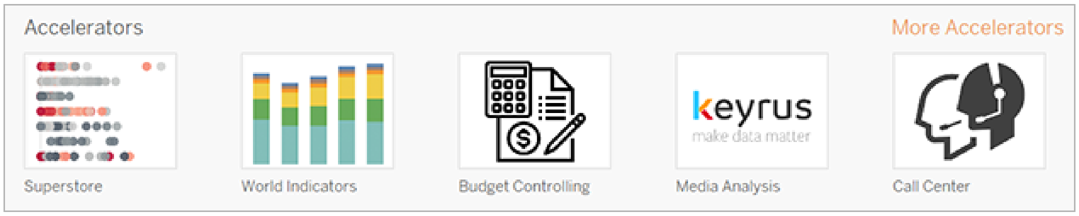
On the Tableau Exchange website

1. Visit the Accelerators page on the Tableau Exchange website. You can filter to find Accelerators based on the industry they are applicable to and the type of data they connect to.
2. Sign in to the Tableau Exchange website. If you don't have an account, create one.
3. When you find an Accelerator you want to use, select **Download** to get the TWBX file.

   Because Accelerators are simply packaged workbooks, you can open the downloaded file in Tableau Desktop or upload it to your site on Tableau Cloud or Tableau Server. For information about uploading workbooks, see Upload Workbooks to a Tableau Site.

In Tableau Desktop

1. On the Start Page in Tableau Desktop, select **More Accelerators**.

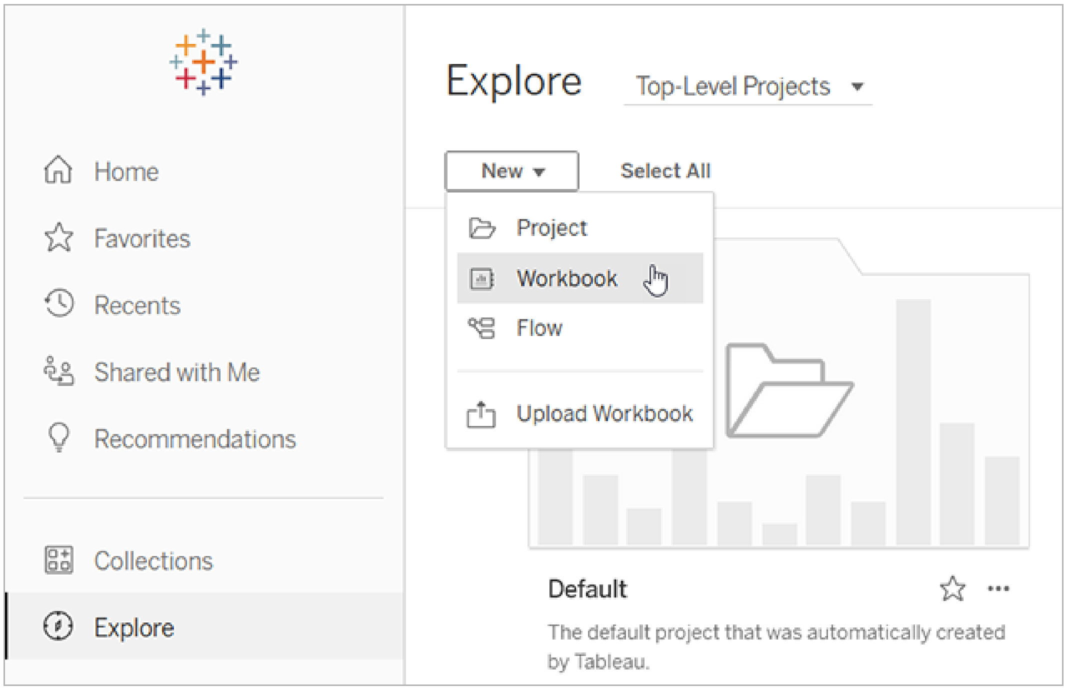

Accelerators
More Accelerators
keyrus
make data matter
Superstore
World Indicators
Budget Controlling
Media Analysis
Call Center

2. The Accelerators in this list are the same as those shown on the Tableau Exchange website, with the added convenience that you can open the Accelerators without leaving Tableau Desktop.
3. When you find an Accelerator you want to use, select **Open** to start working with it.

In Tableau Cloud

A limited number of Accelerators are available when you create a workbook in Tableau Cloud. These Accelerators connect to cloud-based data like Salesforce, ServiceNow ITSM, LinkedIn Sales Navigator, Marketo, and Oracle Eloqua.

1. If you're a Creator in Tableau Cloud, navigate to the Home or Explore page, then select the **New** button and select **Workbook**.


Home
Favorites
Recents
Shared with Me
Recommendations
Collections
Explore
Explore
Top-Level Projects
New
Select All
Project
Workbook
Flow
Upload Workbook
Default
The default project that was automatically created by Tableau.

> **Note**: Site administrators can also access Accelerators from the Home page, under the section labeled Accelerators.

2. At the top of the Connect to Data window, select **Accelerator** to browse the Accelerators available to connect to on Tableau Cloud.

You can also upload additional Accelerators from the Tableau Exchange to Tableau Cloud and use them as you would in Tableau Desktop. However, you will need to follow the Tableau Desktop instructions to get your data into the Accelerator instead of the Tableau Cloud instructions.

Use an accelerator from the Tableau Exchange

Follow the instructions in this section to use an Accelerator downloaded from the Tableau Exchange website or opened from within Tableau Desktop. For instructions on using Accelerators when you create a workbook in Tableau Cloud, see Use an Accelerator directly in Tableau Cloud.

Add your data to the Accelerator in Tableau Desktop

Use the data mapper

Data mapping was introduced for a limited number of Accelerators in Tableau Desktop in 2023.1.

Starting in 2023.2, the data mapper now:

- Saves your selections, if you close it, so that you can pick up where you left off
- Allows you to switch between different connected data sources
- Supports a larger number of Accelerators

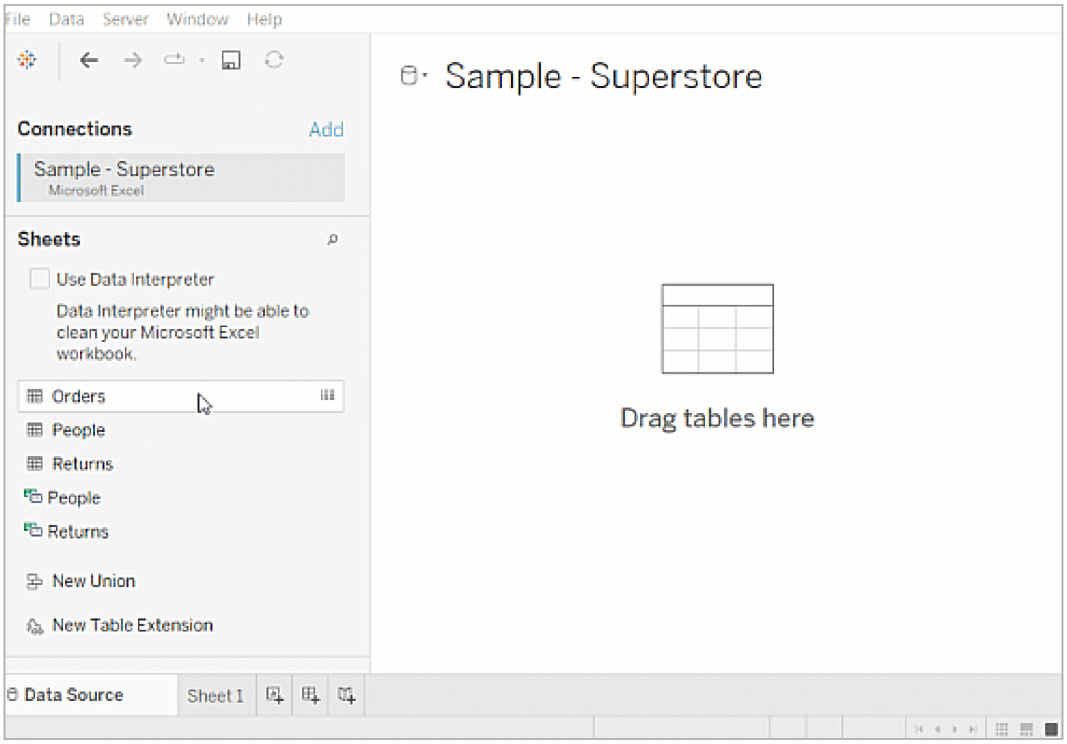
The data mapper helps you connect to data and map the fields in your data to those required for the Accelerator. If the Accelerator you have downloaded supports the data mapper, a prompt will appear to help you get started. To find Accelerators that support the data mapper, select the filter **Data Mapping enabled** on the Tableau Exchange website.

For Accelerators that don't support the data mapper, follow the instructions in the next section to Manually add your data.

When you open an Accelerator that supports it, the data mapper opens.

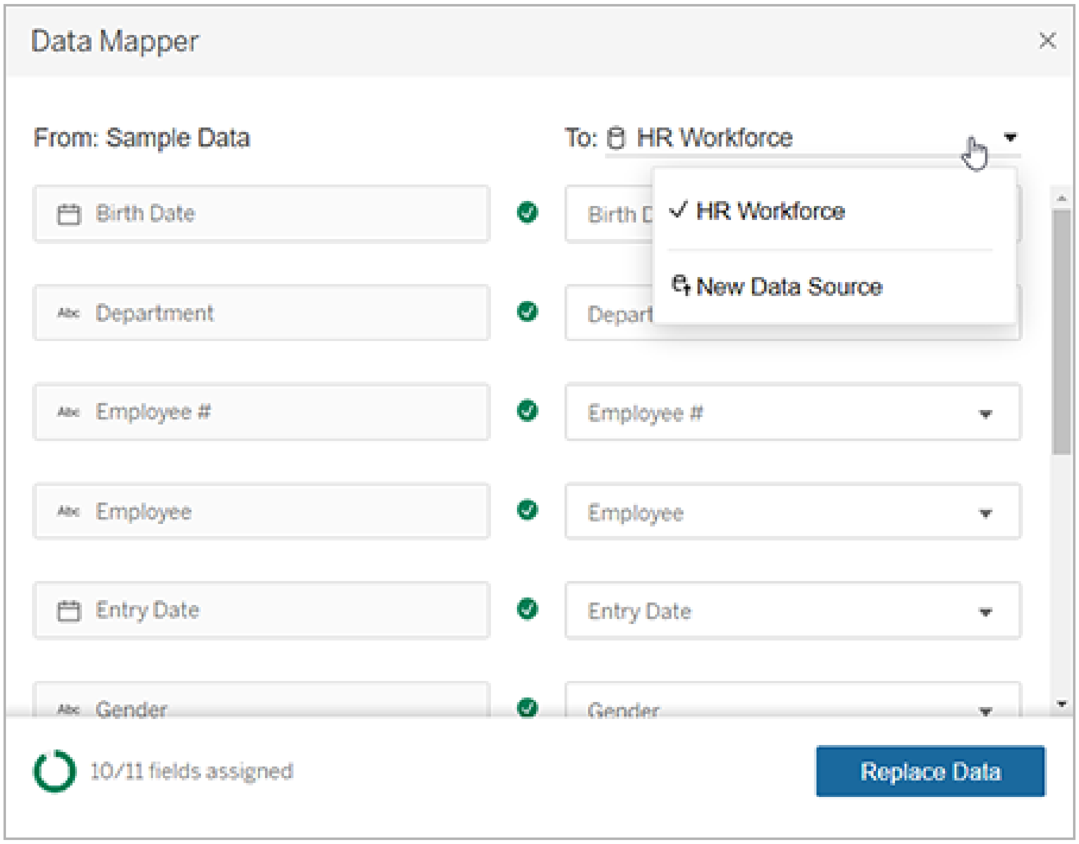
1. Select **Get Started**.

   If you close the data mapper, you can reopen it at any time by selecting **Open Data Mapper** from the Data menu.
2. If you’ve already connected to data, select the data source to use for mapping. Otherwise, select **Connect to Data**, then select the file or cloud-based data to use with the Accelerator.
3. For unpublished data sources with more than one table, you must add data to the canvas so that Tableau can access the fields. If you see a prompt to set up your data, drag one or more tables or sheets to the data source canvas. The data you add will be available to map to the Accelerator.


File Data Server Window Help
Sample - Superstore
Connections
Add
Sample - Superstore
Microsoft Excel
Sheets
Use Data Interpreter
Data Interpreter might be able to clean your Microsoft Excel workbook.
Orders
People
Returns
People
Returns
New Union
New Table Extension
Drag tables here
Data Source
Sheet 1

For more information about building a data source, see Use Relationships for Multi-table Data Analysis.

4. After you add your data, your fields appear in the **To** column on the data mapper. For each Accelerator field (From), select a field of the same data type as your data (To). Mouse over fields to see details about them.
   - If you notice that a field in your data is marked as the wrong type, change the data type so that it can be mapped.
   - If you want to switch the data source you're bringing into the Accelerator, select the data source name after **To**, then select a different connected data source, or select **New Data Source**. Switching the data source clears any selections you have made for individual fields.


Data Mapper
From: Sample Data
To: HR Workforce
✓ HR Workforce
New Data Source
Birth Date
Birth D
Department
Depart
Employee #
Employee #
Employee
Employee
Entry Date
Entry Date
Gender
Gender
10/11 fields assigned
Replace Data

5. The indicator in the lower left of the data mapper shows how many fields you have assigned. After you complete your assignments, select **Replace Data**.

   Any fields you leave unmapped will cause the dashboards that use those fields to break. This is because all sample data is removed from the Accelerator when you replace the data.

6. Your data replaces the sample data in the Accelerator. Before you close the data mapper, check the dashboards to make sure that the data was mapped as you expected. If you notice issues with the data, select **Make Changes** to return to the assignment screen. Make your adjustments, then replace the data again.

Starting in Tableau Desktop 2023.2, if you want to make adjustments after you've closed the data mapper, select **Data** > **Open Data Mapper** to refine your selections. In Tableau Desktop 2023.1, the selections you made don’t persist, and if you reopen the data mapper, you’ll need to repeat the process of adding a data source and making assignments for each field.

Manually add your data

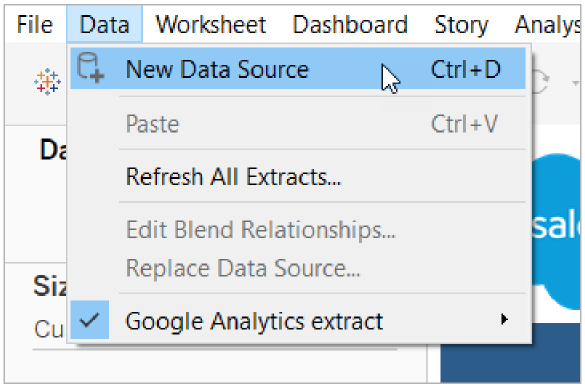
There are two methods to add your data to the Accelerator: replace the data source with a new data source (method 1) or add a new connection to the existing data source (method 2).

Method 1: Replace data source	Method 2: Add new connection
Works with data sources that have more than one table.	Data sources must have only one physical table.
Allows you to change field names to match the Accelerator.	Field names in your data source must match the fields in the Accelerator.
Doesn't preserve the folder structure in the Accelerator.	Preserves the folder structure, which keeps the fields used by the Accelerator organized.

Method 1: Replace the data source

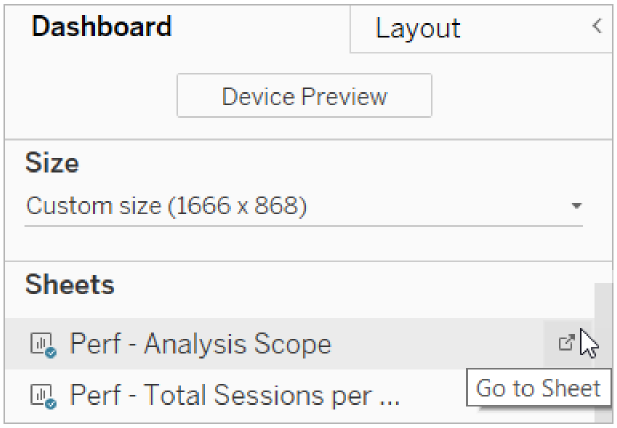
Use this method if you're adding a data source with multiple tables.

1. With the Accelerator open in Tableau Desktop, select **Data** > **New Data Source**.


File
Data
Worksheet
Dashboard
Story
Analys
New Data Source
Ctrl+D
Paste
Ctrl+V
Refresh All Extracts...
Edit Blend Relationships...
Replace Data Source...
Google Analytics extract

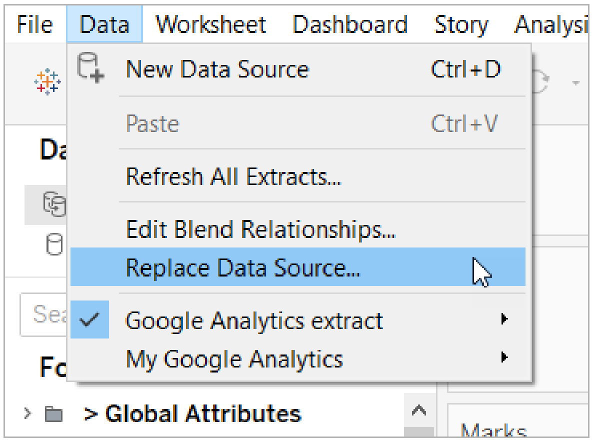
2. Connect to the data you want to use. For more information, see Connect to Your Data. If you're using a Salesforce Accelerator, make sure your account has API access to your Salesforce instance.
3. On the Data Source tab, drag tables onto the canvas to build your new data source. For more information, see Use Relationships for Multi-table Data Analysis.

4. Navigate to a dashboard, then select the Go to Sheet icon for any of the sheets listed.

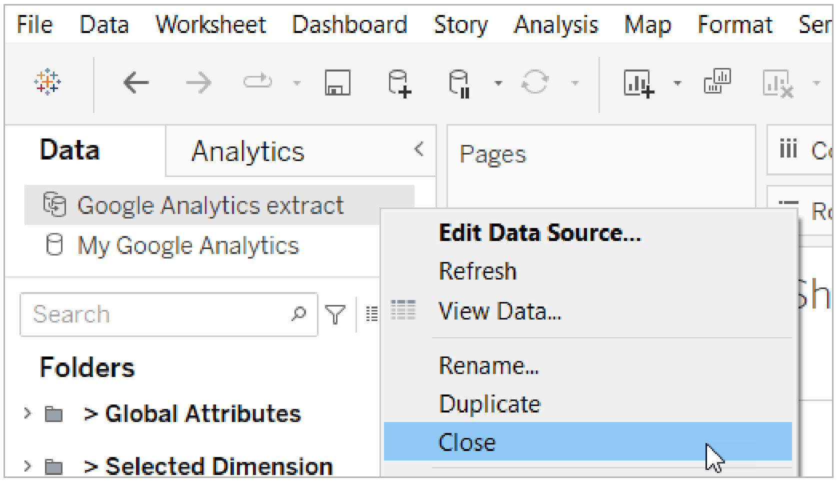

Dashboard
Layout
Device Preview
Size
Custom size (1666 x 868)
Sheets
Perf - Analysis Scope
Perf - Total Sessions per ...
Go to Sheet

This step is necessary because you can only replace data from a worksheet, not from a dashboard or story tab. For more information about the types of sheets in a workbook, see Workbooks and Sheets.

5. Select **Data** > **Replace Data Source**. For more information, see Replace Data Sources.


File
Data
Worksheet
Dashboard
Story
Analysi
New Data Source Ctrl+D
Paste Ctrl+V
Refresh All Extracts...
Edit Blend Relationships...
Replace Data Source...
Google Analytics extract
My Google Analytics
> Global Attributes
Marks

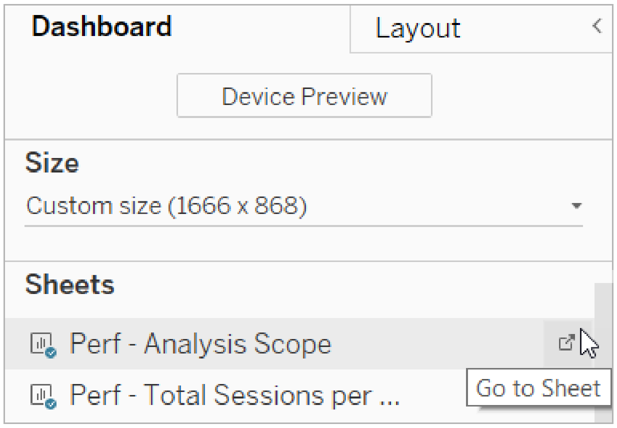
6. Under **Replacement**, select the data source you added, then select **OK**.
7. In the Data pane, right-click the original data source, then select **Close**. For more information, see Close Data Sources.


File
Data
Worksheet
Dashboard
Story
Analysis
Map
Format
Data
Analytics
Pages
Google Analytics extract
My Google Analytics
Search
Folders
> Global Attributes
> Selected Dimension
Edit Data Source...
Refresh
View Data...
Rename...
Duplicate
Close

Fix broken references

If the new data source doesn't have the same field names as the original, parts of the Accelerator will be blank. Replace the broken references so that they use the correct fields from your new data source.

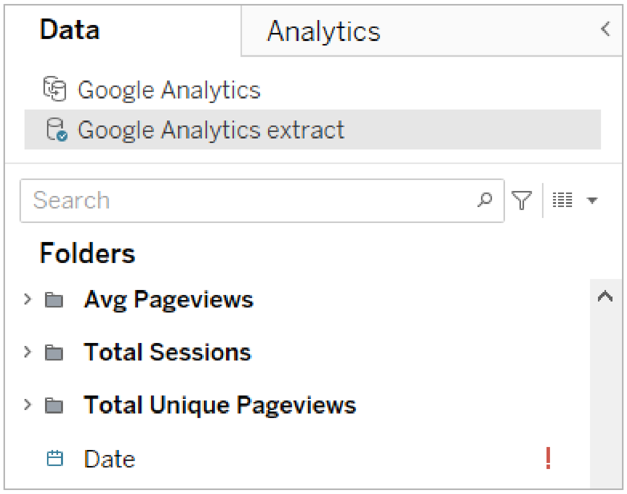
1. Navigate to a dashboard, then select the Go to Sheet icon for one of the sheets listed.


Dashboard
Layout
Device Preview
Size
Custom size (1666 x 868)
Sheets
Perf - Analysis Scope
Perf - Total Sessions per ...
Go to Sheet

2. In the Data pane, identify the required fields for the Accelerator. The Accelerator page on the Tableau Exchange should list these fields in the description section.
3. Replace the field references for any fields that are marked with a red exclamation point.

   - To do so, right click on the field name and select **Replace References...**. Then select the correct field name from the list.

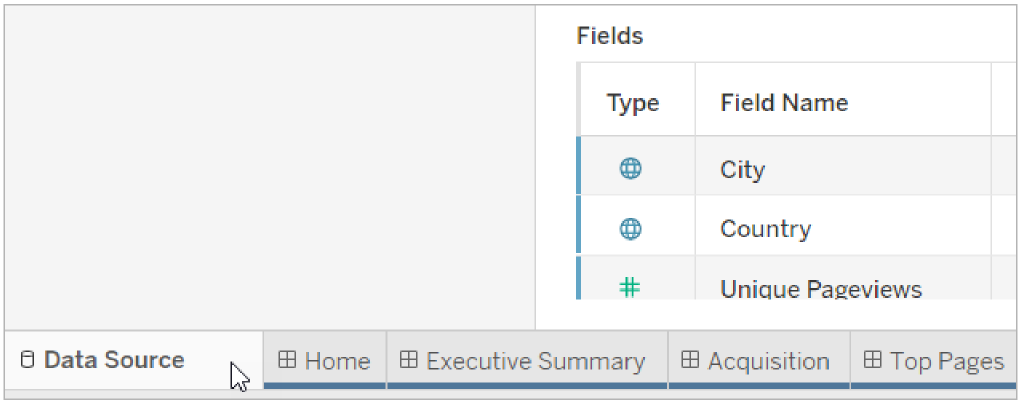
- For more information, see Replace Field References.


Data
Analytics
Google Analytics
Google Analytics extract
Search
Folders
Avg Pageviews
Total Sessions
Total Unique Pageviews
Date
!

Method 2: Edit the data source

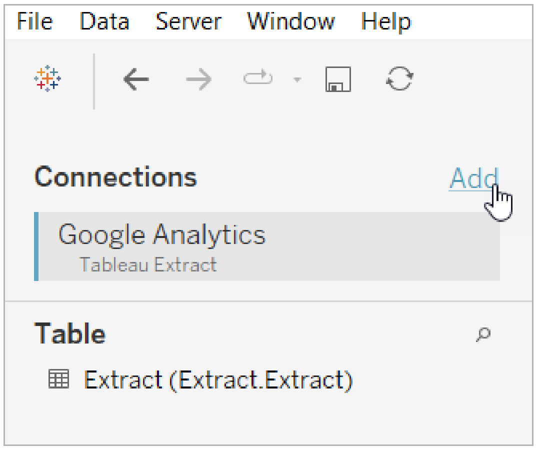
Use this method if you have a data source with only one physical table that can directly replace the physical table in the Accelerator.

1. With the Accelerator open in Tableau Desktop, select the **Data Source** tab.

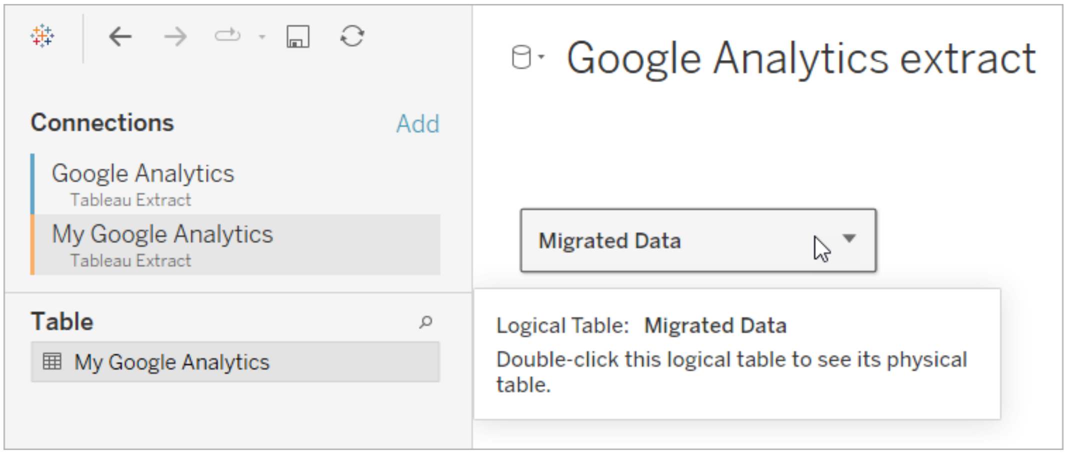

Fields
Data Source
Home
Executive Summary
Acquisition
Top Pages

Type	Field Name
🌐	City
🌐	Country
#	Unique Pageviews

2. Next to Connections, select **Add**. Connect to the data you want to use. For more information, see Connect to Your Data.

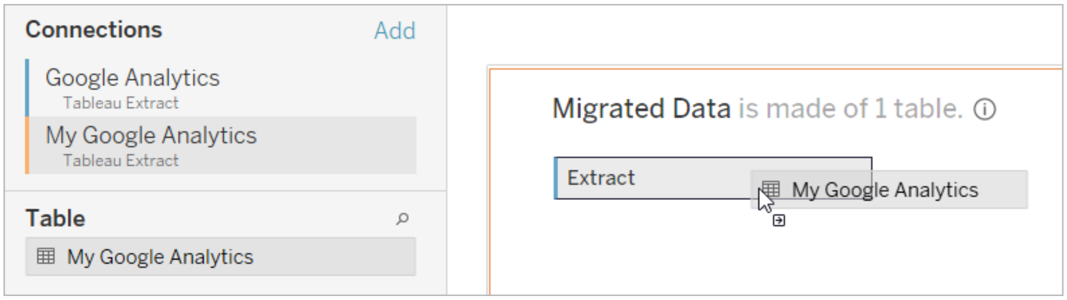

File
Data
Server
Window
Help
Connections
Add
Google Analytics
Tableau Extract
Table
Extract (Extract.Extract)

3. On the data source canvas, double-click the logical table to open the physical table. For information about logical and physical tables, see Layers of the data model.

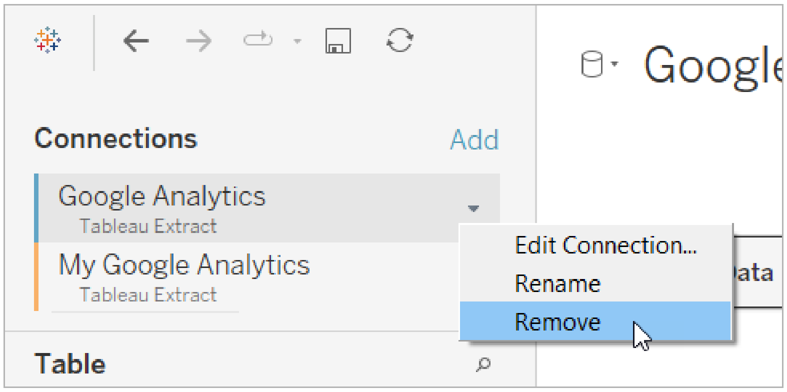

Connections
Add
Google Analytics
Tableau Extract
My Google Analytics
Tableau Extract
Table
My Google Analytics
Google Analytics extract
Migrated Data

Logical Table: Migrated Data
Double-click this logical table to see its physical table.

4. Drag the table from the data source you added and drop it onto the existing physical table to replace the sample data. Your data source must be only one physical table.


Connections
Add
Google Analytics
Tableau Extract
My Google Analytics
Tableau Extract
Table
My Google Analytics
Migrated Data is made of 1 table.
Extract
My Google Analytics

5. Under connections, right-click the connection for the sample data, then select **Remove**.



Use an Accelerator directly in Tableau Cloud

A limited number of Accelerators are available for you to use when you create a workbook in Tableau Cloud. These Accelerators prompt you to connect directly to a cloud-based data source, rather than requiring you to add data manually.

1. On Tableau Cloud, create a new workbook.
2. At the top of the Connect to Data window, select **Accelerator**.
3. From the list of pre-built designs, find an option that reflects the data source and business metrics you need, and select **Use Dashboard**.
4. To quickly see how a workbook looks with sample data, select **Continue without signing in**. Or select **Continue** to create a workbook with your data.
5. Specify a name and containing project for the workbook.
6. If you chose to create a workbook with your data, connect to your data source. While Tableau prepares an extract of your data, sample data appears so you can explore the layout.

> **Note:** If you download an Accelerator from the Tableau Exchange with the intention of uploading it to Tableau Cloud, you will need to replace the data by following the instructions under Use an accelerator from the Tableau Exchange.

Change permissions to share Accelerators with colleagues

To avoid exposure of confidential data, workbooks for Accelerators are visible only to authors and administrators by default. To share a Accelerator with your colleagues, follow these steps:

1. In Tableau Cloud, navigate to the workbook for the Accelerator.
2. On the workbook, select **Actions** > **Permissions**.
3. Give **View** permissions to any user or group you want to see the dashboard. For more information, see Edit Permissions in Tableau Cloud Help.

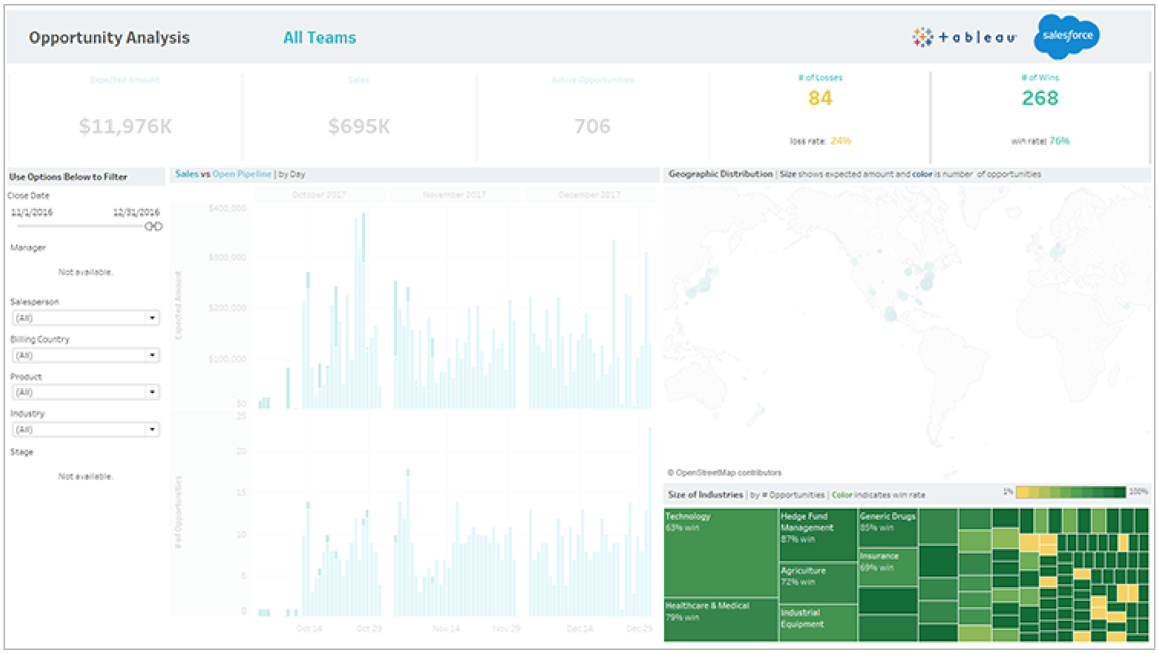
Replace sample data with your data

If you chose to use sample data in a dashboard, you can replace it with your data at any time.

1. In Tableau Cloud, navigate to the workbook for the Accelerator.
2. On the **Data Sources** tab, select the data source. From the Actions menu, choose **Edit Connection**.
3. For authentication, select **Embedded credentials in the connection**, and either choose an existing user account or add a new one. Then select **Save**.
4. On the **Refresh Schedules** tab, select the schedule. From the Actions menu, select **Run Now**.

Fix grayed-out views by replacing field names

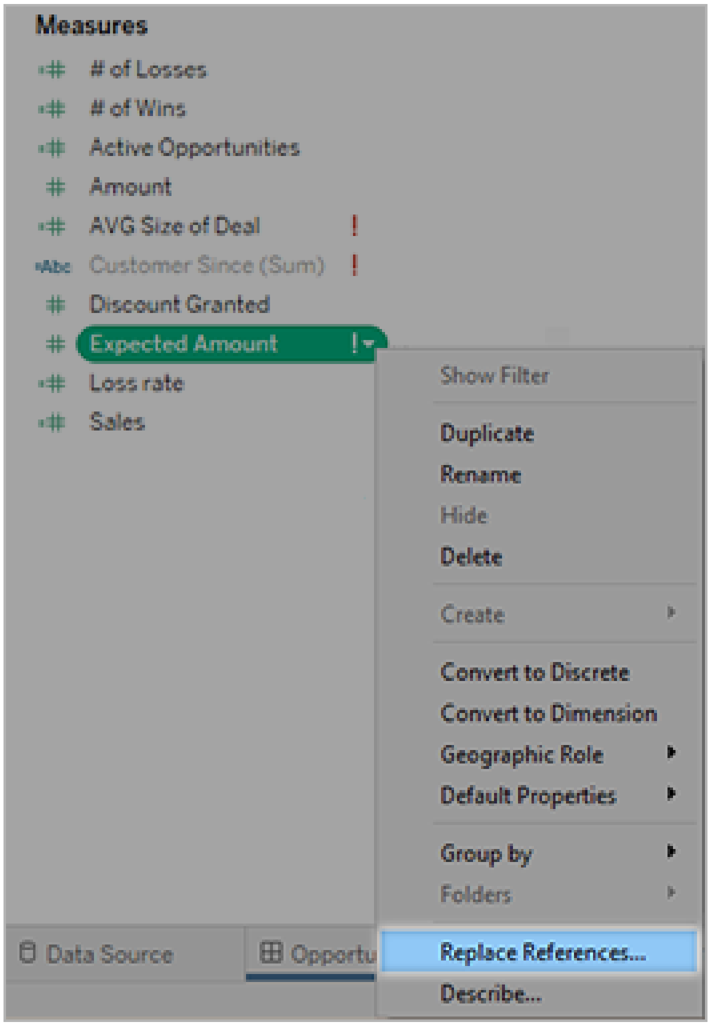
If your organization has customized the data structure for a cloud-based system, you may need to match those changes in Accelerators after your data loads in them. For example, if your organization has renamed the Salesforce “Account” field to “Customer”, you'll need to make a corresponding change in Accelerators to avoid grayed-out views like this:


Opportunity Analysis
All Teams
tableau
salesforce
$11,976K
$695K
706
# of Losses
84
loss rate: 24%
# of Wins
268
win rate: 76%
Use Options Below to Filter
Close Date
11/1/2016
12/31/2016
Manager
Not available.
Salesperson
(All)
Billing Country
(All)
Product
(All)
Industry
(All)
Stage
Not available.
Sales vs Open Pipeline | by Day
Geographic Distribution | Size shows expected amount and color is number of opportunities
© OpenStreetMap contributors
Size of Industries | by # Opportunities | Color indicates win rate
Technology
63% win
Hedge Fund Management
87% win
Generic Drugs
85% win
Insurance
69% win
Agriculture
72% win
Healthcare & Medical
79% win
Industrial Equipment

Replace the field references to fix the broken fields.

1. On the dashboard, select **Edit**.
2. Navigate directly to the grayed-out sheet.
3. In the Data pane at left, look for red exclamation points (!) next to field names, which indicate that your organization uses different names.
4. Right-click each of those fields, and select **Replace References...**. Then select the cor-

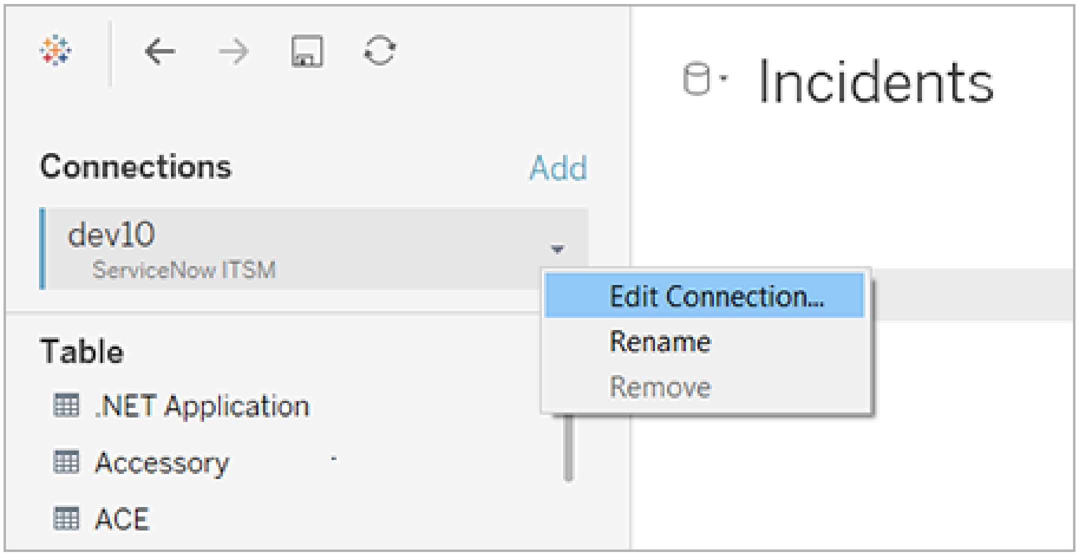
rect field name from the list.


Measures
# of Losses
# of Wins
Active Opportunities
Amount
AVG Size of Deal
Customer Since (Sum)
Discount Granted
Expected Amount
Loss rate
Sales
Data Source
Opportu
Show Filter
Duplicate
Rename
Hide
Delete
Create
Convert to Discrete
Convert to Dimension
Geographic Role
Default Properties
Group by
Folders
Replace References...
Describe...

Fix empty dashboards by changing default date ranges

If a dashboard looks completely empty, the likely cause is a default date range that doesn't correspond to the dates in your source data.

1. Download the workbook, then open it in Tableau Desktop.
2. Select the **Data Source** tab.
3. In the upper-left corner, select the arrow next to the data source name, and select **Edit Connection**. Then sign in.


Incidents
Connections
Add
dev10
ServiceNow ITSM
Edit Connection...
Rename
Remove
Table
.NET Application
Accessory
ACE

4. Specify a date range that reflects the dates in your data, then select **Connect**.
5. Choose **Server** > **Publish Data Source** to update extracts of the data on Tableau Cloud.

Use Dashboard Extensions

Extensions let you add unique features to dashboards or directly integrate them with applications outside Tableau. Adding extensions is easy; you incorporate them into dashboard layouts just like other dashboard objects.

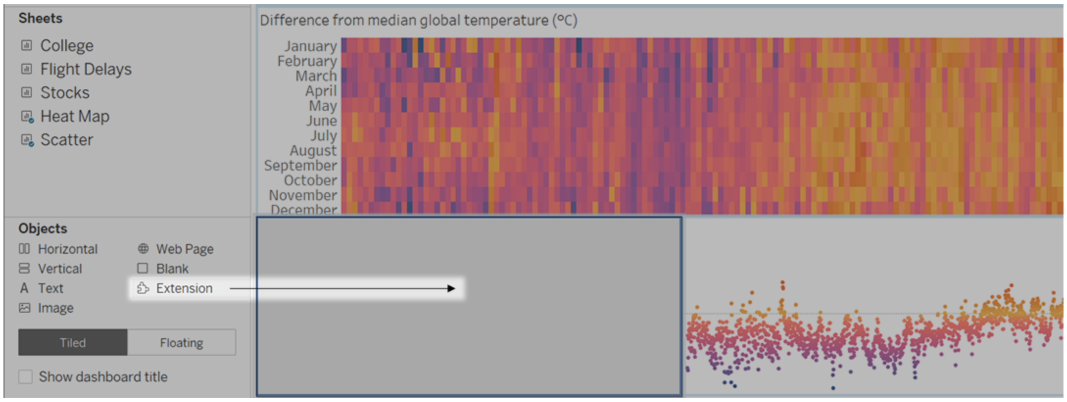
Extensions expand dashboard functionality with the help of web applications created by third-party developers. If you're a developer and want to create your own extensions, see the Tableau Extensions API documentation on GitHub.

Note: Tableau administrators can turn off dashboard extensions for Tableau Desktop, Tableau Server, and Tableau Cloud.

Add an extension to a dashboard

1. In a Tableau workbook, open a dashboard sheet.

2. From the **Objects** section, drag **Extension** to the dashboard.


Sheets
College
Flight Delays
Stocks
Heat Map
Scatter
Difference from median global temperature (ºC)
January
February
March
April
May
June
July
August
September
October
November
December
Objects
Horizontal
Vertical
Text
Image
Web Page
Blank
Extension
Tiled
Floating
Show dashboard title

3. In the “Add an Extension” dialog box, do either of the following:

   - Search for and select an extension.

   - Click **Access Local Extensions**, and navigate to a .trex file you previously downloaded.

4. If prompted, allow or deny the dashboard extension access to data in the workbook. For more information, see Data security, Network-enabled, and Sandboxed extensions.

   If you allow access, follow any on screen instructions for configuring the extension.

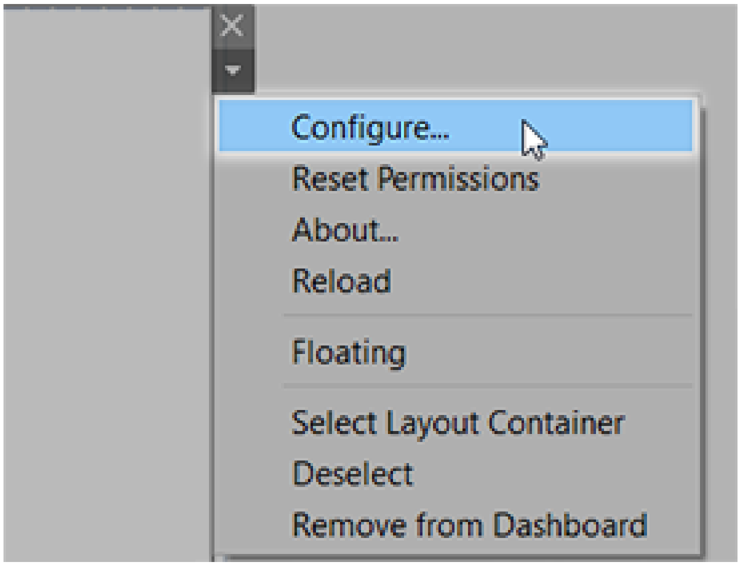
   > **Note:** If you're using Tableau Server or Tableau Cloud, Extension objects will appear blank in prints, PDFs, and images of dashboards (including images in subscription emails).

Configure a dashboard extension

Some dashboard extensions provide configuration options that let you customize features.

1. Select the extension in the dashboard, and from the drop-down menu in the upper-right corner, choose **Configure**.

2. Follow the on-screen instructions to configure the extension.



Configure...
Reset Permissions
About...
Reload
Floating
Select Layout Container
Deselect
Remove from Dashboard

Reload a dashboard extension

If a dashboard extension becomes unresponsive, you might need to reload it, which is similar to refreshing a web page in a browser.

1. Select the extension in the dashboard, and from the drop-down menu in the upper-right corner, choose **Reload**.

   The dashboard extension is refreshed and set to its original state.

2. If reloading the extension fails to return it to a useable state, try removing it from the dashboard and adding it again.

Data security, Network-enabled, and Sandboxed extensions

Dashboard extensions are web applications that come in two forms:

- *Network-enabled extensions* run on web servers located outside of your local network.
- *Sandboxed extensions* run in a protected environment without access to any other resource or service on the web.

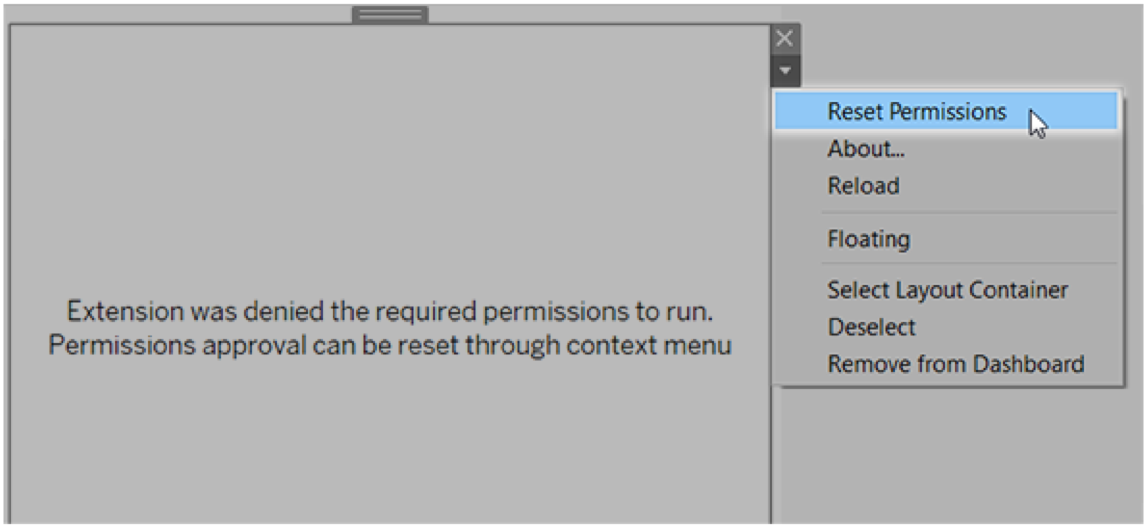
Before adding a Network-enabled extension or viewing a dashboard with one, be certain that you trust the website that hosts it. By default, dashboard extensions use the HTTPS protocol, which guarantees an encrypted channel for sending and receiving data, and ensures some privacy and security.

For more information about data security when using dashboard extensions, see Extension Security - Best Practices for Deployment.

Allow or deny data access to a Network-enabled extension

Depending on how an extension is designed, it can access either visible data in a view, or full underlying data, table and field names from data sources, and information about data source connections. When you add an extension, or view a dashboard with one, you're given an opportunity to allow or deny the extension to run and access this data.

If you're viewing a dashboard with an extension that requires full data access, and that access has been denied, a message appears in place of the extension. If you trust the extension and want to use it, you can reset permissions and allow the extension to run.



Extension was denied the required permissions to run.
Permissions approval can be reset through context menu

1. Select the extension in the dashboard, and from the drop-down menu in the upper-right corner, choose **Reset Permissions**.
2. Click either **Allow** to let the extension run and access data, or **Deny** to prevent the extension from running.

Ensure that JavaScript is enabled in Tableau Desktop

Dashboard extensions interact with data using the Tableau Extensions API library, a JavaScript library. If you want to use extensions, be sure that JavaScript is enabled in the dashboard security settings:

Choose **Help** > **Settings and Performance** > **Set Dashboard Web View Security** > **Enable JavaScript**.

Ensure that extensions run on Tableau Cloud or Tableau Server

You can add extensions to workbooks you publish from Tableau Desktop or directly in the web-authoring mode of Tableau Cloud and Tableau Server. A Tableau administrator must allow extensions to run on a site and add Network-enabled extensions to a safe list. Administrators should only allow extensions that you have tested and trust.

If you want to use a dashboard extension on Tableau Cloud or Tableau Server, direct your administrator to Manage Dashboard Extensions in Tableau Cloud or Manage Dashboard Extensions in Tableau Server.

Supported web browsers for Sandboxed extensions

Sandboxed extensions run in all browsers supported Tableau Server and Tableau Cloud except Internet Explorer 11.

Supported versions of Tableau Server for Sandboxed extensions

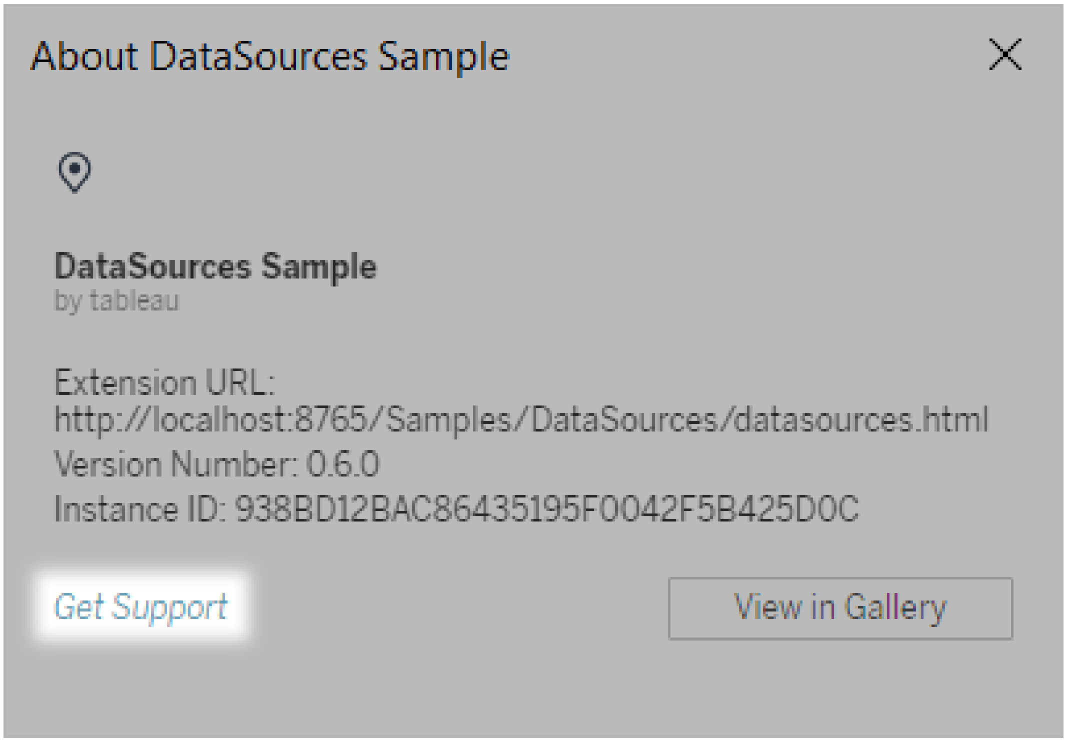
You can use Sandboxed extensions in Tableau Server 2019.4 and later.

Get support for dashboard extensions

To get help for an extension, you'll need to contact the developer or company who created it.

1. Select the extension in the dashboard, and from the drop-down menu in the upper-right corner, choose **About.**

2. Click **Get Support** to go to the support page of the extension developer.



About DataSources Sample

DataSources Sample
by tableau

Extension URL:
http://localhost:8765/Samples/DataSources/datasources.html
Version Number: 0.6.0
Instance ID: 938BD12BAC86435195F0042F5B425D0C

Note: Tableau doesn't provide support for extensions or for other programs that interface with the Extensions API. However, you can submit questions and ask for help in the Tableau developer community.

Add Viz Extensions to Your Worksheet

Viz Extensions are web applications that can extend the native visual capabilities of Tableau. Viz Extensions give users the ability to interact with custom viz types on their worksheets.

Tableau Extensions expand worksheet functionality with the help of web applications created by Tableau, Tableau Partners, and third-party developers in our community. If you're a developer and want to create your own extensions, see the Tableau Extensions API documentation on GitHub.

A Viz Extension is similar to a dashboard extension in that it's a web application that is hosted on the Tableau Exchange. It's different from a dashboard extension in that you add it to a worksheet while building the viz, rather than adding it to a dashboard as an object.

Add a Viz Extension to a worksheet

There are two ways to add a Viz Extension to your worksheet via the Marks card. If you've already downloaded it through the Tableau Exchange, you can add it as a local file. Or you can download it from the Tableau Exchange in the flow of authoring your Viz.

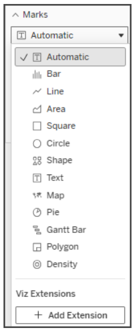
Add a Viz Extension as a local file

If you've already selected and downloaded a Viz Extension from the Tableau Exchange, it will be saved on your computer as a .trex file.

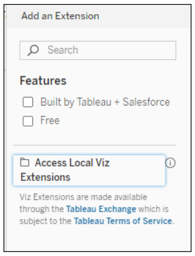
1. Open a Tableau workbook and connect to your data source.

2. In a worksheet, on the Marks card, expand the Mark type dropdown menu.

3. Under Viz Extensions, select **Add Extension**.


Marks
Automatic
Automatic
Bar
Line
Area
Square
Circle
Shape
Text
Map
Pie
Gantt Bar
Polygon
Density
Viz Extensions
Add Extension

4. In the Add an Extension dialog box that appears, select **Access Local Viz Extensions**.


Add an Extension
Search
Features
☐ Built by Tableau + Salesforce
☐ Free
Access Local Viz Extensions

Viz Extensions are made available through the Tableau Exchange which is subject to the Tableau Terms of Service.

5. Navigate to and open the saved .trex file.

6. If prompted, allow or deny the Viz Extension access to data in the workbook.

The Viz Extension loads in the view, and the mark type changes to the name of the Viz Extension.

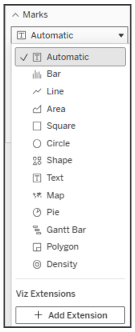
Add a Viz Extension while authoring your viz

If you haven't already selected and downloaded a Viz Extension, you can do so in the flow of authoring a viz.

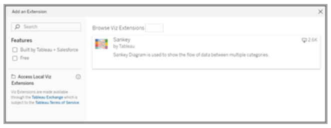
1. Open a Tableau workbook and connect to your data source.

2. In a worksheet, on the Marks card, expand the Mark type dropdown menu.

3. Under Viz Extensions, select **Add Extension**.


Marks
Automatic
Automatic
Bar
Line
Area
Square
Circle
Shape
Text
Map
Pie
Gantt Bar
Polygon
Density
Viz Extensions
Add Extension

4. In the Add an Extension dialog box that appears, select the Viz Extension that you'd like to load onto your worksheet. In this example, we're loading a Sankey diagram built by Tableau.

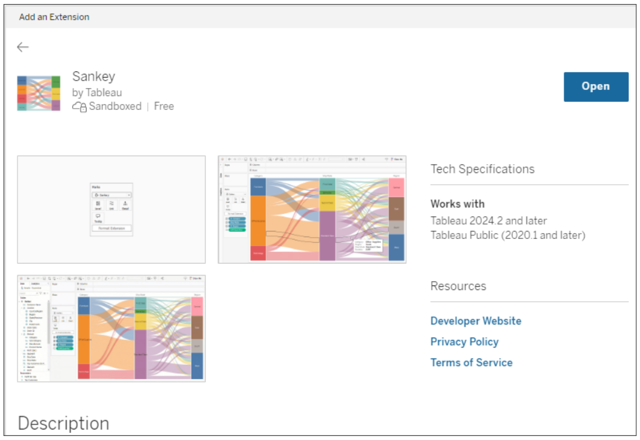

Add an Extension
Search
Features
Built by Tableau + Salesforce
Free
Access Local Viz Extensions
Browse Viz Extensions
Sankey
by Tableau
2.6K

Viz Extensions are made available through the Tableau Exchange which is subject to the Tableau Terms of Service.

Sankey Diagram is used to show the flow of data between multiple categories.

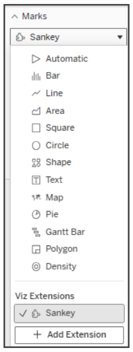
5. If prompted, allow or deny the Viz Extension access to data in the workbook. For more information, see Data security, Network-enabled, and Sandboxed extensions.

6. Select **Open**.


Add an Extension
Sankey
by Tableau
Sandboxed | Free
Open
Tech Specifications
Resources
Developer Website
Privacy Policy
Terms of Service
Description

Works with
Tableau 2024.2 and later
Tableau Public (2020.1 and later)

The Viz Extension loads in the view, and the mark type changes to the name of the Viz Extension.



Use the Marks card to encode your marks

Drag fields onto the encoding boxes on the Marks card to build the viz. The Mark encoding boxes and formatting options are determined by the developer. Check the extension description on the Tableau Exchange for information on the Viz Extension you're loading.

To follow along with the Sankey extension, follow these encoding instructions:

The Sankey extension is built to use extension-specific encoding for **Levels** and **Links**. These can be used with the built-in Marks encoding boxes Tooltip and Details to build the Sankey on the worksheet.

- **Level** - Sankey levels represent the categorical dimensions that are related by the Sankey. In this extension, you can include up to 5 discrete dimensions as Levels.
- **Link** - Sankey links connect the categories across the Sankey. This encoding will size the width of each link based on a numeric measure.

Ensure that extensions are allowed on Tableau Cloud

If you're not able to add a Viz Extension, check to see if extensions have been allowed on your site. A Tableau administrator must allow extensions to run on a site and add Network-enabled extensions to an allow list. Administrators should only allow extensions that you have tested and trust.

To learn more about adding Network-enabled extensions to an allow list, see Tableau Help: Change the default settings for a site.

Data security, Network-enabled, and Sandboxed extensions

Extensions are web applications that come in two forms:

- *Network-enabled extensions* run on web servers located outside of your local network.
- *Sandboxed extensions* run in a protected environment without access to any other resource or service on the web.

Before adding a Network-enabled extension, be certain that you trust the website that hosts it. By default, extensions use the HTTPS protocol, which guarantees an encrypted channel for sending and receiving data, and ensures some privacy and security.

For more information about data security when using extensions, see Extension Security - Best Practices for Deployment.

Allow or deny data access to a Network-enabled extension

Depending on how an extension is designed, it can access either visible data in a view, or full underlying data, table and field names from data sources, and information about data source connections. When you add an extension, you're given an opportunity to allow or deny the extension to run and access this data.

Reset data access for your extension

If you need to reset the data access permissions for your extension, you can simply reload the extension by selecting Add Extension on the Marks card, and then re-adding the extension to the worksheet. These steps kick off the process to allow or deny access to the extension.

Ensure that JavaScript is enabled in Tableau Desktop

Viz extensions interact with data using the Tableau Extensions API library, a JavaScript library. If you want to use extensions, be sure that JavaScript is enabled in the security settings:

Choose **Help** > **Settings and Performance** > **Set Dashboard Web View Security** > **Enable JavaScript**.

Get support for Viz Extensions

To get help for an extension, you'll need to contact the developer or company who created it through the Tableau Exchange.

Note: Tableau doesn't provide support for extensions or for other programs that interface with the Extensions API. However, you can submit questions and ask for help in the Tableau developer community.

Integrate External Actions

Note: External Actions in Tableau rely on functionality provided by Salesforce Flow. The feature sends your selected data to Salesforce Flow, which runs on separate Salesforce infrastructure. Use of Salesforce Flow and other Salesforce products and services is subject to your agreement with Salesforce.

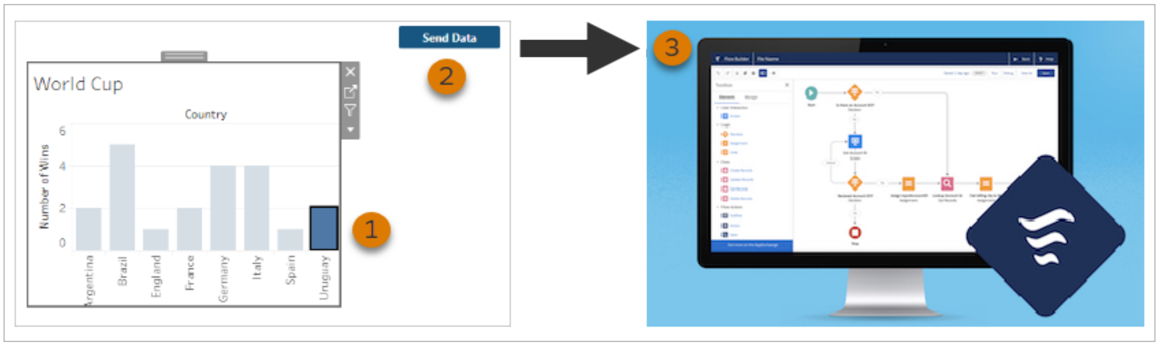
After seeing and understanding your data in Tableau, what’s next? Typically, taking action from data insights involves pivoting from one application to another, often copying and pasting data and losing context along the way. With the Tableau External Actions feature, you can create and interact with data-driven workflows directly from Tableau dashboards and automate your next steps using Salesforce Flow.

About Salesforce Flow

If you’re not familiar with Salesforce Flow, it’s a no-code tool that provides time-saving process automations. A flow is a component of Salesforce Flow that collects data and performs actions in your Salesforce org. There are several flow types available in Salesforce Flow, but External Actions workflows in Tableau are only compatible with autolaunched flows.

Note: To learn more about flows, check out Build Flows with Flow Builder on Trailhead.

How External Actions work



When an External Actions workflow is configured for a viz on a Tableau dashboard, a customized button appears on the corresponding viz in an unavailable (grayed out) state. When you select a relevant mark on the viz (1), the button becomes available. Then, when you click the button (2), data from the selected mark is sent directly to a flow that was built and configured in Salesforce Flow (3).

As the author of an External Actions workflow, you determine:

- Which flow the data is sent to
- Which dashboard the data comes from
- The text and appearance of the dashboard button that triggers the workflow

Note: You can add multiple External Actions workflows to a dashboard, but each of the corresponding flows must be deployed in the same Salesforce org.

Ways to use External Actions workflows

There are endless ways to use External Actions workflows to automate existing processes in your organization. For example, think of the effort saved by a workflow that lets accounting team members send customer invoices directly from the same dashboard they use to track unpaid orders. Or maybe you're looking for ways to streamline your support team's case management. A workflow that lets support team members escalate cases directly from the dashboard they use to track cases could be a significant time-saver. External Actions workflows help keep users in the flow of work, and enables your organization to benefit from increased efficiencies.

When you create an External Actions workflow, you're essentially building a bridge that connects any type of data source in Tableau with a flow at Salesforce. Your data source doesn't need to be connected to a Salesforce database because the workflow itself creates that connection. This is particularly useful when there are multiple groups using separate data sources to complete different steps of the same process.

For example, think about the different teams and tools involved when a customer places an order at an ecommerce site. Ecommerce sales reps might use Salesforce to track the sale while supply chain managers use a supply chain management tool to deduct the purchased item from overall product inventory. Support teams that help the customer troubleshoot any issues that arise when they receive their product might be logged in Salesforce or analyzed in a Tableau dashboard. With an External Actions workflow, you can connect all of this data from each of these teams to streamline processes and even automate some of the existing steps.

Best practices for External Actions workflow authors

Important: Dashboard authors using the External Actions feature to connect dashboard data with flows built in Salesforce Flow should closely collaborate with the Salesforce admins and architects who created the flows.

Flows built in Salesforce Flow are sophisticated business automation programs. Although your organization can greatly benefit from these automations, it’s important to understand how flows work before deploying External Actions workflows that use them. Be sure to complete the Salesforce Flow training on Trailhead and review the Flows documentation. Consider Flow Best Practices in your design, and keep Flow Limits and Considerations in mind.

Note: There are several flow types available in Salesforce Flow, but External Actions workflows are only compatible with autolaunched flows.

External Actions workflows must be carefully implemented to align with the architectural constraints of flows built in Salesforce Flow. Flows are powerful, but they can also be resource-intensive and complex. There are potential licensing, execution throttling, and concurrency issues to consider, and database read/write limits that must be evaluated and tested.

There are also important security considerations related to flows. Users with the Manage Flows permission can view and change all data and resources in the corresponding Salesforce org. Users with the Run Flows permission can run nearly any active flow in the Salesforce org. To restrict access to only those users who require it (such as dashboard authors and workflow users), your Salesforce admin can enable the override default behavior setting for a flow. For more information, see How Does Flow Security Work?

Dashboard authors who are creating External Actions workflows should communicate with their Salesforce admins before implementing workflows to prevent undesired results.

Create a workflow

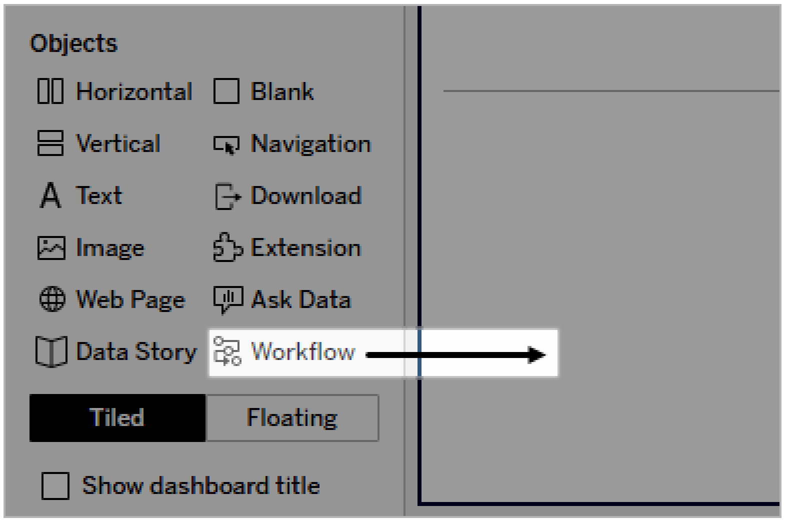
Before creating an External Actions workflow, dashboard authors should collaborate with their Salesforce admins to find or create a flow that meets their needs. For example, perhaps your goal is to help your accounting team send invoices directly from an unpaid orders dashboard. To accomplish this goal, you need a flow that can retrieve the customer contact information and order details from the dashboard and populate the invoices.

After you decide which flow to use, the next step is identifying a dashboard to connect it to. It's likely that your users are already interacting with an existing dashboard that would work well. However, if necessary, you can create a new dashboard.

With the right flow and the right dashboard in mind, it's time to think about the compatibility of the data types in the dashboard with the flow's required input fields (known as variables). For example, your unpaid orders dashboard must contain a viz with all of the relevant order details needed to send customer invoices. These details might include information such as order date, customer name and contact information, item descriptions and amounts, and payment amount due.

When your dashboard contains all of the required components, add the Workflow object:

1. In a Tableau workbook, open an existing dashboard or create a new one.
2. From the **Objects** section of the **Dashboard** pane, drag **Workflow** to a viz in the dashboard.


Objects
Horizontal
Blank
Vertical
Navigation
Text
Download
Image
Extension
Web Page
Ask Data
Data Story
Workflow
Tiled
Floating
☐ Show dashboard title

3. When prompted, enter your log-in credentials for the Salesforce org associated with your flow.

> **Note:** When users access the dashboard where you set up your workflow, they must enter their Salesforce credentials. If their Salesforce credentials expire while viewing the dashboard, they're prompted to reauthenticate.

4. Click **Configure Workflow**.
5. In the **Add Workflow** dialog, search for a flow by flow name or flow author.
6. Select a flow to view its details, including the required inputs (Salesforce variables) it needs from the viz. Click **Back** to select a different flow, or click **Next** to continue.
7. From the **Select Sheet** drop-down, select a sheet (worksheet, dashboard, or story) that contains the marks your users will select and send to the flow.

> **Note:** Be sure to select a sheet that has marks with the encoded fields you want to map to the flow's required inputs. For example, if you want to map the `forecast_revenue` variable in the flow to the `SUM(Sales)` field in Tableau, you must select a sheet with marks that are encoded with the `Sum(Sales)` field.

8. Click **Next**.
9. For each of the flow's required inputs (Salesforce variables), select an appropriate field from the Tableau sheet you chose in the Select Sheet step.

> **Note:** For each input, the data type of the Salesforce variable and Tableau field must match.

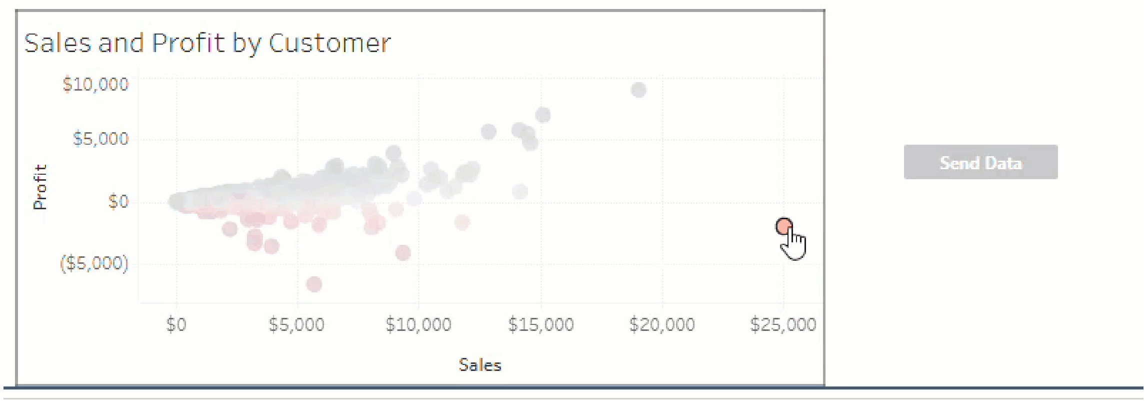
10. Click **Next**.
11. Configure the appearance of the button that users click to trigger the External Actions workflow. Specify a button title, background color, and border color. Check the preview to confirm the button's appearance.

> **Note:** Remember that users must select a mark from the viz that you chose in the **Select Sheet** step. Until a mark is selected, the button isn't available. Consider adding guiding text to the dashboard so users know exactly what viz to interact with and what will happen when they click the button.

12. Click **Done** to create the workflow and add the corresponding button to the viz in the dashboard.

Use a workflow

To get started as a workflow user, open the dashboard where your dashboard author has added a workflow. You can confirm that a workflow is available if a workflow button displays. The dashboard author customizes the name and format of the button, and it should clearly indicate the action triggered when you click it (such as "Send Data" or "Update Record"). Select a relevant mark from a viz in the dashboard, and then click the button to start the workflow.



Clicking the workflow button triggers the transmission of data, and the mark you select determines what data is sent. For that reason, the button is unavailable (grayed out) until you select a mark. If you've selected a mark but the button is still unavailable, verify that you've selected a mark on a valid viz for the workflow. If you aren't sure which vizzes are valid, check with the dashboard author.

Depending on their configuration, some workflows might be long-running operations that don't complete immediately. If you're unable to determine whether the workflow you selected is working as expected, check with the dashboard author or your Salesforce admin.

Troubleshoot a workflow

For help resolving issues with an External Actions workflow, see the following troubleshooting guidance.

Access issues

- **For dashboard authors using Tableau Desktop:** If the Workflow object doesn't appear in the Objects section of the Dashboard pane, confirm that you're signed in to a Tableau Server or Tableau Cloud site. If you aren't signed in, you won't be able to access the Workflow extension.
- **For dashboard authors:** If the Workflow object doesn't appear in the Objects section of the Dashboard pane, check with your Tableau admin to ensure that the extension is turned on.
- **For all users:**
  - If your Salesforce admin hasn't created a connected app, the External Actions feature won't work. Ask your Salesforce admin to create a connected app in Salesforce for Tableau Server.
  - If you're unable to click a workflow button that displays on a dashboard, confirm that you've selected a mark on a valid viz for the workflow. If you aren't sure which vizzes are valid, check with the dashboard author.

Authentication issues

- **For Tableau Cloud or Tableau Server users:** Refresh the dashboard in your browser.
- **For all users:** Confirm that you've signed in to the Salesforce org where the External Actions workflow was added. If necessary, check with your dashboard author to confirm the correct Salesforce org.

Error messages

Error Message	Explanation and Resolution
Workflow is turned off on this site. For more information, contact your Tableau administrator.	Your Tableau admin has turned off the Workflow dashboard extension for your site, so it isn't available for your use. Contact your Tableau admin to discuss turning on access to the extension.
Workflow isn't supported by Tableau Reader	The Workflow dashboard extension and External Actions feature can only be used to send data to a flow using Tableau Cloud, Tableau Desktop, or Tableau Server versions 2022.3 and later.
Flow contains one or more	The selected flow requires a data type input that isn't available

Error Message	Explanation and Resolution
unsupported data types. Go back to select a different flow, or contact your Salesforce Flow administrator to remove unsupported data types from this flow.	in Tableau dashboards, or is otherwise incompatible with External Actions workflows. Select a different flow if a suitable alternative exists, or check with your Salesforce admin for next steps.
One or more data type mismatches exist in the mapping of input fields.	The data type for one or more of the dashboard values mapped to the input variable fields aren't identical. For example, the flow might require a numeric variable for Revenue, but the mapped value from the dashboard was a text string. Depending on your scenario, you have two options to fix this. You can change the data type of the Revenue field in Tableau from a text string to a numerical value. Or, you edit the workflow configuration to map a different field from the dashboard that has a numerical data type.
Unable to submit data to Salesforce Flow.	An unknown error occurred while the External Actions workflow attempted to send data from the dashboard to the flow. Contact your dashboard author to troubleshoot.
Error occurred: <exception code>. Contact your Salesforce Flow administrator.	The flow interview (running instance of the flow) failed. Share the exception code with your Salesforce admin so they can find the corresponding error email and troubleshoot accordingly.
Workflow failed. Contact your Salesforce Flow administrator.	The data from the selected mark in the dashboard was sent to the flow, but there was an issue in translating that data to the flow. Contact your Salesforce admin to troubleshoot.
Unable to submit data to flow. Contact your workflow author.	The data from the selected mark in the dashboard wasn't sent to the flow. Contact your dashboard author to troubleshoot.

Flow issues

- Some flows run asynchronously, so you may not immediately know whether a flow that's part of an External Actions workflow ran successfully. At times, a flow might fail and rollback changes without immediately providing detailed feedback. However, when a flow fails, a detailed error email is sent to the workflow user, dashboard author, and Salesforce admin. Workflow users should contact their dashboard authors when they receive a flow error email. Dashboard authors and Salesforce admins can then work together to troubleshoot and resolve the error. For more information on troubleshooting flow issues, see Troubleshoot Flows.

Licensing issues

- **For dashboard authors:** On the Tableau side, no special permissions are required to add a workflow to a dashboard (as long as External Actions are enabled for the site). On the Salesforce side, you'll need the Manage Flows permission added to your Salesforce profile.
- **For workflow users:** On the Tableau side, any user who can access a dashboard with a workflow can run it. From the Salesforce side, you'll need the Run Flows permission added to your Salesforce profile.

Turn External Actions On or Off

In Tableau 2022.3 and later, the External Actions feature is turned on by default. For more information on how Tableau admins can configure org-wide access to Tableau External Actions, see Configure External Actions Workflow Integration.

Format Animations

Animate visualizations to better highlight changing patterns in your data, reveal spikes and outliers, and see how data points cluster and separate.

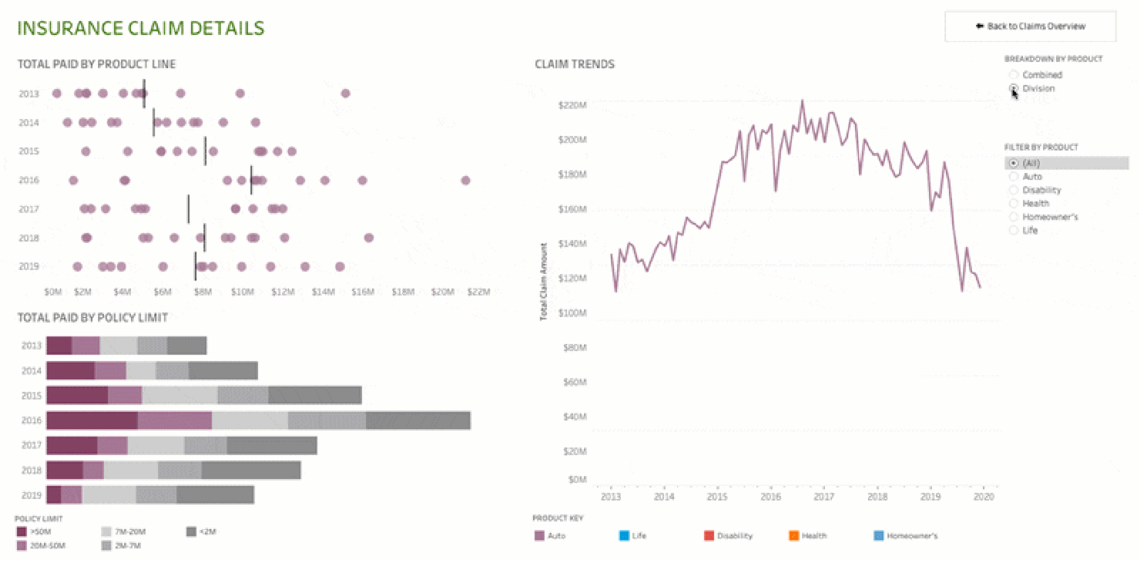
Animations visually transition between filter, sort, and zoom settings, different pages, and changes to filter, parameter, and set actions. As visualizations animate in response to these changes, viewers can more clearly see how data differs, helping them make better informed decisions.

Understanding simultaneous and sequential animations

When you author animations, you can choose between two different styles: simultaneous or sequential. Here are examples of each type.

Simultaneous animations

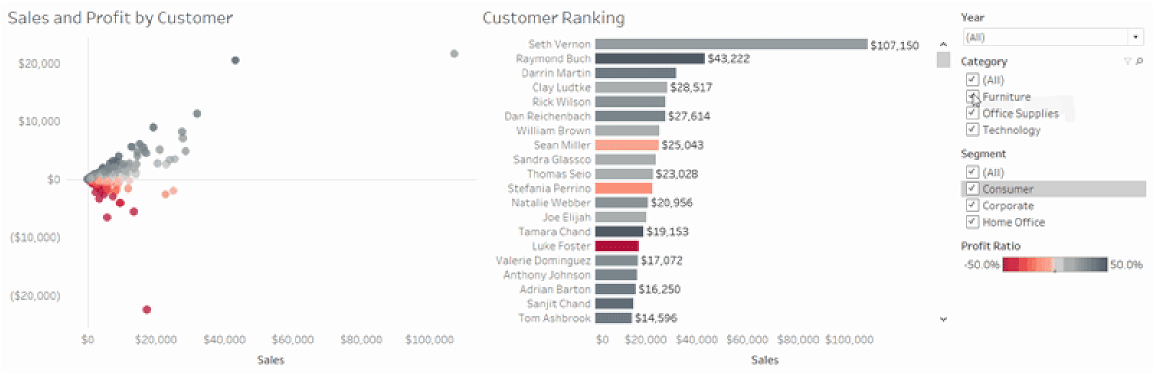
The default simultaneous animations are faster and work well when showing value changes in simpler charts and dashboards.


INSURANCE CLAIM DETAILS
Back to Claims Overview
TOTAL PAID BY PRODUCT LINE
2013
2014
2015
2016
2017
2018
2019
$0M $2M $4M $6M $8M $10M $12M $14M $16M $18M $20M $22M
TOTAL PAID BY POLICY LIMIT
POLICY LIMIT
>50M
20M-50M
7M-20M
2M-7M
<2M
CLAIM TRENDS
Total Claim Amount
$220M
$200M
$180M
$160M
$140M
$120M
$100M
$80M
$60M
$40M
$20M
$0M
2013 2014 2015 2016 2017 2018 2019 2020
PRODUCT KEY
Auto
Life
Disability
Health
Homeowner's
BREAKDOWN BY PRODUCT
○ Combined
● Division
FILTER BY PRODUCT
● (All)
○ Auto
○ Disability
○ Health
○ Homeowner's
○ Life

Click the image above to replay the animation.

Sequential animations

Sequential animations take more time but make complex changes clearer by presenting them step-by-step.


Sales and Profit by Customer
$20,000
$10,000
$0
($10,000)
($20,000)
$0
$20,000
$40,000
$60,000
$80,000
$100,000
Sales
Customer Ranking
Seth Vernon $107,150
Raymond Buch $43,222
Darrin Martin
Clay Ludtke $28,517
Rick Wilson
Dan Reichenbach $27,614
William Brown
Sean Miller $25,043
Sandra Glassco
Thomas Seio $23,028
Stefania Perrino
Natalie Webber $20,956
Joe Elijah
Tamara Chand $19,153
Luke Foster
Valerie Dominguez $17,072
Anthony Johnson
Adrian Barton $16,250
Sanjit Chand
Tom Ashbrook $14,596
$0
$20,000
$40,000
$60,000
$80,000
$100,000
Sales
Year
(All)
Category
☑ (All)
☑ Furniture
☑ Office Supplies
☑ Technology
Segment
☑ (All)
☑ Consumer
☑ Corporate
☑ Home Office
Profit Ratio
-50.0%
50.0%

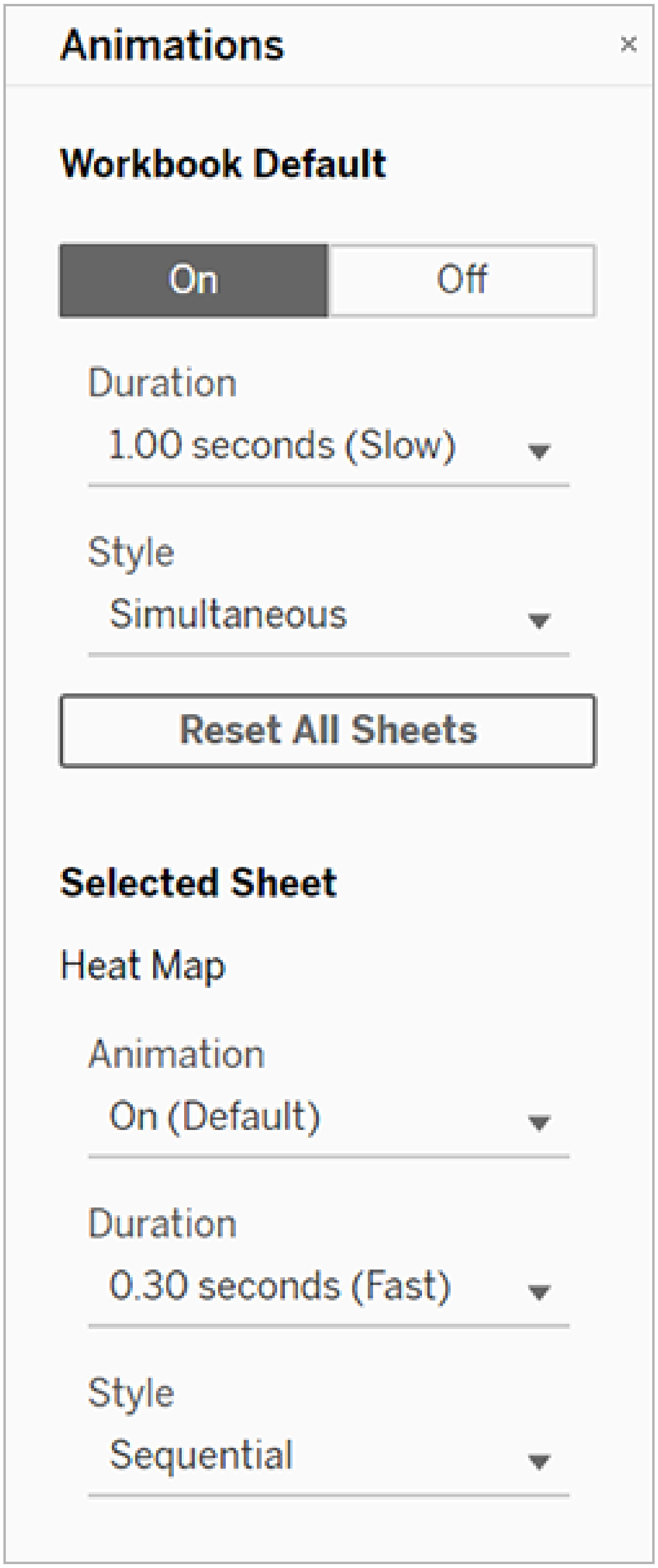
Click the image above to replay the animation.

Animate visualizations in a workbook

When you create a new workbook, Tableau enables animations for your viz by default. You can turn animations on or off at the user and workbook level.

1. Choose **Format** > **Animations**.
2. If you want to animate every sheet, under **Workbook Default**, click **On**. Then do the following:
   - For **Duration**, choose a preset, or specify a custom duration of up to 10 seconds.
   - For **Style**, choose **Simultaneous** to play all animations at once or **Sequential** to fade out marks, move and sort them, and then fade them in.
3. To override workbook defaults for a particular sheet, change the settings under **Selected Sheet**.

> **Note:** In the Selected Sheet section, “(Default)” indicates a setting that automatically reflects the related Workbook Default setting.


Animations
×

Workbook Default

On
Off

Duration
1.00 seconds (Slow)

Style
Simultaneous

Reset All Sheets

Selected Sheet

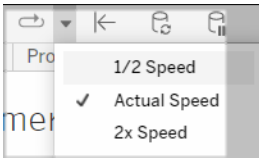
Heat Map

Animation
On (Default)

Duration
0.30 seconds (Fast)

Style
Sequential

To replay an animation, click the **Replay** button in the toolbar. From the **Replay** button, you can also choose the speed at which the animation replays: actual speed, 2x speed, or 1/2 speed.



Reset animation settings for a workbook

You can reset animations to return an entire workbook to the default animation settings. Be aware that this turns animations off by default.

1. Choose **Format** > **Animations**.
2. In the middle of the **Animations** pane, click **Reset All Sheets**.

Completely disable all animations

When you create a new workbook, animations are enabled by default. If you find animations distracting while viewing vizzes, you can completely disable them so they never play. (This isn't a system-wide setting; each user needs to apply it separately.)

- In Tableau Desktop, choose **Help** > **Settings and Performance**, and deselect **Enable Animations**.
- In Tableau Cloud or Tableau Server, click your profile image or initials in the top right corner of the browser, and choose **My Account Settings**. Then scroll down to the bottom of the page, deselect **Enable animations**, and click **Save Changes**.

Note: When animations are disabled, you can still choose **Format** > **Animations** in authoring mode and adjust settings—but they will have no effect.

Format decimals for axes animations

If the number of decimal places for a measure is set to the default, then the number of decimals shown during the axis animation might fluctuate during the axes animation. To avoid this, format the number of decimal places displayed for a measure. For more information, see Format Numbers and Null Values.

Why animations won't play

Server rendering

Animations won't play if a viz is server-rendered. To ensure that vizzes render on a client computer or mobile device, use these techniques:

- If you're a viz author, reduce viz complexity.
- If you're a Tableau Server administrator, increase the complexity threshold for client-side rendering.

Note: On computers with lower processing power, animations may appear choppy, but users can continue to interact with vizzes without any delays in responsiveness.

Unsupported browsers and features

Animations are supported by all web browsers except Internet Explorer.

The following Tableau features don't animate:

- Maps, polygons, and density marks in web browsers
- Pie and text marks
- Headers
- Forecasts, trends, and reference lines
- Page history trails (If a viz includes these, turn off animations to avoid unexpected behavior.)

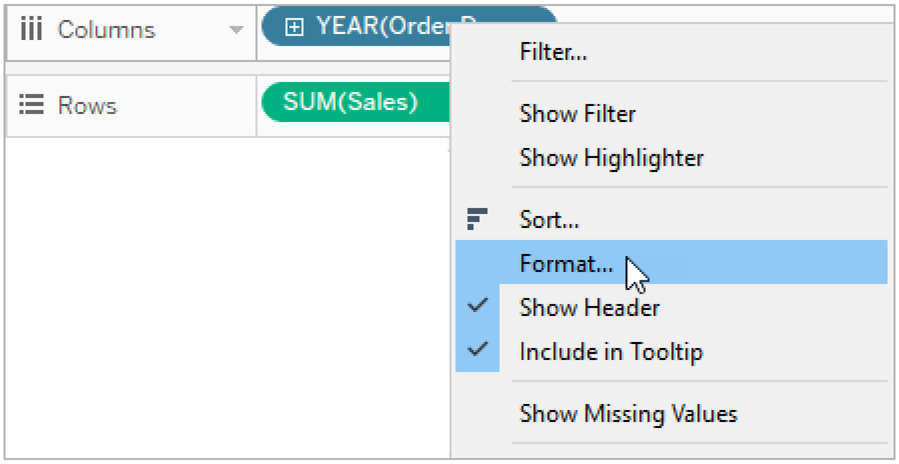
Custom Date Formats

This article discusses using the custom date format field to format dates in a view. For an overview of how Tableau works with dates, see Dates and Times, or Changing Date Levels. For setting date properties for a **data source**, see Date Properties for a Data Source.

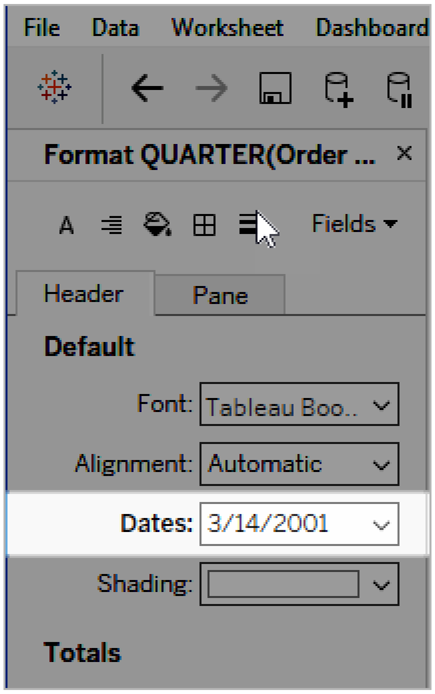
How to find the custom date format field

Format a date field in a view (Tableau Desktop)

To format a date field in the view in Tableau Desktop, right-click (Control-click on a Mac) the field and choose **Format**.


Columns
YEAR(Order D
Rows
SUM(Sales)
Filter...
Show Filter
Show Highlighter
Sort...
Format...
Show Header
Include in Tooltip
Show Missing Values

This opens the **Format** panel to the left of your view. Select the **Dates** field.


File
Data
Worksheet
Dashboard
Format QUARTER(Order ...
Fields
Header
Pane
Default
Totals

Font: Tableau Boo..

Alignment: Automatic

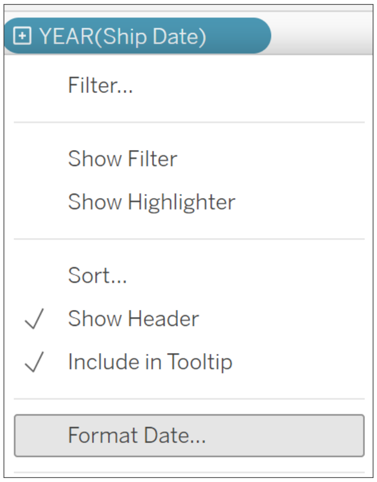
Dates: 3/14/2001

Shading:

Tableau presents a list of available formats. If you're working with a discrete date part, you'll see the options relevant to that date part (such as automatic, two digit, and four digit as the options for **YEAR([Order Date])**). For continuous or Exact Date discrete dates, the last item in the list is **Custom**. You can specify a custom date using format symbols listed in the Supported date format symbols table, either alone or in combination.

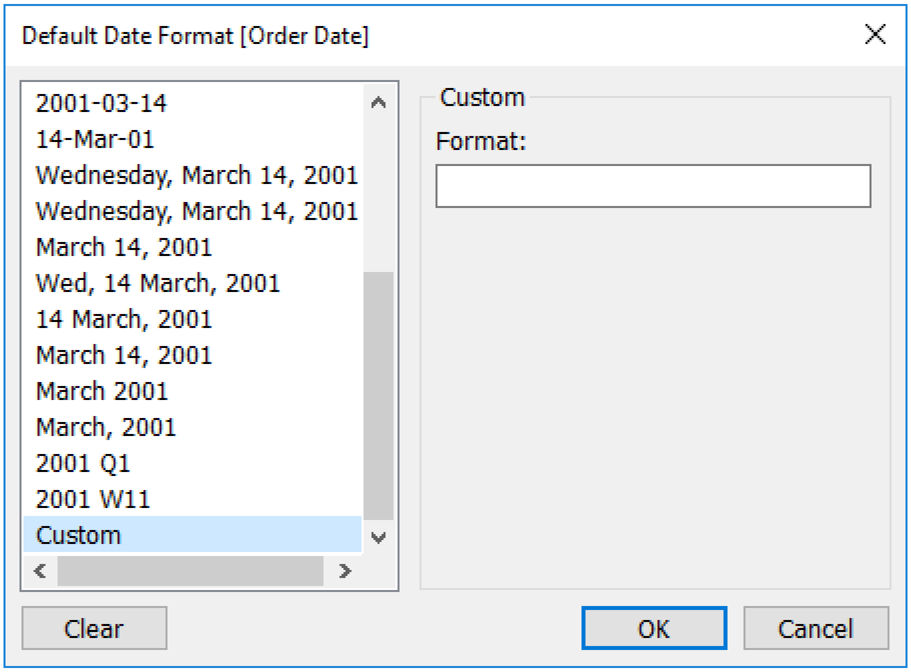
Format a date field in a view (Tableau Cloud and Tableau Server)

To format a date field in the view in Tableau Cloud and Tableau Server, right-click (Control-click on a Mac) the field and choose **Format Date.**


YEAR(Ship Date)
Filter...
Show Filter
Show Highlighter
Sort...
✓ Show Header
✓ Include in Tooltip
Format Date...

Format a date field in the Data pane (Tableau Desktop only)

To format a date field in the **Data** pane, right-click the field and choose **Default Properties** > **Date Format**.


Default Date Format [Order Date]
2001-03-14
14-Mar-01
Wednesday, March 14, 2001
Wednesday, March 14, 2001
March 14, 2001
Wed, 14 March, 2001
14 March, 2001
March 14, 2001
March 2001
March, 2001
2001 Q1
2001 W11
Custom
Custom
Format:
Clear
OK
Cancel

The date formats in the table are supported when your workbook is connected to a Tableau extract or has a live connection to a data source that also supports the date format. (Refer to your data source's documentation to verify that the date format you want is supported.)

Tableau retrieves date formats from the data source. Tableau Server can also retrieve date formats from the Run As user account on the server that’s running Tableau Server.

> **Note:** The following date formats might not be the same as those used with the Type Conversion function. See Convert Strings to Date Fields for more information.

Supported date format symbols

Use the following symbols to construct a custom date format.

Symbol	Description
(:)	Time separator. In some locales, a different character is used to represent the time separator. The time separator separates hours, minutes, and seconds when time values are formatted. The actual character used as the time separator in formatted output is determined by your system settings.
(/)	Date separator. In some locales, a different character is used to represent the date separator. The date separator separates the day, month, and year when date values are formatted. The actual character used as the date separator in formatted output is determined by your system settings.
c	Display the date as `ddddd` and display the time as `ttttt`, in that order. Display only date information if there’s no fractional part to the date serial number; display only time information if there’s no integer portion.
d	Display the day as a number without a leading zero (1-31).
dd	Display the day as a number with a leading zero (01-31).
ddd	Display the day as an abbreviation (Sun, Sat).

dddd	Display the day as a full name (Sunday, Saturday).
ddddd	Display the date as a complete date (including day, month, and year), formatted according to your system's short date format setting. The default short date format is `m/d/yy`.
dddddd	Display a date serial number as a complete date (including day, month, and year) formatted according to the long date setting recognized by your system. The default long date format is `mmmm dd, yyyy`.
aaaa	The same as dddd, only it's the localized version of the string.
w	Display the day of the week as a number (1 for Sunday through 7 for Saturday).
ww	Display the week of the year as a number (1-54).
M	Display the month as a number without a leading zero (1 12). If `m` immediately follows `h` or `hh`, the minute rather than the month is displayed.
MM	Display the month as a number with a leading zero (01-12). If `m` immediately follows `h` or `hh`, the minute rather than the month is displayed.
MMM	Display the month as an abbreviation (Jan-Dec).
MMMM	Display the month as a full month name (January-December).
MMMMM	Display the month as a single letter abbreviation (J-D)
oooo	The same as MMMM, but localized.
q	Display the quarter of the year as a number (1- 4).
y	Display the day of the year as a number (1-366).
yy	Display the year as a 2-digit number (00-99).
yyyy	Display the year as a 4-digit number (100-9999).
h	Display the hour as a number without leading zeros (0-23).
Hh	Display the hour as a number with leading zeros (00-23).
N	Display the minute as a number without leading zeros (0 59).

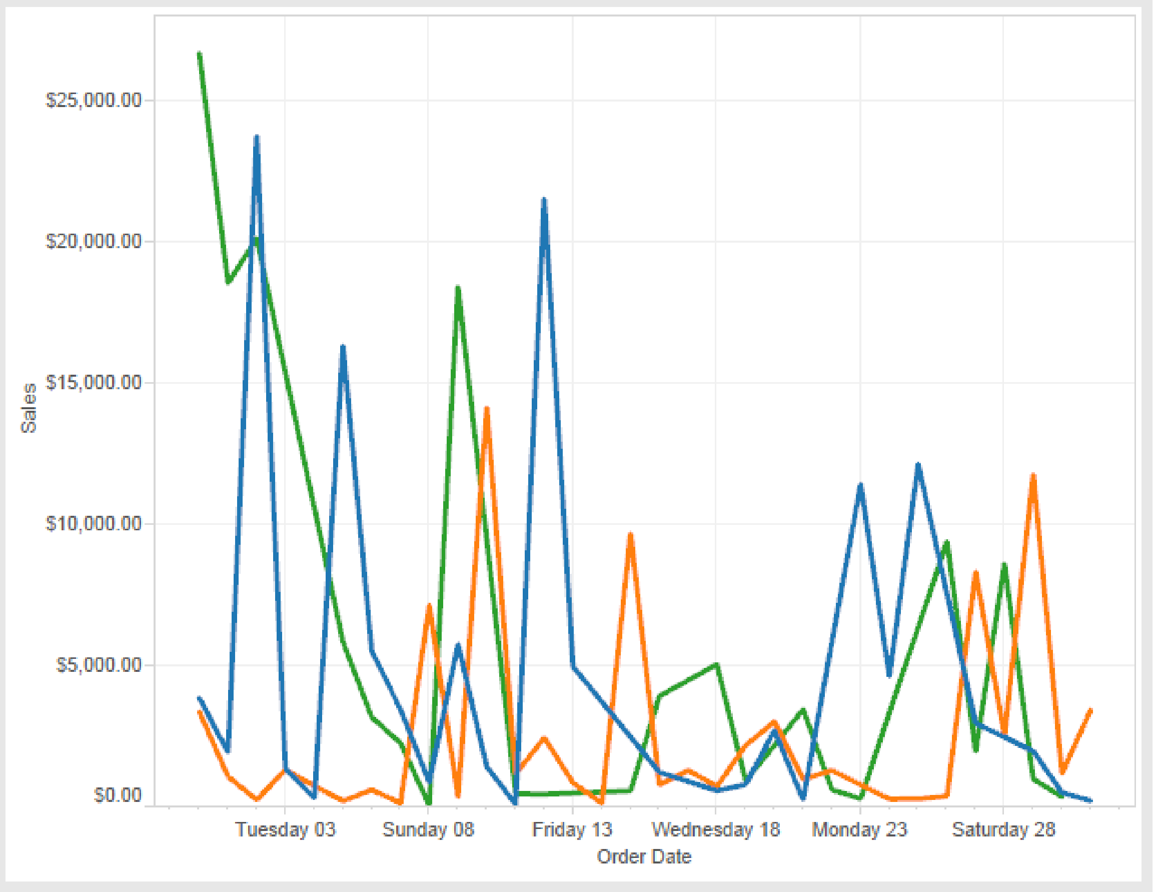
Nn	Display the minute as a number with leading zeros (00 59).
S	Display the second as a number without leading zeros (0 59).
Ss	Display the second as a number with leading zeros (00 59).
000	Display milliseconds. Use a period character as a separator before specifying milliseconds.
ttttt	Display a time as a complete time (including hour, minute, and second), formatted using the time separator defined by the time format recognized by your system. A leading zero is displayed if the leading zero option is selected and the time is before 10:00 A.M. or P.M. The default time format is `h:mm:ss`.
AM/PM	Use the 12-hour clock and display an uppercase AM with any hour before noon; display an uppercase PM with any hour between noon and 11:59 P.M.
am/pm	Use the 12-hour clock and display a lowercase AM with any hour before noon; display a lowercase PM with any hour between noon and 11:59 P.M.
A/P	Use the 12-hour clock and display an uppercase A with any hour before noon; display an uppercase P with any hour between noon and 11:59 P.M.
a/p	Use the 12-hour clock and display a lowercase A with any hour before noon; display a lowercase P with any hour between noon and 11:59 P.M.
AMPM	Use the 12-hour clock and display the AM string literal as defined by your system with any hour before noon; display the PM string literal as defined by your system with any hour between noon and 11:59 P.M. AMPM can be either uppercase or lowercase, but the case of the string displayed matches the string as defined by your system settings. The default format is AM/PM.

Custom date format examples

Any of the date format symbols in the table above can be used alone or in combination.

Specifying a custom format yyyy-MM-dd HH:mm:ss.000 would produce dates in the format 2015-05-10 11:22:16.543. Such a format might be appropriate for scientific data.

Specifying a custom format DDDD DD would produce dates that show the Weekday and the Day, as shown below.



Specifying a custom format `yy-mm-dd (dddd)` would produce dates in the format **18-01-04 (Thursday)**.

Specifying a custom format `"Q"1 YYYY` would produce dates that show **Q1 2018**.

Support for Japanese era-based date formats

Tableau supports Japanese emperor-era-based date (Wareki) formats. Here's how to apply an era-based date format to a field in your view:

1. Set your workbook locale to Japanese.
2. Right-click the field in the view for which you want to set a date format.
3. Choose **Format**.
4. In the **Format** pane, from the **Dates** drop-down list, select a format.

If the format that you want isn't listed, you can construct your own date format. To do this, choose **Custom format** in the **Dates** box, then type your format using the Tableau date placeholders. The following era-based year placeholders are available:

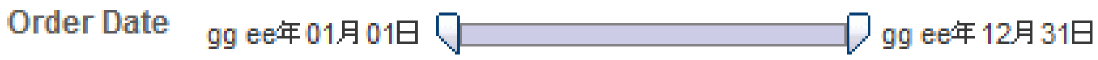
Symbol	**Description**
g	Short era name (such as H for the Heisei era).
gg	Era name (such as 平成).
ggg	Long era name (for Japanese, this is the same as the regular era name).
e	Era-based year, such as 1 for the first year of an era.
ee	Era-based year, such as 01 for the first year of an era. If there's only one digit, then the era-based year will have a zero added to the front.

If your workbook locale isn't Japanese, you can create a custom date format, then insert the language code !ja_JP! in front of your format, so that it looks like this:

```
!ja_JP! gg ee"年"mm"月"dd"日"
```

The language code forces the date to be treated as if it's a Japanese date.

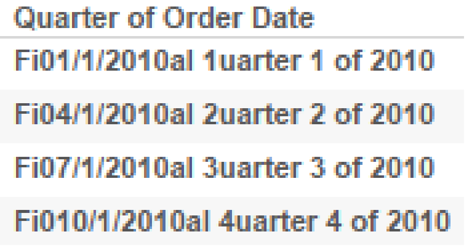
Era-based dates aren't fully supported by the Tableau Server browser view. In particular, if you publish a workbook that contains an interactive filter, the e and g placeholders won't be filled in:



To avoid this issue, don’t show era-based dates in interactive filters if your workbook will be viewed in a browser.

Using literal text in a date format

You may want your date format to include some words or phrases, such as **Fiscal Quarter q of yyyy**. However, if you type that text directly into the Tableau format box, it may treat the letters like date parts:



Quarter of Order Date
Fi01/1/2010al 1uarter 1 of 2010
Fi04/1/2010al 2uarter 2 of 2010
Fi07/1/2010al 3uarter 3 of 2010
Fi010/1/2010al 4uarter 4 of 2010

To prevent Tableau from doing this, put double quotes around the letters and words that shouldn’t be treated as date parts: `"Fiscal Quarter" q "of" yyyy`.

If you want a literal quote inside of a quoted section, insert this code: `"\""`. For example, the format `"Fiscal "\"" Quarter"` would be formatted as **Fiscal " Quarter**.

Format syntax in DATEPARSE function for extract data sources

If you're using the DATEPARSE function in an extract, use the syntax defined by the Unicode Consortium.

The following table lists the field types that can be represented in the format parameter of the DATEPARSE function. Click the field type to get information about the symbols, field patterns, examples, and descriptions from the Unicode Consortium website.

Unit of time	Notes
Era	n/a
Year	All symbols are supported in .hyper extracts except for "U". **Notes:** • Negative values denote a year before Christ (BC). For example, `DATEPARSE('y','-10')` returns the first January of 11BC and `DATEPARSE('y','-0')` returns the first January of 1BC. • When working with the calendar year "y", the pattern "yy" requests the two low-order digits of the year. For numbers < 70, the DATEPARSE function returns the year 2000+x. For numbers >=70, the DATEPARSE function returns the year 1900+x. • When working with "Y" in "ISO week date" based calendars, the year transition occurs on a week boundary and may differ from the calendar year transition. The "Y" designation is used in conjunction with pattern character "w" in ISO year-week calendar. The ISO week date system is effectively a leap week calendar system that is part of the ISO 8601 date and time standard. Similar to "y", negative values for "Y" denote a year before Christ (BC).
Month	All symbols are supported in .hyper extracts except for "l". **Notes:** • The month designations are used in conjunction with "d" for the day number.

Unit of time	Notes
	• In contrast to ICU, .hyper extracts allow values 1–12. Other values cause an error.
Week	All symbols are supported in .hyper extracts except for "W". **Notes:** • When working with "w", in contrast to ICU, .hyper extracts allow only valid weeks. A year has 52 or 53 weeks (ISO 8601). The DATEPARSE function validates the input. For example, an error occurs for the 53rd week of 2016 because the 53rd week doesn’t exist for 2016. • When working with "W", ICU doesn’t support this designation, but it's useful for dates like 1st Monday of September.
Day	**Notes:** • When working with "d", in contrast to ICU, .hyper extracts only allow valid day numbers. For example, an error occurs for the 31st of February. • When working with "D", in contrast to ICU, .hyper extracts only allow valid day numbers. For example, an error occurs for the 366th day of 2017.
Hour	Only "h" and "H" symbols are supported in .hyper extracts. **Notes:**

Unit of time	Notes
	- When working with "h", .hyper extract don't allow negative values for this field. Negative values cause an error. - When working with "H", .hyper extracts don't allow negative values for this field. Negative values cause an error.
Minute	**Note:** In contrast to ICU, .hyper extracts don't allow negative values for this field. Negative values will cause an error.
Second	**Notes:** - In contrast to ICU, .hyper extracts don't allow negative values for this field. Negative values will cause an error. - When working with "S", `DATEPARSE('ss.SSSS', '12.3456')` returns 1990-01-01 00:00:12:3456 AD.
Quarter	**Note:** In contrast to ICU, .hyper extracts only allow values 1–4. All other values cause an error.
Weekday	**Notes:** - When working with "e" and "ee", in contrast to ICU, .hyper extracts only allow values 1–7. All other values cause an error. - When working with "c..cc", in contrast to ICU, .hyper extracts only allow values 1–7. All other values cause an error.

Unit of time	Notes
Period	n/a

Format Numbers and Null Values

You can specify the format for numeric values that display in your viz, including measures, dimensions, parameters, calculated fields, and axis labels. When specifying a number format, you can select from a set of standard formats, such as number, currency, scientific, and percentage. You can also define a custom number format with the option to include special characters.

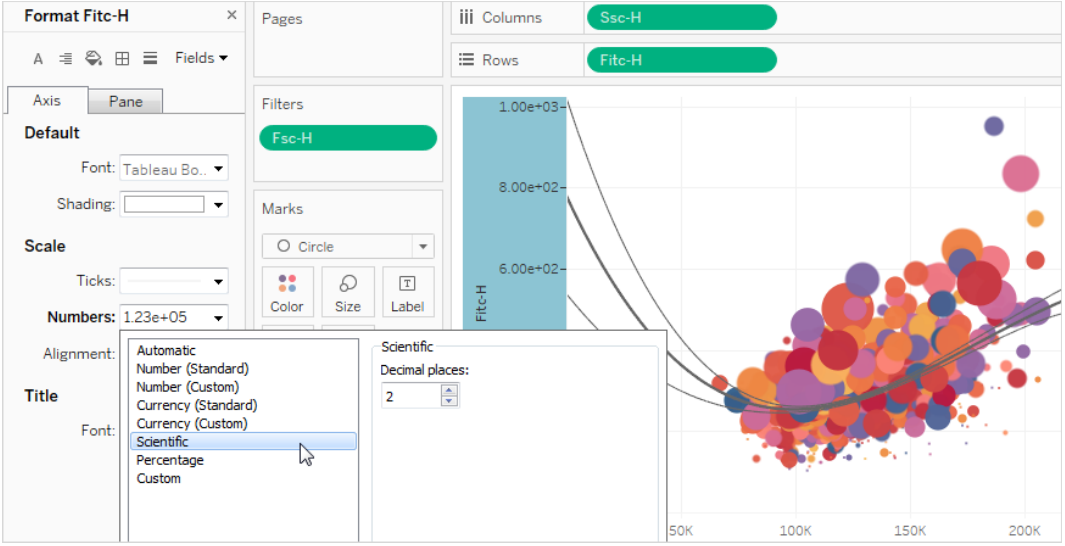
When a measure contains null values, you can use formatting to handle the null values in a different way, such as replacing nulls with zeros or hiding them.

For Tableau Desktop

Specify a number format

1. Right-click (control-click on Mac) a number in the view and select **Format**.
2. In the **Format** pane, click the **Numbers** drop-down menu.
3. Select a number format.

   Some formats require additional settings. For example, if you select **Scientific**, you must also specify the number of decimal places.


Format Fitc-H
Fields
Axis
Pane
Default
Font: Tableau Bo..
Shading:
Scale
Ticks:
Alignment:
Title
Font:
Automatic
Number (Standard)
Number (Custom)
Currency (Standard)
Currency (Custom)
Scientific
Percentage
Custom
Pages
Filters
Fsc-H
Marks
Circle
Color
Size
Label
Columns
Ssc-H
Rows
Fitc-H
1.00e+03
8.00e+02
6.00e+02
50K
100K
150K
200K

Numbers: 1.23e+05

Scientific

Decimal places: 2

Here are the number formats and associated options available in Tableau.

NUMBER FORMAT	FORMAT OPTIONS
Automatic: format is automatically selected based on either the format specified by the data source or the data contained in the field.	None.
Number (Standard): format is based on locale selected.	**Locale**: number format changes based on the geographical location selected.
Number (Custom): format is customized to your choice.	**Decimal Places**: the number of decimal places to display. **Negative Values**: how negative values are displayed. **Units**: the number is displayed using the specified units. For example, if the number is 20,000 and the units are thousands, the number

	will be displayed as 20K. **Prefix/Suffix**: characters that precede and follow each displayed number. **Include thousands separators**: whether the number shows separators every thousand (example: 100,000 vs. 100000).
Currency (Standard): format and currency symbol is based on locale selected.	**Locale**: currency format based on the geographical location selected.
Currency (Custom): format and currency symbol is customized to your choice.	**Decimal Places**: the number of decimal places to display. **Negative Values**: how negative values are displayed. **Units**: the number is displayed using the specified units. For example, if the number is 20,000 and the units are thousands, the number is displayed as 20K. **Prefix/Suffix**: characters that precede and follow each displayed number. **Include thousands separators**: whether the number shows separators every thousand (example: 100,000 vs. 100000).
Scientific: numbers are displayed in scientific notation.	**Decimal**: the number of decimal places to display.
Percentage: numbers are displayed as	**Decimal**: the number of decimal places to dis-

a percentage with the percent symbol. The value of 1 is interpreted as 100% and 0 as 0%	play.
Custom: format is based entirely on what is specified in the format options.	**Custom**: type in the format you want to use, including special characters (optional). See "Define a custom number format" in this topic for details.

Define a custom number format

To apply a custom number format in your viz:

1. Right-click (control-click on Mac) a number in the view and select **Format**.
2. In the **Format** pane, click the **Numbers** drop-down menu and select **Custom**.
3. In the **Format** field, define your formatting preferences using the following syntax: `Positive number format;Negative number format;Zero values`.

When defining your number format code, keep in mind that:

- You can specify the formatting for up to three types of numbers in the following order: positive numbers, negative numbers, and zeros.
- Each number type must be separated by a semicolon (;).
- If you specify only one number type, the format for that type is used for all numbers.
- If you specify two number types, the format for the first type is applied to positive numbers and zeros, while the format for the second type is applied to negative numbers.
- If you skip types in your number format code, you must include a semicolon (;) for each of the missing types.

Custom number format examples

Refer to the following table for examples of commonly used custom number format codes that you can use in your viz.

The syntax has three portions: `<positive number format>;<negative number format>;<zero format>` separated by semicolons.

USE CASE	NUMBER CODE SYNTAX	EXAMPLE OUTPUT
Show only positive values	#,##; ; (note a blank space after the 2nd and 3rd semicolon)	Positive values: 1,234 Negative values: (only the blank space displays) Zero values: (only the blank space displays)
Show only negative values	;-#,##;	Positive values: (nothing displays) Negative values: -1,234 Zero values: (nothing displays)
Show only zero values	;;0;	Positive values: (nothing displays) Negative values: (nothing displays) Zero values: 0
Hide zero values	#,###;-#,###;;	Positive values: 1,234 Negative values: -1,234 Zero values: (nothing displays)
Show negative values in parentheses	#,###;(#,###);;	Positive values: 1,234 Negative values: (1,234) Zero values: (nothing displays)
Add a character prefix to a value	$#,###.##;-$#,###.##;$0;	Positive values: $1,234.56 Negative values: -$1,234.56 Zero values: $0
Add a character suffix to a value	#%;-#%;0%;	Positive values: 12% Negative values: -34% Zero values: 0%

Add text descriptors	"$"#,#" Surplus";"$"-##" Shortage"; "$"0;	Positive values: $1,234 Surplus Negative values: $-1,234 Shortage Zero values: $0

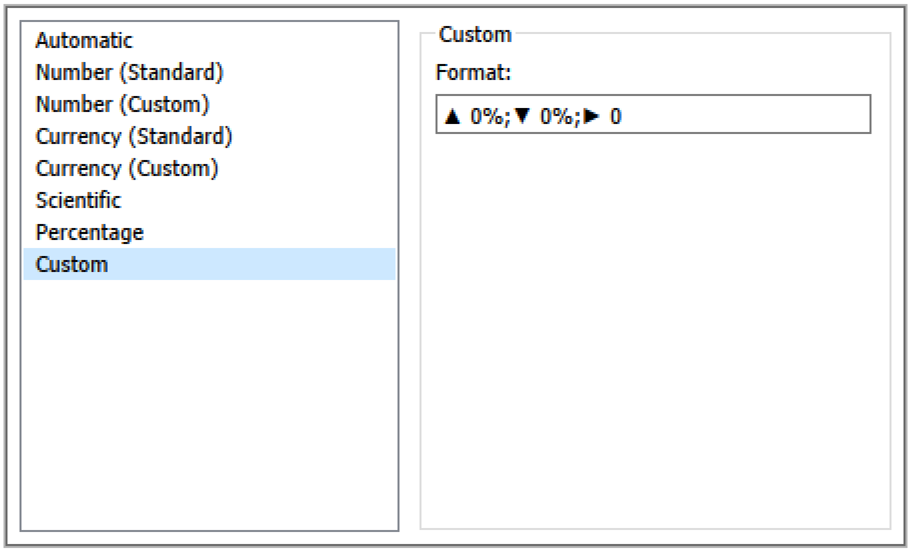
There are several ways to customize your number format to meet your needs. For more code guidance and examples, see Review guidelines for customizing a number format in the Microsoft Knowledge Base.

> **Note:** There are slight deviations between the options described by Microsoft and those available in Tableau. For example, custom number formats that align text within columns aren't relevant in Tableau. Additionally, custom number formats to color code text aren't applicable because you can apply color to text using the Marks card. (For more information on applying color, see Control the Appearance of Marks in the View.) Be sure to only use custom number formats that apply in Tableau.

Include special characters in a custom number format

One of the benefits of custom number formatting is the ability to include special characters or symbols. Symbols can make it easier to quickly understand comparisons between measures and calculations in your viz.

For example, let’s say you want to show a month-over-month comparison of profits for three of your company’s top-selling products. Rather than using the standard label to show that the profit for these products changed +5%, -2%, and 0% label from last month, you can set the custom number format as follows to show these changes as ▲5%,▼2%, and ►0.


Automatic
Number (Standard)
Number (Custom)
Currency (Standard)
Currency (Custom)
Scientific
Percentage
Custom
Custom

Format: ▲ 0%;▼ 0%;► 0

Set the default number format for a field

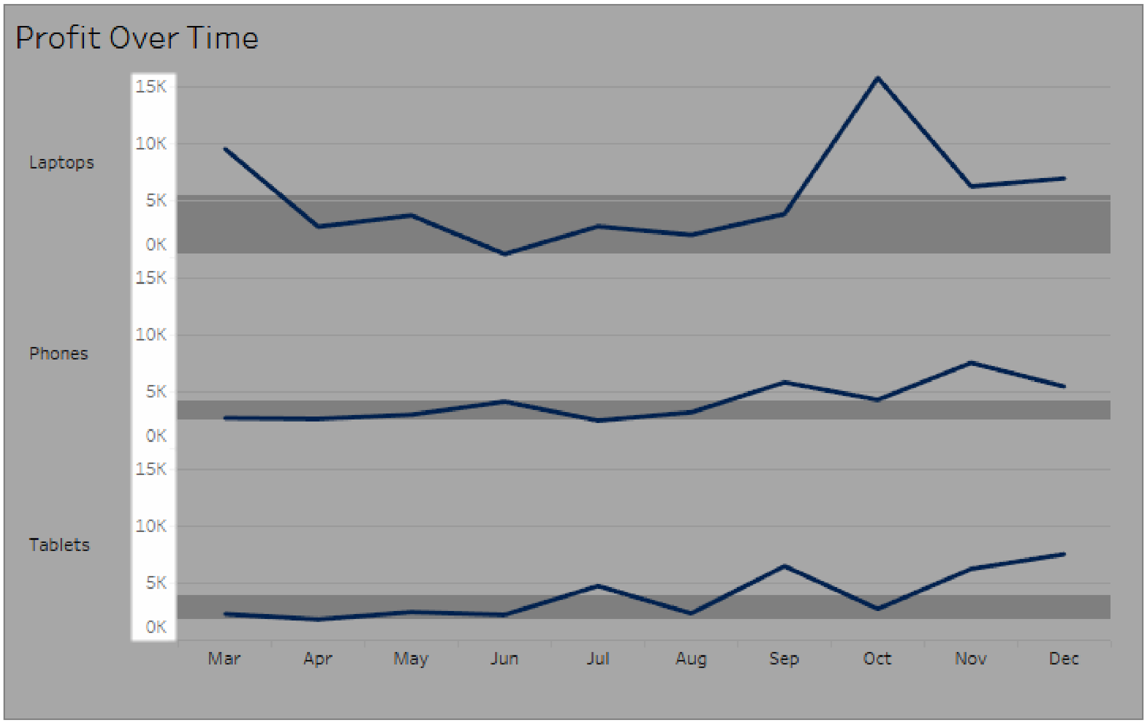
Right-click (control-click on Mac) the field in the **Data** pane and select **Default Properties** > **Number Format**.

In the subsequent dialog box, specify a number format to be used whenever the field is added to the view. The default number format is saved with the workbook. It's also exported when you export the connection information.

Note: Formatting numbers using the **Format** pane overrides any number formatting applied elsewhere.

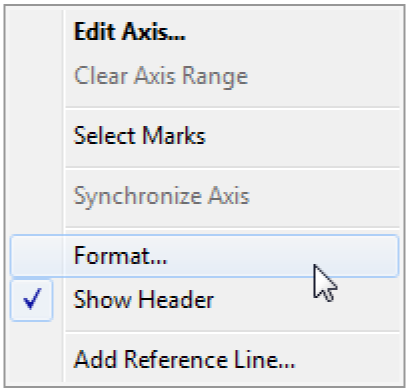
Format a measure as currency

The view in the following image shows profit over time. Notice that the profit figures on the vertical axis aren't formatted as currency.



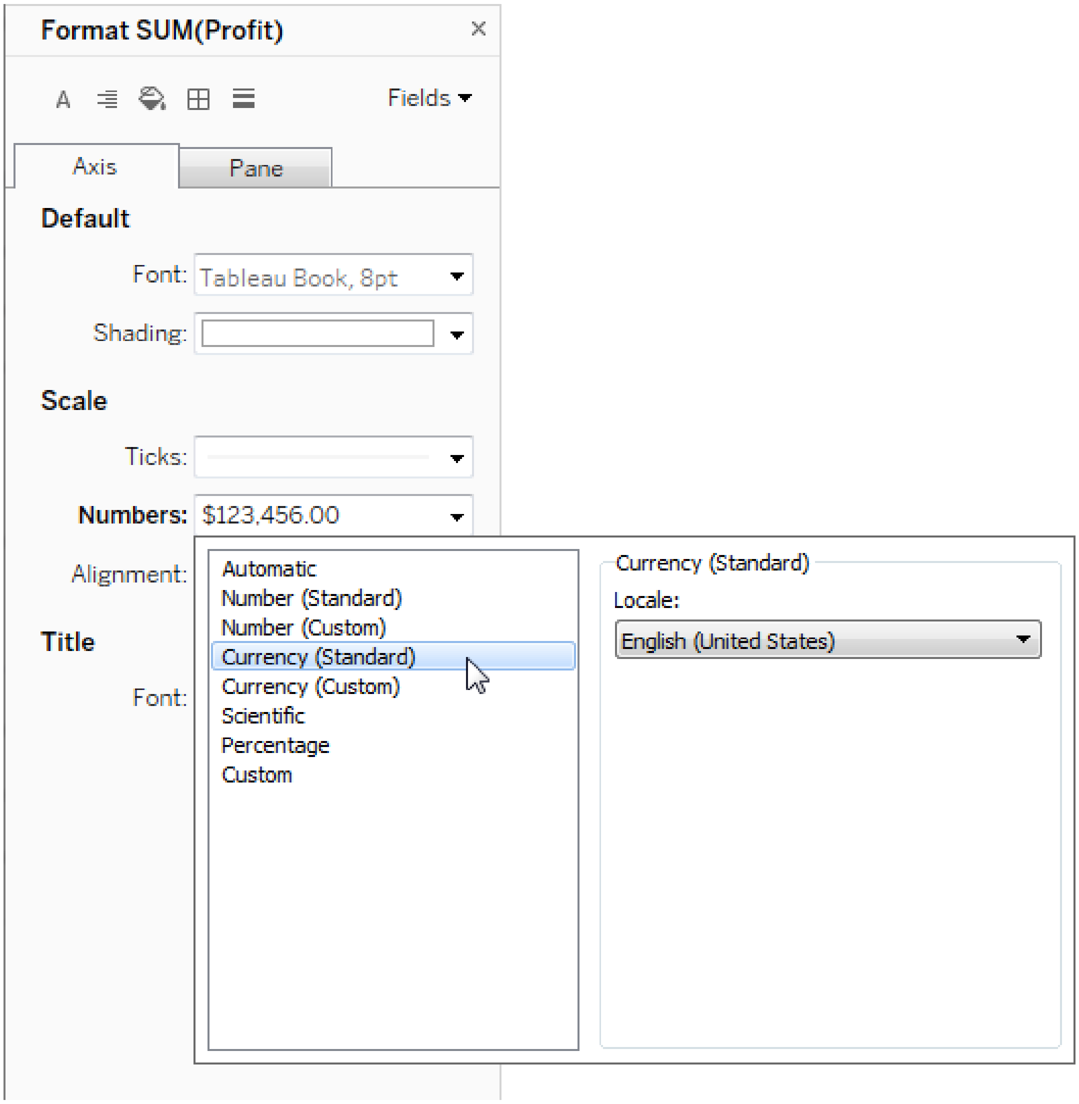
To format the numbers as currency:

1. Right-click the **Profit** axis and choose **Format**.


Edit Axis...
Clear Axis Range
Select Marks
Synchronize Axis
Format...
✓ Show Header
Add Reference Line...

2. On the **Axis** tab in the **Format** pane, under **Scale**, select the **Numbers** drop-down list, and then select one of the following:

   Currency (Standard) to add a dollar sign and two decimal places to the figures.


Format SUM(Profit)
×
Fields
Axis
Pane
Default
Font: Tableau Book, 8pt
Shading:
Scale
Ticks:
Numbers: $123,456.00
Alignment:
Title
Font:
Automatic
Number (Standard)
Number (Custom)
Currency (Standard)
Currency (Custom)
Scientific
Percentage
Custom
Currency (Standard)
Locale:
English (United States)

Currency (Custom) to specify the number of decimal places, how to show negative values, the units, whether to include a prefix or suffix, and whether to include a separator character.

Use locale to specify number formats

By default, Tableau uses your computer's locale and language settings to format numbers. But you can explicitly set a different locale in the **Format** pane.

The following steps show how to set Swiss German currency, using the same view as in the previous section.

1. Right-click the **Profit** axis and select **Format**.
2. On the **Axis** tab, under **Scale**, select the **Numbers** drop-down list and then select **Currency (Standard)**.
3. In the **Locale** drop-down list, items appear in a **Language (Country)** format. For this example, select **German (Switzerland)**. The view updates to show the sales figures as Swiss Francs, formatted for the German language.

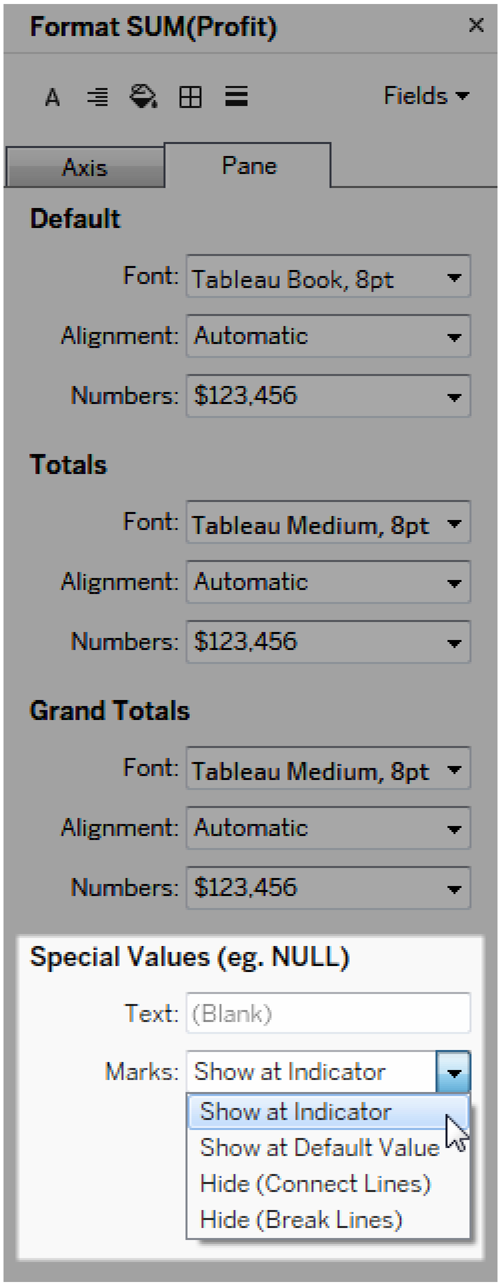
Tip: You can change the default currency setting so that every time you drag the **Profit** measure to a view it uses the settings you want. In the **Data** pane, right-click **Profit** (or other monetary measure), and select **Default Properties** > **Number Format**. Then format the field as shown above.

Format null values

When a measure contains null values, they’re usually plotted in a view as zero. However, sometimes that changes the view and you’d rather just suppress null values altogether. You can format each measure to handle null values in a unique way.

To format null values for a specific field:

1. Right-click the field in the view that has the null value (Control-click on a Mac) and choose **Format**.
2. Go to the **Pane** tab.
3. In the **Special Values** area, specify whether to show the null value using an indicator in the lower right corner of the view, plot it at a default value (such as zero for number fields), hide the value but connect the line, or hide and break the line to indicate that a null value exists.



Format SUM(Profit)

Fields
Axis
Pane

Default

Font: Tableau Book, 8pt

Alignment: Automatic

Numbers: $123,456

Totals

Font: Tableau Medium, 8pt

Alignment: Automatic

Numbers: $123,456

Grand Totals

Font: Tableau Medium, 8pt

Alignment: Automatic

Numbers: $123,456

Special Values (eg. NULL)

Text: (Blank)

Marks: Show at Indicator

Show at Indicator
Show at Default Value
Hide (Connect Lines)
Hide (Break Lines)

4. If you specify text in the **Text** field, it appears in the view for a null value when mark labels are turned on. See Show and Hide Mark Labels.

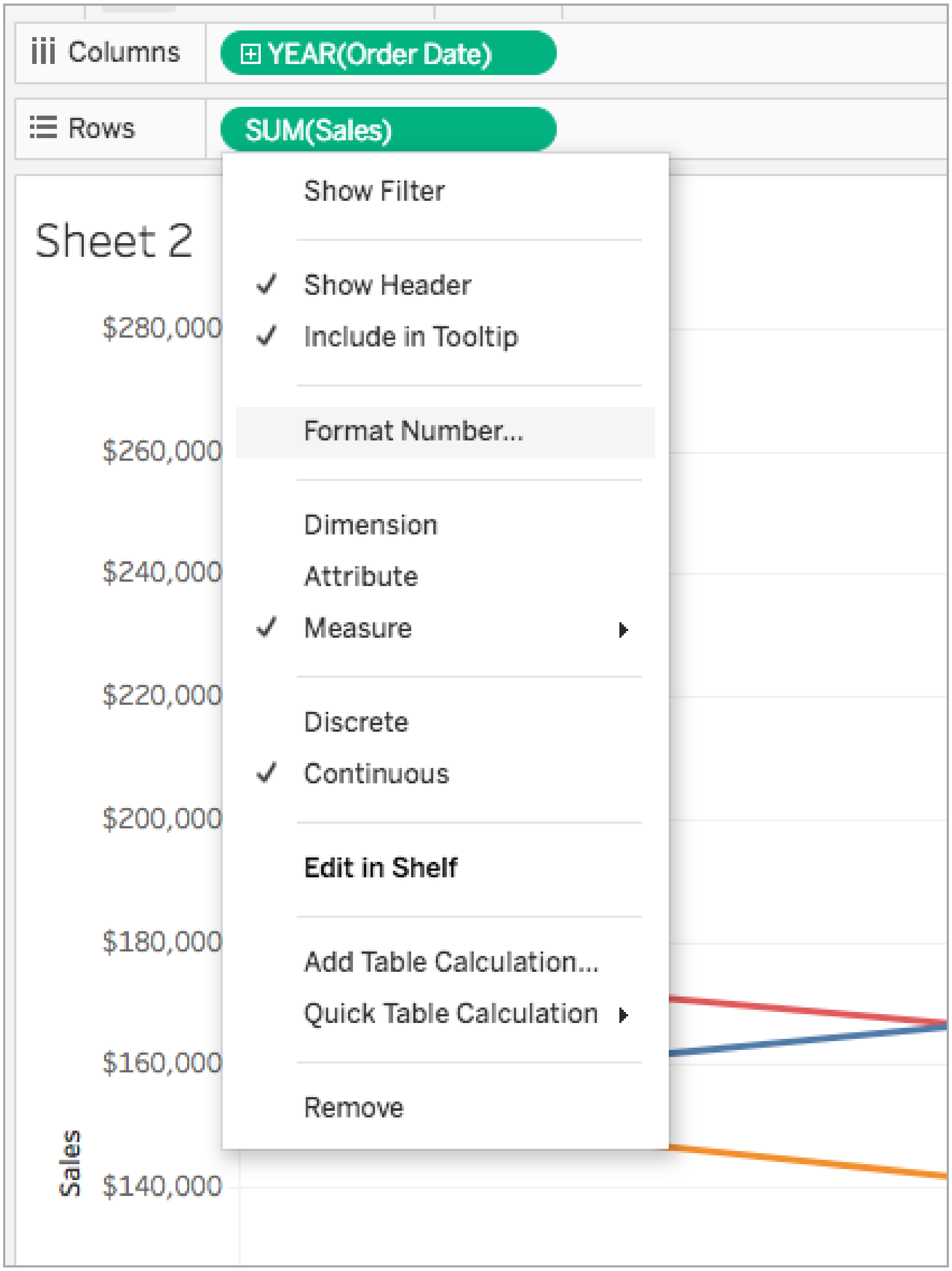
Note: The Special Values area isn't available for dimensions or discrete measures.

For Tableau Server or Tableau Cloud

Specify a number format

When authoring a view on the web, you can specify the number format for a field used in the view.

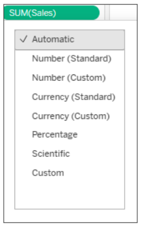
1. In web editing mode, right-click a measure in the view and select **Format Number**.


Columns
YEAR(Order Date)
Rows
SUM(Sales)
Sheet 2
$280,000
$260,000
$240,000
$220,000
$200,000
$180,000
$160,000
$140,000
Sales
Show Filter
✓ Show Header
✓ Include in Tooltip
Format Number...
Dimension
Attribute
✓ Measure
Discrete
✓ Continuous
Edit in Shelf
Add Table Calculation...
Quick Table Calculation
Remove

2. In the dialog box that appears, select a number format.

   Some formats provide additional settings. For example, if you select **Currency**, you can also specify the number of decimal places, as well as the units, and whether or not to include separators, such as commas.

   In this example, Sales is formatted as a Currency with zero decimal places and thousand (k) units. Sales numbers in the view update with these settings. Labels and tooltips update as well.

   
   SUM(Sales)
✓ Automatic
Number (Standard)
Number (Custom)
Currency (Standard)
Currency (Custom)
Percentage
Scientific
Custom

   Here are the number formats and associated options available in Tableau.

NUMBER FORMAT	FORMAT OPTIONS
Automatic: format is automatically selected based on either the format specified by the data source or the data contained in the field.	None.
Number (Custom): format is customized to your choice.	**Decimal Places**: the number of decimal places to display. **Units**: the number is displayed using the specified units. For example, if the number is 20,000 and the units are thousands, the number is displayed as 20K. **Include separators**: whether the number

	shows separators every thousand (example: 100,000 vs. 100000).
Currency (Custom): format and currency symbol is customized to your choice.	**Decimal Places**: the number of decimal places to display. **Units**: the number is displayed using the specified units. For example, if the number is 20,000 and the units are thousands, the number is displayed as 20K. **Include separators**: whether the number shows separators every thousand (example: 100,000 vs. 100000).
Percentage (Custom): numbers are displayed as a percentage with the percent symbol. The value of 1 is interpreted as 100% and 0 as 0%	**Decimal Places**: the number of decimal places to display.
Scientific (Custom): numbers are displayed in scientific notation.	**Decimal Places**: the number of decimal places to display.

Navigate Visualizations with Assistive Technology

Starting in Tableau version 24.3, you can navigate Marks on all online visualization types on Tableau Cloud using a keyboard and other assistive technologies.

Note: Viz navigation isn't currently supported for server-rendered visualizations. To learn more about server and client-side rendering, see Configure Client-Side Rendering.

Navigate marks in a visualization

1. To activate the experience, navigate to a visualization and press **Enter**.
2. Select **Enter** again to navigate the Marks.
3. Use the **Arrow** keys to navigate between headers, columns, and rows.

   If your visualization has a dual axis, or if it's a scatter plot or map, an additional navigation affordance appears. Use the Arrow keys to move the focus to a group of marks and select Enter to navigate the marks in the group.
4. To navigate out of the text table, press **Esc.**

Note: Prior to entering mark-level navigation, you can use the Arrow keys to navigate different areas of the view, such as the header and axis.

Navigate marks in the View Data pane

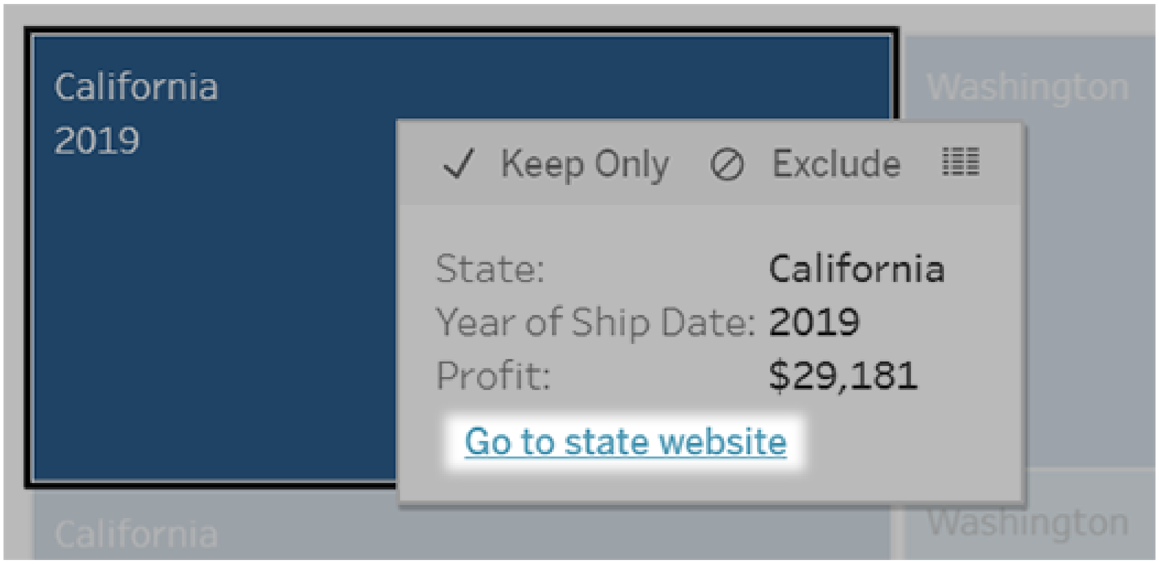
1. To open the View Data pane, move your focus to the viz and press **Shift + Enter**.
2. Use the **Arrow** keys to navigate between headers, columns, and rows.
3. To close the View Data pane, press **ALT + F4** (Windows) or **Cmd + W** (Mac OS).

To learn more about keyboard navigation on Tableau, see Keyboard Accessibility for Tableau Views.

URL Actions

A URL action is a hyperlink that points to a web page, file, or other web-based resource outside of Tableau. You can use URL actions to create an email or link to additional information about your data. To customize links based on your data, you can automatically enter field values as parameters in URLs.

Tip: URL actions can also open in a web page object in a dashboard. See Actions and Dashboards to learn more.



State: California
Year of Ship Date: 2019
Profit: $29,181
Go to state website

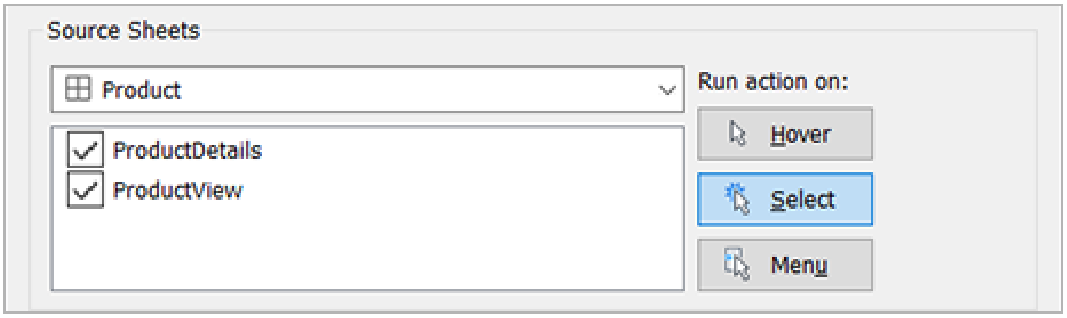
A URL action run from a tooltip menu. The link reflects the action name, not the target URL.

Open a web page with a URL action

1. On a worksheet, select **Worksheet** > **Actions**. From a dashboard, select **Dashboard** > **Actions**.
2. In the Actions dialog box, click **Add Action** and then select **Go to URL**.
3. In the next dialog box, enter a name for the action. To enter field variables in the name, click the **Insert** menu to the right of the **Name** box.

Note: Give the action a descriptive name, because the link text in the tooltip is the name of the action, not the URL. For example, when linking to more product details, a good name could be "Show More Details".

4. Use the drop-down list to select a source sheet or data source. If you select a data source or dashboard you can select individual sheets within it.



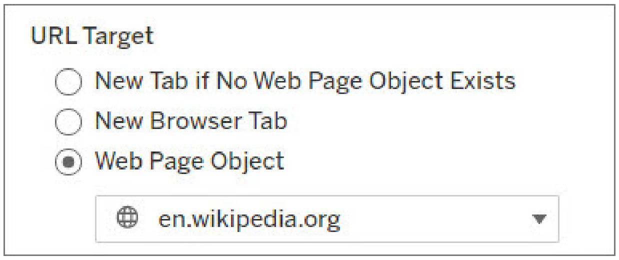
☑ ProductDetails
☑ ProductView

5. Select how users will run the action.

If you choose this option...	The action is run when the user...
Hover	Mouses over a mark in the view. This option works best for highlight actions within a dashboard.
Select	Clicks a mark in the view. This option works well for all types of actions.
Menu	Right-clicks (control-clicks on Mac) a selected mark in the view, then clicks an option in a tooltip (menu). This option works particularly well for URL actions.

6. For URL Target, specify where the link will open:
   - **New Tab if No Web Page Object Exists** — Ensures that the URL opens in a browser on sheets that lack web page objects. This is a good choice when Source Sheets is set to All or a data source.
   - **New Browser Tab** — Opens in the default browser.

- **Web Page Object** — (Available only for dashboards with Web Page objects) Opens in the web page object you select.



URL Target

○ New Tab if No Web Page Object Exists
○ New Browser Tab
● Web Page Object

en.wikipedia.org

> **Note**: For New Tab options, the first time the action is run it opens a new tab. After that, the action will open in the same tab instead of opening additional ones.

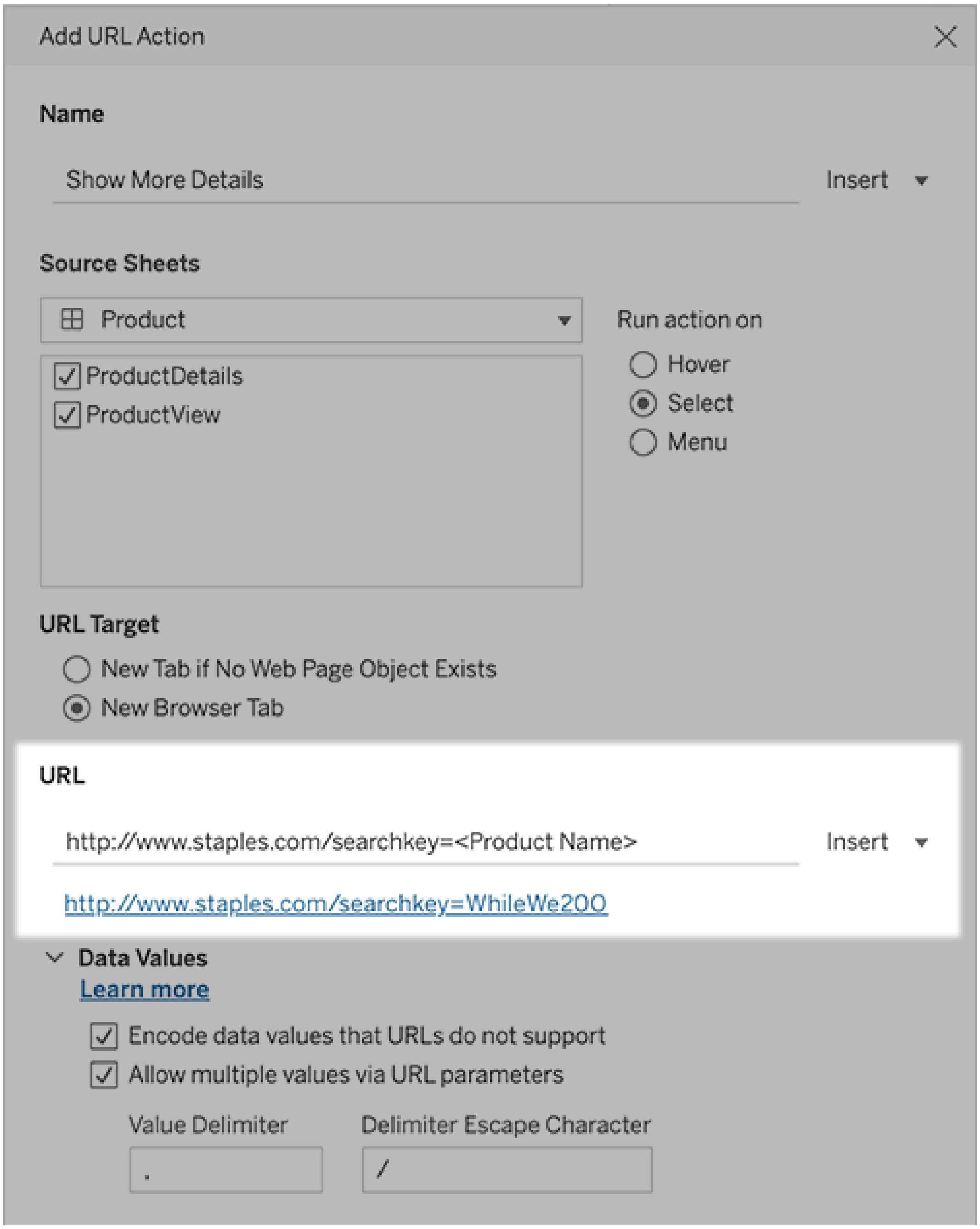
7. Enter a URL
   - The URL should start with one of the following prefixes:`http`, `https`, `ftp`, `mailto`, `news`, `gopher`, `tsc`, `tsl`, `sms`, or `tel`

> **Note**: If no prefix is entered, `http://` is automatically appended to the beginning and the URL action will work in Tableau Desktop. However, if a URL action with no prefix is published to Tableau Server or Tableau Cloud, it will fail in the browser. Always provide a fully qualified URL for actions if the dashboard will be published.

> **Note**: You can specify an ftp address only if the dashboard doesn't contain a web object. If a web object exists, the ftp address won't load.

   - Tableau Desktop also supports local paths like `C:\Example folder-\example.txt`, as well as file URL actions.

- To enter field and filter values as dynamic values in the URL, click the **Insert** menu to the right of the URL. Be aware that any referenced fields must be used in the view. For details, see Using field and filter values in URLs.



Add URL Action

Name

Show More Details

Source Sheets

Product

☑ ProductDetails
☑ ProductView

Run action on
○ Hover
● Select
○ Menu

URL Target
○ New Tab if No Web Page Object Exists
● New Browser Tab

URL

http://www.staples.com/searchkey=<Product Name>

http://www.staples.com/searchkey=WhileWe200

Data Values

☑ Encode data values that URLs do not support
☑ Allow multiple values via URL parameters

Value Delimiter: ,
Delimiter Escape Character: /

Below the URL you enter is a hyperlinked example you can click for testing.

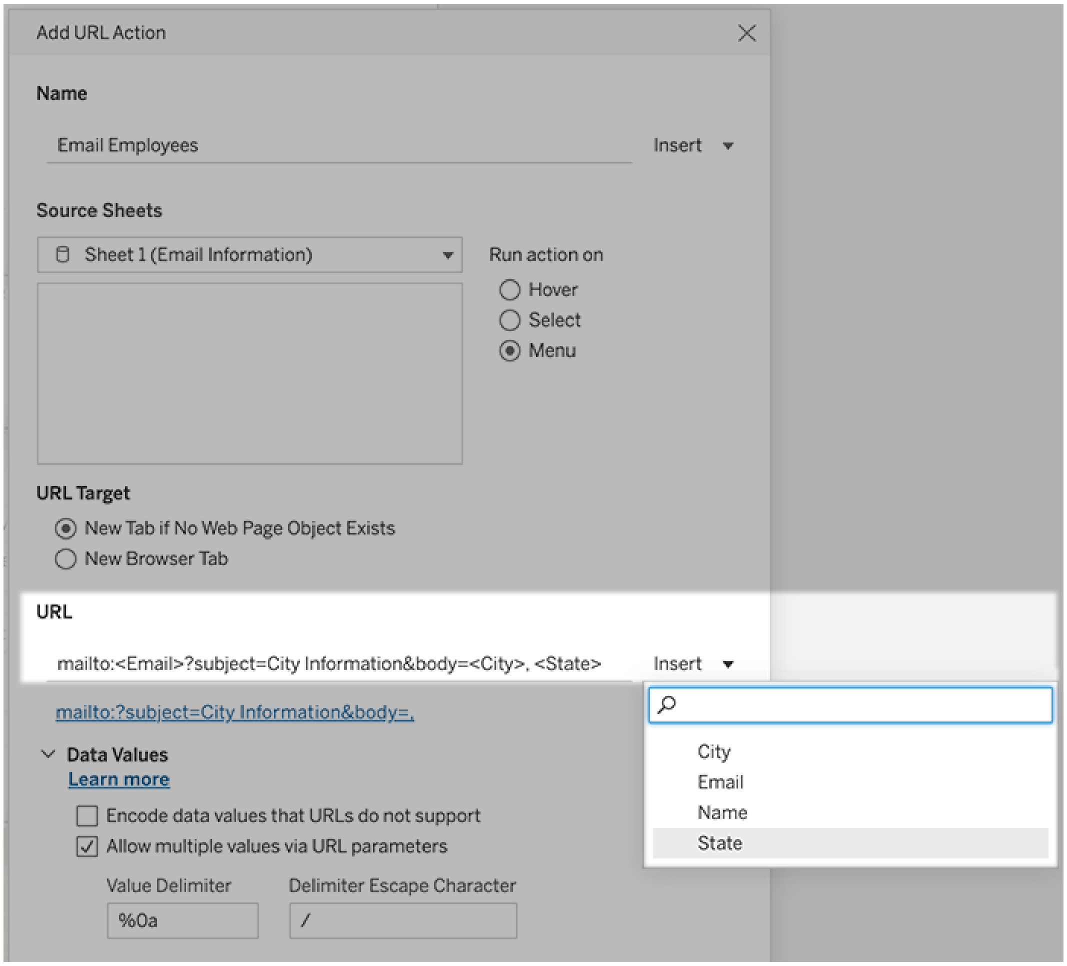
8. (Optional) In the Data Values section, select any of the following options:
   - **Encode Data Values that URLs Do Not Support** — Select this option if your data contains values with characters that browsers don't allow in URLs. For example, if one of your data values contains an ampersand, such as “Sales & Finance,” the ampersand must be translated into characters that your browser understands.
   - **Allow Multiple Values via URL Parameters** — Select this option if you are linking to a web page that can receive lists of values via parameters in the URL. For example, say you select several products in a view and you want to see each product’s details hosted on a webpage. If the server can load multiple product details based on a list of identifiers (product ID or product name), you could use multi-select to send the list of identifiers as parameters.

     When you allow multiple values, you must also define the delimiter escape character, which is the character that separates each item in the list (for example, a comma). You must also define the Delimiter Escape, which is used if the delimiter character is used in a data value.

Create an email with a URL action

1. On a worksheet, select **Worksheet** > **Actions**. From a dashboard, select **Dashboard** > **Actions**.
2. In the Actions dialog box, click **Add Action**, and select **Go to URL**.
3. In the Source Sheets drop-down list, select the sheet that contains the field with the email addresses you want to send to.
4. In the URL box, do the following:
   - Type **mailto:**, and click the **Insert** menu at right to select the data field that contains email addresses.
   - Type **?subject=**, and enter text for the Subject line.
   - Type **&body=**, and click the **Insert** menu at right to select the fields of information that you want to include in the body of the email.

   In the example below, the “Email” field contains the email addresses, the subject is “City Information”, and the body text of the email consists of the city and state data that is associated with the email address.


Add URL Action

Name

Email Employees

Source Sheets

Sheet 1 (Email Information)

Run action on
○ Hover
○ Select
● Menu

URL Target
● New Tab if No Web Page Object Exists
○ New Browser Tab

URL

mailto:<Email>?subject=City Information&body=<City>, <State>

mailto:?subject=City Information&body=,

Data Values
Learn more

☐ Encode data values that URLs do not support
☑ Allow multiple values via URL parameters

Value Delimiter: %0a
Delimiter Escape Character: /

:

5. (Optional) Display data from your workbook in the body of your email as a vertical list instead of the default horizontal list. For example, suppose you have a horizontal list of cities, such as Chicago, Paris, Barcelona, which you would rather display vertically, like this:

   Chicago
   Paris
   Barcelona

   To make the list vertical, in the Data Values section, do the following:

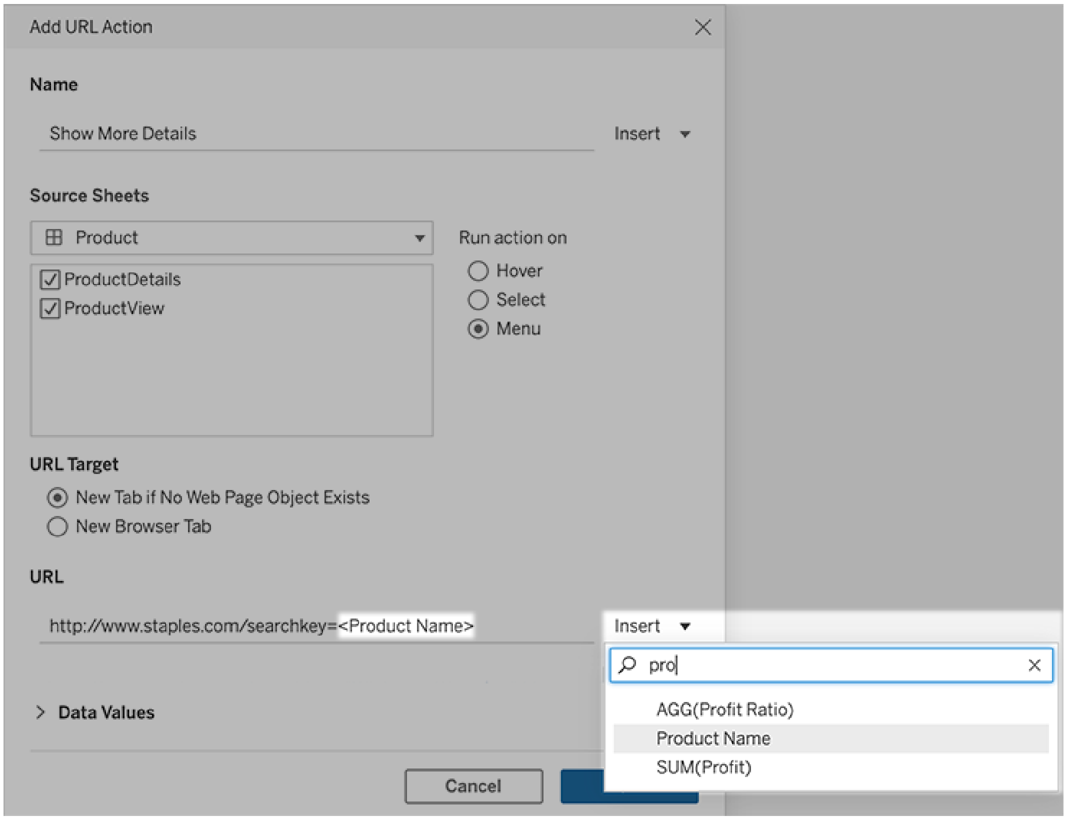
- Deselect **Encode Data Values that URLs Do Not Support**
- Select **Allow Multiple Values via URL Parameters**.
- Type **%0a** in the **Value Delimiter** text box to add line breaks between each item in the list. (These are the URL-encoded characters for a line break.)

Using field and filter values in URLs

When users trigger URL actions from selected marks, Tableau can send field, filter, and parameter values as variables in the URL. For example, if a URL action links to a mapping website, you could insert the address field to automatically open the currently selected address on the website.

1. In the Edit URL Action dialog box, begin typing the URL for the link.
2. Place the cursor where you want to insert a field, parameter, or filter value.
3. Click the **Insert** menu to the right of the text box and select the field, parameter, or filter you want to insert. The variable appears within angle brackets. You can continue adding as many variables as you need.

   > **Note:** Any referenced fields must be used in the view. Otherwise, the link won't display in the viz, even if it functions when you click Test Link.



Add URL Action

Name

Show More Details

Source Sheets

Product

☑ ProductDetails
☑ ProductView

Run action on

○ Hover
○ Select
● Menu

URL Target

● New Tab if No Web Page Object Exists
○ New Browser Tab

URL

http://www.staples.com/searchkey=<Product Name>

pro

AGG(Profit Ratio)
Product Name
SUM(Profit)

Including aggregated fields

The list of available fields includes only non-aggregated fields. To use aggregated field values as link parameters, first create a related calculated field, and add that field to the view. (If you don't need the calculated field in the visualization, drag it to Detail on the Marks card.)

Inserting parameter values

When inserting parameter values, URL actions send the Display As value by default. To instead send the actual value, add the characters `~na` after the parameter name.

For example, say you have a parameter that includes IP addresses, with Actual Value strings such as 10.1.1.195 and Display As strings with more friendly values such as `Computer A (10.1.1.195)`. To send the actual value, you'd revise the parameter in the URL to look like this: `http://<IPAddress~na>/page.htm`.

Recycle Bin

The Recycle Bin allows Site Administrators, Server Administrators, and authors with Explorer (can publish) or Creator licenses to restore previously deleted projects, workbooks, and data sources.

You can access the Recycle Bin from the Home page of your Tableau site. Expand the side pane, and then select **Recycle Bin**. If you don’t see Recycle Bin, the feature must be turned on by your administrator.

What content is stored in the Recycle Bin?

When the Recycle Bin is turned on, the following content types will temporarily move to the Recycle Bin after deletion:

- Workbooks (including revision history, views, embedded credentials, embedded data sources, and extracts)
- Data sources (including extracts and embedded credentials)
- Projects (including contained workbooks and data sources)

However, when you delete and restore workbooks, data sources, and projects, some elements of the original content will be lost, including:

- Custom views
- Subscriptions
- Data-driven alerts
- Permissions
- Aggregated statistics about the deleted item (view and usage counters)

- Tags
- Favorite information (if the item was favorited)

Tip: If you don’t see something that you expect to be in the Recycle Bin, verify that the correct **Content Type** is selected.

Content: Notes and best practices

- When deleted, supported content types keep their original names. The Restore action will fail if the project you restore to already has an item with the same name. To resolve this issue, restore into a different project, rename the just-restored content, and then move the content into the desired location.
- Workbooks and data sources stored in the Recycle Bin still take up space on a site. If a workbook or data source uses an extract, that extract size is still counted against the site quota.
- When deleted, supported content types do not change their owner. Users who originally owned content are still considered to be an owner.
- On restore, restored Items will take on the default permissions set for the container that you restore to. When restoring critical content, the operating user should verify that permissions are set as necessary. The Restore operation will not restore original content permissions.

Projects: Notes and best practices

Projects can contain a variety of content or nested projects. Note the following about projects when the Recycle Bin is turned on.

Note: Recycle Bin respects hierarchy for nested projects on the original delete action and when restoring content. For example, you can delete an entire project branch from the root project to send the root and all nested projects to the Recycle Bin, and you can restore an entire project branch from the Recycle Bin if you restore the root project (and all of the nested projects are still in the Recycle Bin). However, hierarchy is not respected when you delete content from the Recycle Bin. To delete all of the projects from an original project branch from the Recycle Bin, you'll need to delete each project individually.

Example project: Project A includes 2 workbooks (A and B), a data source, and a flow.

- When a project is initially deleted and sent to the Recycle Bin, all content from that project that is compatible with the Recycle Bin is stored individually. For Project A, you'll see a project, Workbook A, Workbook B, and a data source in the Recycle Bin. Other types of content, like flows, are deleted immediately and can't be recovered.
- All compatible content from a project can be restored or deleted individually. For example, you can permanently delete Workbook A from Project A, leaving only a project, Workbook B, and the data source in the Recycle Bin.
- If you restore a project, all compatible content that is still stored in the Recycle Bin at the time will also be restored. For Project A, if you've already deleted Workbook A and then restore Project A, the project will restore with only Workbook B and a data source.
- If you delete a project from the Recycle Bin, only the project is deleted. For example, if you delete Project A from the Recycle Bin, Workbook B and the data source remain in the Recycle Bin until they are individually deleted, restored, or until the storage time expires.

Example project: Project A includes Workbooks A, Workbook B, a data source, and a nested Project B that includes Workbook C.

- If a deleted project contains nested projects, any nested projects that are still stored in the Recycle Bin at the time will be restored if the top-level project is restored. For example, restoring the root Project A restores the top-level Project A, Workbook B, a data source, Project B, and Workbook C to the selected restore location

- Nested projects in the Recycle Bin can be restored independently from their top-level project. If a nested project is restored independently, and then the top-level project is later restored, the top-level project restores without any content from the nested project. For example, if you restore Project B independently and then later restore Project A, Project A will restore with the top-level project, Workbook B, and the data source. The restored Project B will no longer be nested within Project A.

Example project: Project 1 (P1) is a project branch that includes 4 nested projects (P2-P3-P4-P5).

Scenario: You initially delete P1 and send the whole branch (the root P1 and the nested P2-P3-P4-P5 to the Recycle Bin.

- From the Recycle Bin, you can delete any individual project from the original hierarchy (P1-P2-P3-P4-P5).
- Deleting nested projects from the Recycle Bin will disrupt the original project hierarchy.
    - If you delete P3, P1, P2, P4, and P5 remain in the Recycle Bin, however P4 is no longer connected to P2. The original single project branch is now divided into two branches: P1-P2 and P4-P5.
    - With P3 deleted, if you then restore P1, the Restore action will also restore P2, but will leave P4 and P5 in the Recycle Bin.
    - With P3 deleted, if you restore P4, the Restore action will also restore P5, as P4 is now considered the root for P5.vvv
    - You can restore any of the originally-nested projects individually.
- You can’t remove a whole project hierarchy from the Recycle Bin. You must delete each project individually.

Restore content from the Recycle Bin

You can restore content from the Recycle Bin to a project within the storage time frame configured by the administrator.

1. From the Home page, expand the side pane, and then select **Recycle Bin**.
2. For **Content Type**, select **Workbooks**, **Projects**, or **Data Sources**.
3. Select the **More actions** menu for the content that you want to restore, and then select **Restore**.
4. Select a project as the restore location.
5. Select **Restore**.

Delete content from the Recycle Bin

You can permanently delete content from the Recycle Bin before the end of the storage time frame configured by the administrator. This action can’t be undone.

1. From the Home page, expand the side pane, and then select **Recycle Bin**.
2. For **Content Type**, select **Workbooks**, **Projects**, or **Data Sources**.
3. Select the **More actions** menu for the content that you want to permanently delete, and then select **Delete**.
4. Select **Delete**.

Turn on the Recycle Bin

Administrators can turn on the Recycle Bin for a Tableau site in the Tableau site settings.

1. From the General tab, scroll to the Recycle Bin section.
2. Select the checkbox for **Allow Recycle Bin for this site**.

3. Select the number of days that the content is stored in the Recycle Bin. You can choose 1, 7, or 30 days.

   Important: Content is permanently deleted after the selected number of days.

4. Select **Save**.

Turn off the Recycle Bin

Warning: If an administrator turns off the Recycle Bin, any content stored in the Recycle Bin will be permanently deleted.

Administrators can turn off the Recycle Bin for a Tableau site in the Tableau site settings.

1. From the General tab, scroll to the Recycle Bin section.
2. Clear the checkbox for **Allow Recycle Bin for this site**.
3. Select **Save**.

Contact your administrator

The Recycle Bin can only be turned on and configured by a Tableau Site Administrator or Server Administrator. To see contact information for your administrator, from the Home page, select the **Show help menu** icon, and then select **Contact Tableau Administrator**.

Create a Subscription to a View or Workbook

Subscriptions email you an image or PDF snapshot of a view or workbook at regular intervals—without requiring you to sign in to Tableau Cloud.

Note: If Tableau Catalog is turned on for a site, administrators can determine whether subscription emails include relevant upstream data quality warnings. Tableau Catalog is available as part of the Data Management offering. For more information, see About Tableau Catalog.

Tableau Cloud SMTP addresses

To ensure subscription emails are delivered successfully, confirm that security software and policies in your company allow emails from `@cloudmail.tableau.com` and IP addresses 54.240.86.205, 54.240.86.204, 54.240.119.142, and 54.240.119.141. Subscriptions that cannot be delivered may return rejection errors to Tableau and temporarily block the recipient.

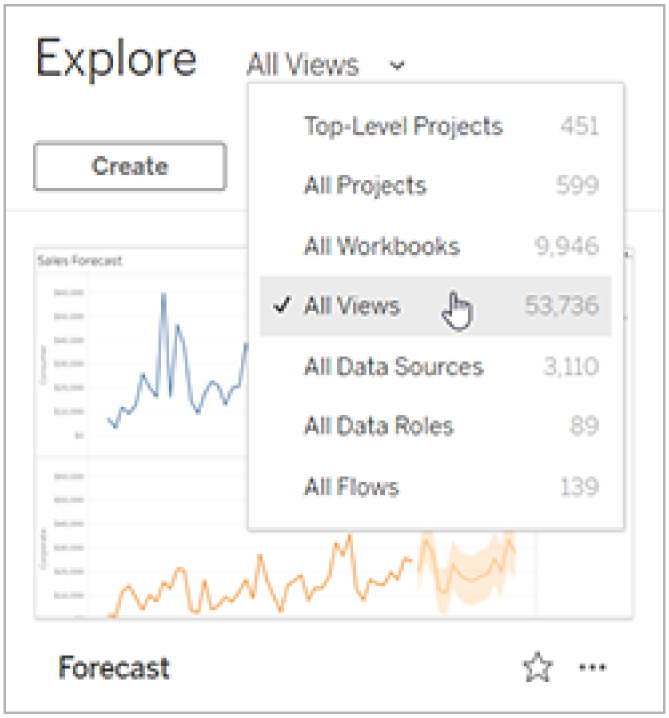
This information applies to subscriptions sent using the default Tableau email server. To verify if your Tableau site uses a custom SMTP server, check with your site administrator. If a custom SMTP server is used, confirm that your company allows emails sent from the specified email and domain values.

Set up a subscription for yourself or others

When you open a view in Tableau Cloud, if you see a subscription icon (✉+) in the toolbar, you can subscribe to that view or to the entire workbook. You can subscribe other users who have permission to view the content if you own a workbook, if you are a project leader with an appropriate site role, or if you are an administrator.

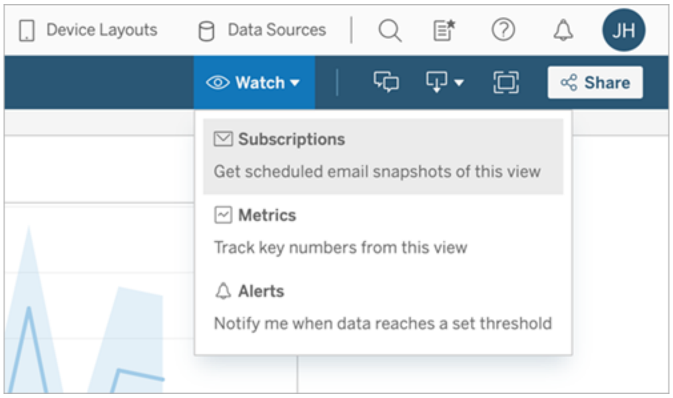
Note: Data refresh-initiated subscription emails are not supported for views or workbooks that rely on data sources that use Bridge to keep data fresh.

1. From the Explore section of your site, select **All Workbooks** or **All Views**, or open the project that contains the view you want to subscribe to.


Explore
All Views
Create
Top-Level Projects 451
All Projects 599
All Workbooks 9,946
✓ All Views 53,736
All Data Sources 3,110
All Data Roles 89
All Flows 139
Sales Forecast
Forecast

2. Open a view either directly, or after opening the containing workbook.

3. On the view toolbar, select **Watch** > **Subscriptions**.


Device Layouts
Data Sources
JH
Watch
Share

Subscriptions
Get scheduled email snapshots of this view

Metrics
Track key numbers from this view

Alerts
Notify me when data reaches a set threshold

4. Add the Tableau users or groups you want to receive the subscription. To receive a subscription, users must have the View and Download Image/PDF permissions.

   If you own the workbook, select **Subscribe me**.

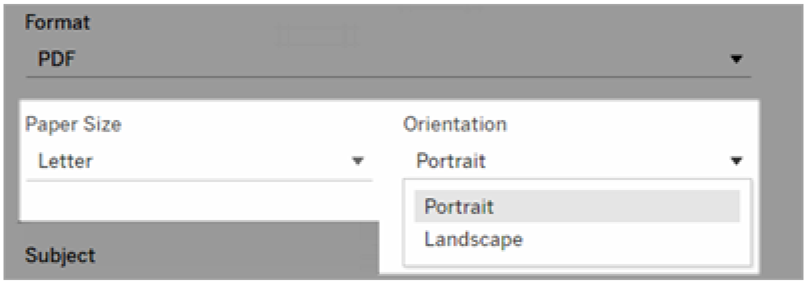
Notes:

- When you subscribe a group, each user is added individually at the time the subscription is created. If more users are added to the group later, you must re-subscribe the group for those new users to receive the subscription. Likewise, users later removed from the group will not have their subscriptions removed automatically unless their permissions to the subscribed view are removed.
- You can't subscribe a group set.

5. Choose whether subscription emails include the current view or the entire workbook. If the view contains data only when high-priority information exists, select **Don't send if view is empty**.

6. Choose the format for your snapshot: as a PNG image, a PDF attachment, or both.

   - If PDFs, choose the paper size and orientation you'd like to receive.



Format
PDF

Paper Size
Letter

Orientation
Portrait

7. To clarify subscription emails, customize the subject line, and add a message.

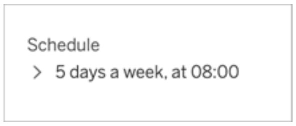
   Note: To update the subscription message, you must unsubscribe from the existing subscription and create a new subscription with a different message. For more information, see Update or unsubscribe from a subscription.

8. When the workbook uses one data extract on a published connection, you can pick a frequency:

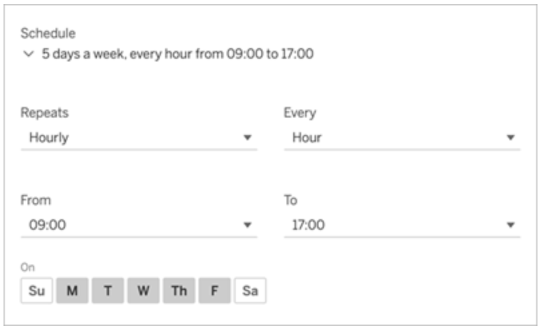
   - **When Data Refreshes**: Sends only when data in the view or workbook is refreshed by running refresh schedules.

- **On Selected Schedule**: Pick a schedule for the subscription.

9. If frequency is not set to When Data Refreshes, click the drop-down arrow to the left of the current settings to pick a schedule:

   
   Schedule
   5 days a week, at 08:00

   Then specify a custom schedule that sends subscription emails whenever you wish. (The precise delivery time may vary if server load is high.)

   
   Schedule
   5 days a week, every hour from 09:00 to 17:00
   Repeats
   Hourly
   Every
   Hour
   From
   09:00
   To
   17:00
   On
   Su
   M
   T
   W
   Th
   F
   Sa

   To change the time zone, click the Time Zone link it to go to your account settings page.

10. Click **Subscribe**.

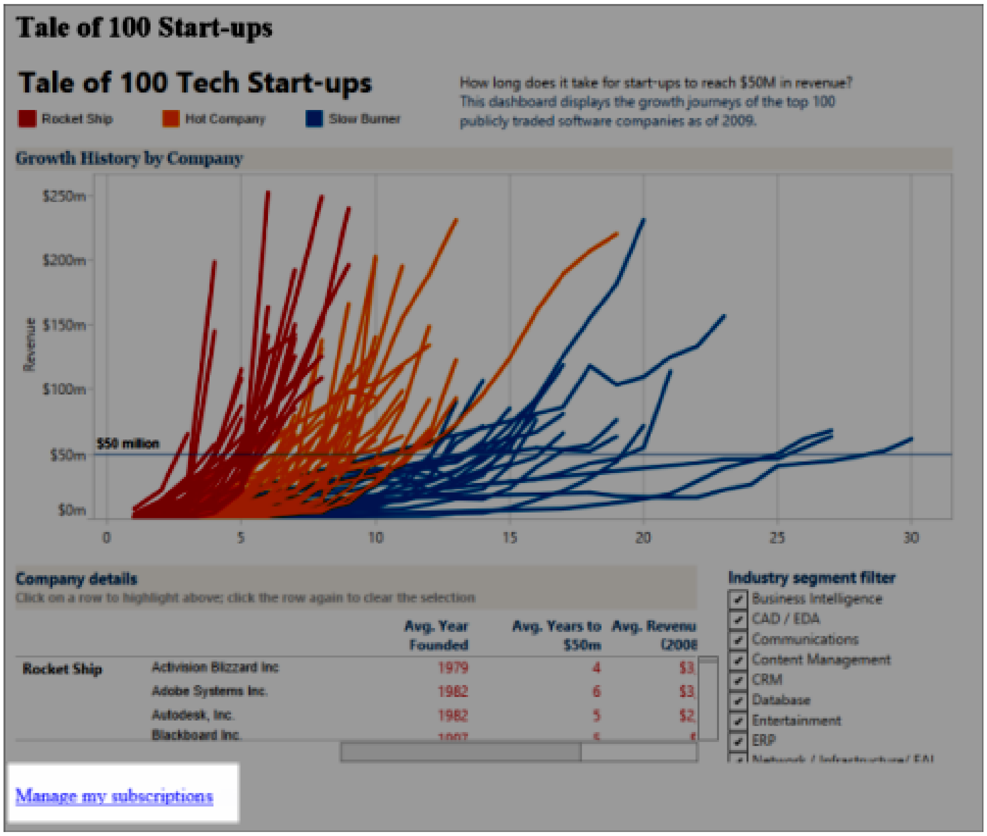
When you receive a subscription email, you can select the image (or the link in the message body for PDF subscriptions) to be taken to the view or workbook in Tableau Cloud.

Update or unsubscribe from a subscription

You can unsubscribe from an existing subscription, or make changes to a subscription’s format, schedule, subject, or empty view mode.

1. Access your Tableau Cloud account settings by doing one of the following:

   - Click **Manage my subscriptions** at the bottom of a subscription email.


Tale of 100 Start-ups
Tale of 100 Tech Start-ups
Rocket Ship
Hot Company
Slow Burner
Growth History by Company
Revenue
$250m
$200m
$150m
$100m
$50m
$0m
$50 million
0
5
10
15
20
25
30
Industry segment filter
Business Intelligence
CAD / EDA
Communications
Content Management
CRM
Database
Entertainment
ERP
Manage my subscriptions

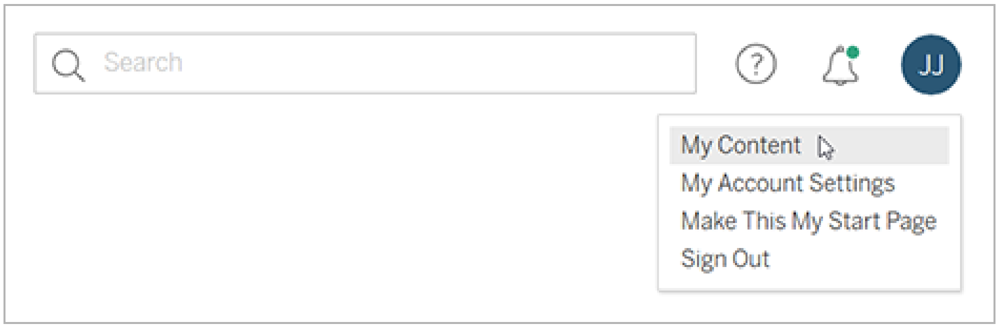
How long does it take for start-ups to reach $50M in revenue? This dashboard displays the growth journeys of the top 100 publicly traded software companies as of 2009.

Company details

Click on a row to highlight above; click the row again to clear the selection

		Avg. Year Founded	Avg. Years to $50m	Avg. Revenu (2008
Rocket Ship	Activision Blizzard Inc	1979	4	$3
	Adobe Systems Inc.	1982	6	$3
	Autodesk, Inc.	1982	5	$2
	Blackboard Inc.			

   - Sign in to Tableau Cloud. At the top of the page, select your user icon, and then select **My Content**.


Search
JJ
My Content
My Account Settings
Make This My Start Page
Sign Out

2. Click **Subscriptions**.
3. Select the check box next to the view you want to unsubscribe from, click **Actions**, and then click **Unsubscribe**, or select the subscription option you'd like to change.

Resume or delete suspended subscriptions

Sometimes, subscriptions fail because of an issue with the workbook or a problem loading the view. If a subscription fails more than five times, you'll receive a notification email that your subscription has been suspended. There are a few ways to resume a suspended subscription if you're a subscription owner or administrator:

- From the My Content area of Tableau web pages, an icon appears in the Last update column to indicate that the subscription is suspended. Select **...** > **Resume Subscription** to resume.
- From the Subscriptions tab of the affected workbook, an icon appears in the last update column to indicate that the subscription is suspended. Select **...** > **Resume Subscription** to resume.

You'll receive an email notification when the subscription is working again.

See also

Change subscription settings in the Tableau Desktop and Web Authoring Help.

Project-level administration in the Tableau Cloud Help, to learn which site roles allow full Project Leader capabilities.

Use Custom Views

A custom view is a shortcut to a specific state of interaction, such as filter selections and sorting, for a published viz. Custom views don't impact the underlying content. They're a good option if you find yourself adjusting the same filters or zooming into the same data every time you look at a viz.

Custom views aren't the same as web editing, which changes the underlying published content itself. See Edit Tableau Views on the Web.

If the custom views are specifically for filter settings, consider using embedding filter parameters in a shared URL. See Filter a published dashboard by editing the URL from The Data School.

Notes on custom views

- A custom view doesn't modify the content it's built on.
- Deleting the original content deletes its custom views.
- If the original content is updated or republished, the custom view is also updated.

  Tip: Some changes to the original content can break the custom view. See Maintain Content with Custom Views for best practices on modifying content with custom views.

- If a user is removed from the site, any shared custom views they owned are also lost.
- Subscriptions and data-driven alerts based on custom views may be more fragile than those based on the original content.

Note: As of the 2022.3 release, Tableau replaced user names in the custom view URL with IDs. Bookmarked URLs still work but are redirected to the new URL schema. This change is to add more company and user data protection.

Create a custom view

Start by navigating to the individual view. Make whatever changes you want to capture in the custom view, such as selecting marks, filtering data, or changing sorts.

1. When you’re ready to save the changes you’ve made as a custom view, select **Save Custom View** from the toolbar.

> **Note**: The **Save Custom View** button appears in the toolbar after any changes are made to the current view.

2. In the **Save Custom View** dialog, enter a name for the custom view.
3. (Optional) Select **Make it my default**.
4. (Optional) Select **Make visible to others**. This makes the custom view available to everyone who can see the original content. However, there are several instances when this option isn't available:
    - The user is a Viewer site role.
    - The site's User Visibility setting is set to Limited.
    - The permission capability Share Customized is denied on the workbook.
5. Click **Save**.

Find a custom view

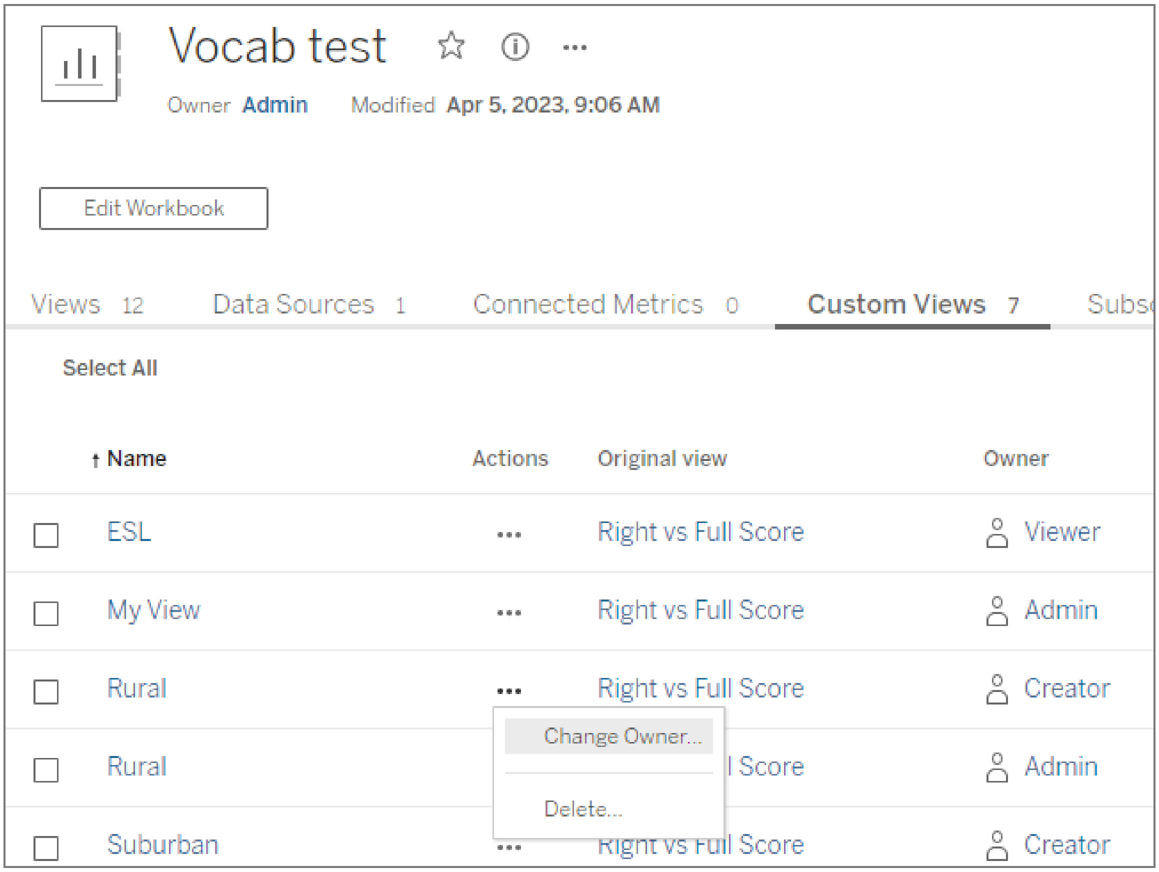
From a view

When you're looking at a viz, you can change to a different custom view by selecting the View icon in the toolbar. If there's room in the toolbar, the name of the custom view you're looking at is shown.

Any custom views you've made, and all visible custom views made by other users, appear in the list.

From the workbook

When you're looking at content at the workbook level, use the **Custom Views** tab to see all the available custom views for that workbook.



Vocab test

Owner **Admin** Modified **Apr 5, 2023, 9:06 AM**

Edit Workbook
Views 12
Data Sources 1
Connected Metrics 0
Custom Views 7
Subs
Select All

	↑ Name	Actions	Original view	Owner
☐	ESL	•••	Right vs Full Score	Viewer
☐	My View	•••	Right vs Full Score	Admin
☐	Rural	•••	Right vs Full Score	Creator
☐	Rural		l Score	Admin
☐	Suburban	•••	Right vs Full Score	Creator

Change Owner...
Delete...

Set a default custom view

After you've found or made a custom view, you make it the default you see when you open that viz.

1. Select the **View** icon in the toolbar.
2. Check the **Set this view a your default** option.
3. Close the dialog to save.

The next time you open that viz, you'll land on that custom view.

Share a custom view

By default, custom views are private and only appear for the user who created them.

Note: Users with a Viewer site role can't make custom views visible to others. However, they can share a custom view by copying and sharing the URL.

Users with a site role of Explorer or higher can set a custom view as visible to others. This setting allows anyone with access to the original content to see the custom view.

To change an existing private custom view to be visible to others (or to make a visible view private):

1. Select the **View** icon in the toolbar.
2. Toggle the eye icon to the view you want to share to the desired state.
3. Close the dialog to save.

The eye with a slash indicates the view is private to you. The eye indicates the view is visible to others.

Delete a custom view

To delete a custom view:

1. Select the **View** icon in the toolbar.
2. Select the trash icon of the view you want to delete.
3. Confirm that you want to delete the view.

Take care when deleting

If you're the owner of a custom view that's visible to others, remember it's deleted for everyone if you delete it.

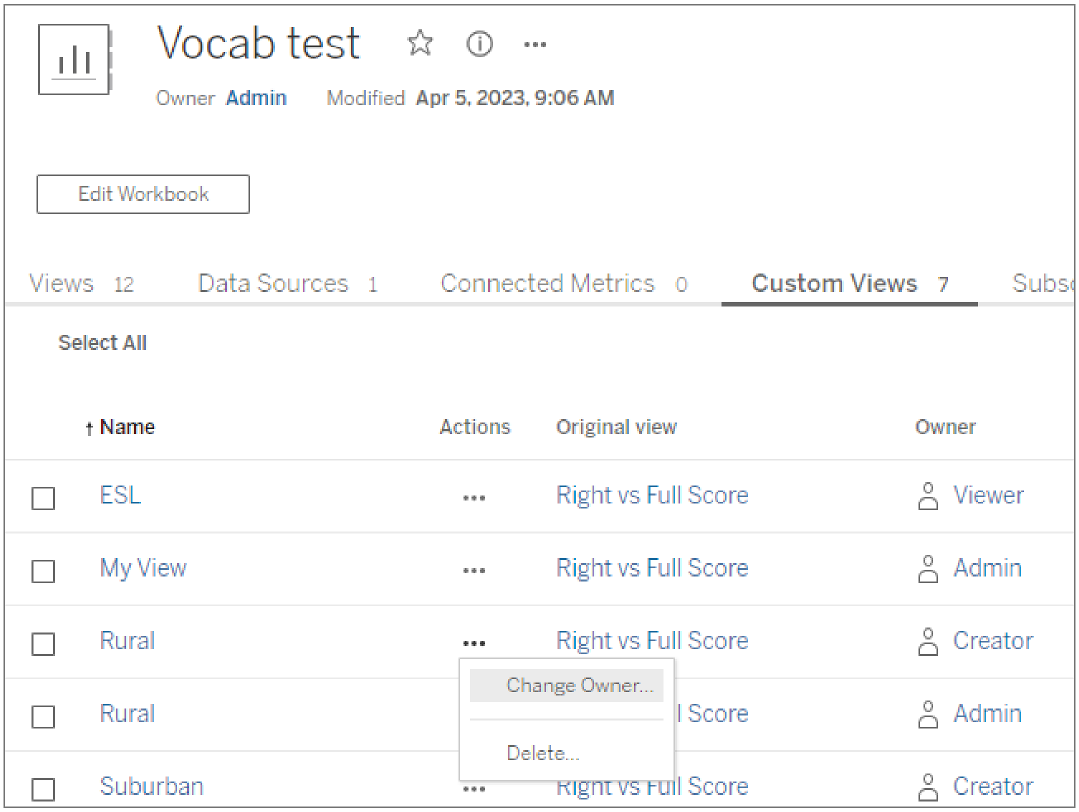
Deleting a custom view also deletes any subscriptions or data-driven alerts based on that custom view.

Manage custom views

Administrators can change ownership for custom views and delete custom views created by other users.

Custom views can be managed for a piece of content or for a specific user.

1. Go to the Custom Views tab for the workbook or user.
2. Use the action menu to change the owner or delete the custom view.


Vocab test
Owner Admin
Modified Apr 5, 2023, 9:06 AM
Edit Workbook
Views 12
Data Sources 1
Connected Metrics 0
Custom Views 7
Subs
Select All
Change Owner...
Delete...

	Name	Actions	Original view	Owner
☐	ESL	•••	Right vs Full Score	Viewer
☐	My View	•••	Right vs Full Score	Admin
☐	Rural	•••	Right vs Full Score	Creator
☐	Rural		l Score	Admin
☐	Suburban	•••	Right vs Full Score	Creator

Tip: It's a best practice to change ownership of any custom views belonging to a user before removing them from the site. Deleting a user also deletes their custom views, including public views others may be using.

Safely change content with custom views

If you need to modify a view that has custom views (or the data source the view is built on), be aware that certain changes can break custom views. For more information, see Maintain Content with Custom Views.

Publish Views to Salesforce

Bring your views from Tableau Cloud or Tableau Server right to your Salesforce ecosystem by publishing views to a CRM Analytics app or Salesforce Lightning page.

For more information, see Publish Tableau Content to CRM Analytics in Salesforce Help.

Prerequisites

See a complete list of prerequisites in Salesforce Help, including required licenses, account setup, and permissions.

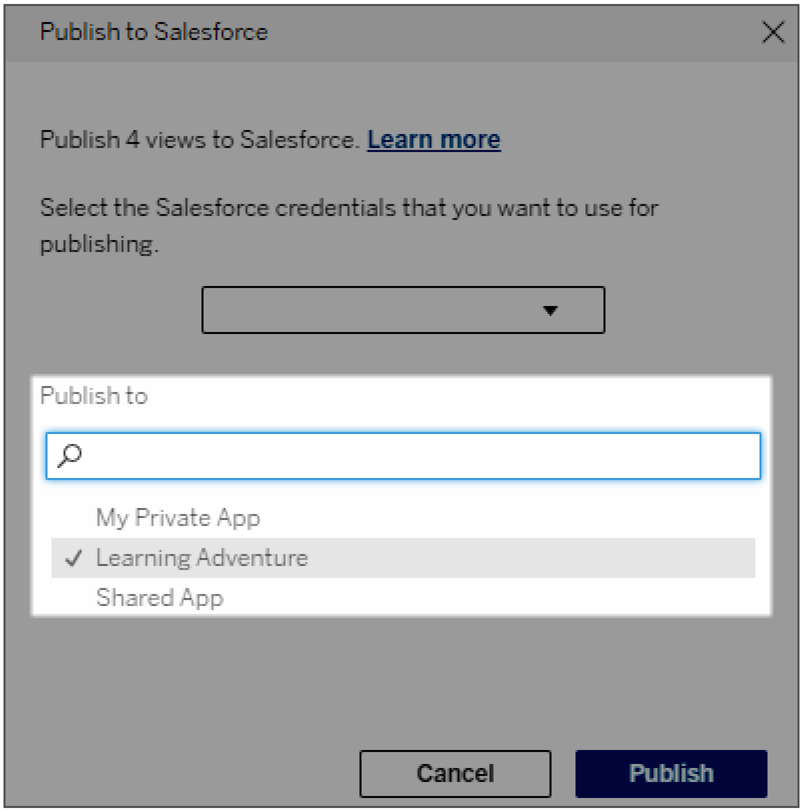
Publish a view to Salesforce

Select one or more views, including dashboards, sheets, and stories. Then, choose a destination from a list of CRM Analytics apps that you have access to edit or manage.

1. Select the view that you want to publish to Salesforce.

   Note: You can select a maximum of 25 views at a time to publish to Salesforce.

2. For **Actions**, select **Publish to Salesforce**.
3. Select the Salesforce credentials that you want to use for publishing.
4. Select the destination app that you want to publish to. You can only see apps that you can edit or manage with the signed-in Salesforce user.



Publish to Salesforce

Publish 4 views to Salesforce. Learn more

Select the Salesforce credentials that you want to use for publishing.

Publish to

My Private App

✓ Learning Adventure

Shared App

5. Click **Publish**.

Who can see the published view in Salesforce?

When you publish a view to Salesforce, anyone with access to the selected CRM Analytics app or Lightning page can see that the content exists. However, only those signed in with existing Tableau permissions can see the view.

Visual Segment Creation to Data Cloud

Segmentation enables data analysts to curate relevant portions of data from their analyses in Tableau and seamlessly transfer them to Salesforce Data Cloud. Once in Data Cloud, marketing professionals can use various platforms (such as Data Cloud for Marketing) to quickly take high-impact steps to boost marketing campaigns with ease.

About segmentation

Overview and examples

Segmentation that starts in Tableau provides a way for analysts to visually explore their audience (typically customers) and send data about relevant portions of the target population to Data Cloud. From Data Cloud, marketers can publish to other Salesforce clouds or platforms for further analysis and action.

To better understand the benefits of segmentation and how it works, let’s consider a likely use case. A data analyst reviewing an analysis of data about a recent marketing campaign in Tableau identifies a segment with lower engagement than the overall campaign audience. The data analyst knows this is an important subset of the overall data that the marketing team will want to address. So, the data analyst sends this low-engagement segment to Data Cloud.

From Data Cloud, a member of the marketing team (or marketer) can access the segment to get a filtered view of the campaign data related to the low-engagement group. With a focused snippet of the overall data, it’s easier for the marketer to determine the actions they need to take to improve engagement.

With an action plan in mind, the marketer publishes the segment on Salesforce Marketing Cloud or a similar platform where they created the original campaign.

In this example and similar scenarios, the data analyst benefits from the robust analysis capabilities in Tableau while efficiently handing off their findings to the marketer. The marketer benefits from accessing a targeted view of data that’s relevant to them that they can manage and send to the marketing tools they’re already using. Most importantly, the customers benefit from marketing campaigns that effectively reach them.

Workflow

With segmentation, you can streamline the collaboration between data analysts working in Tableau and marketers working in Data Cloud and connected marketing platforms. The typical workflow looks like:

1. The data analyst uses a viz in Tableau to analyze and identify a subset of the customer data that's relevant, meaningful, and actionable to marketers.

2. The data analyst creates a segment of their audience data from their Tableau viz and sends it to Data Cloud.

3. The marketer accesses the segment from Data Cloud. From there, they create a plan for acting on the segment data, and send it to their activation target. The activation target is typically a marketing platform or tool that the marketing team uses to manage marketing campaigns, such as Data Cloud for Marketing.

4. The marketer launches the marketing campaign from the activation target, and analyzes the campaign results from their platform of choice.

Learn more

To learn more about segmentation, check out these helpful resources:

- Segmentation (Salesforce Help) - Get a comprehensive review of segmentation and activation on Data Cloud.

- Segmentation and Activation module (Trailhead) - Learn how to create, filter, and activate marketing segments with Data Cloud.

- Segmentation Filter Examples (Salesforce Help) - For common use cases for segmentation and get inspiration for creating your own segments.

- Data Cloud and the Ethical Use of Data trailmix (Trailhead) - Learn how you can use ethical practices when building marketing segments in Data Cloud.

Requirements for segmentation

License requirements

To create a segment in Tableau, data analysts need a Creator license for Tableau Cloud.

To publish a segment in Data Cloud, marketers need:

- Developer, Enterprise, Performance, or Unlimited Salesforce edition
- Segmentation and Activation add-on license for Data Cloud
- Standard Data Cloud permission set and the appropriate marketing-specific permissions (see Data Cloud Standard Permission Sets for more information)
- (Recommended) Data Cloud for Marketing, for activating segments
- (Optional) The Ad Audiences add-on license for Data Cloud, for activating segments to advertising platforms

Data requirements

Data sources and connections

To create a segment, your data source must use a single direct connection to live data (no extracts) and your viz must use a single data source. Published data sources, multiple connections, and multiple data sources aren't supported.

Data model configuration

When configuring your data model in Data Cloud, be sure to:

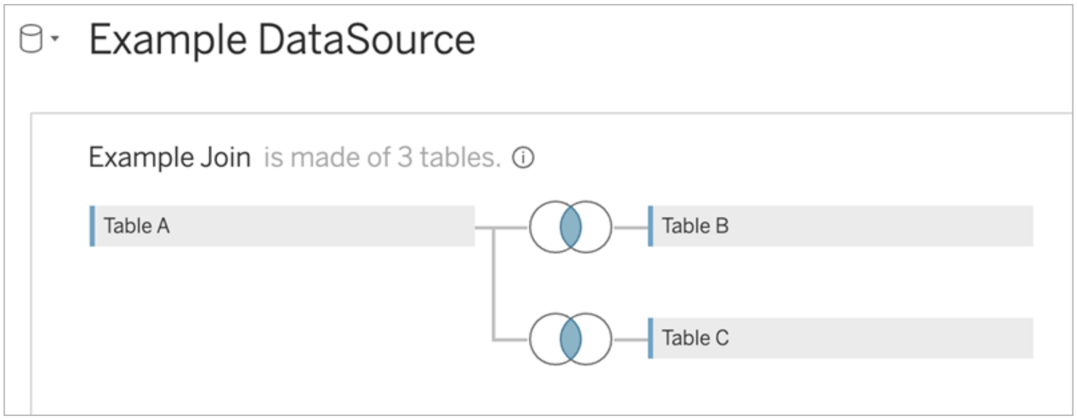
- Connect to a Profile DMO, and have the Profile DMO set as the left-most table in the Data Source tab
- Use only one primary key

When configuring your data model in Tableau, be sure to:

- Use a table that's used only one time in the data source
- Only use a single table in the logical layer (multiple logical tables aren't supported)
- Avoid including unions or custom SQL tables
- Only use joins between DMOs that match existing Data Cloud relationships

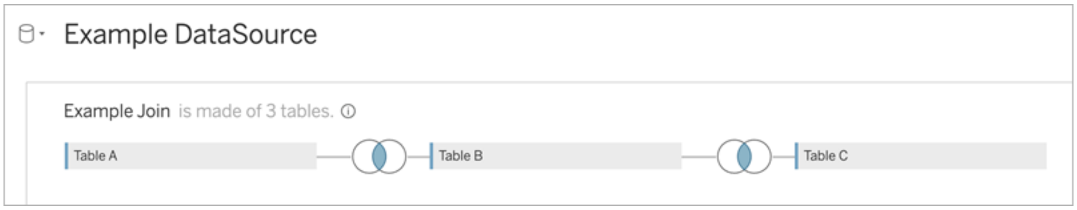
- Use linear joins between DMOs in which each object is only joined to a single object (rather than joining multiple objects to the same object)

  For example, instead of:

  Example DataSource
Example Join is made of 3 tables.
Table A
Table B
Table C

  Do this:

  Example DataSource
Example Join is made of 3 tables.
Table A
Table B
Table C

- Use join expressions that only include fields (calculations and multiple joins from a single table aren’t supported) and the equals operator (other operators aren’t supported)

When connecting your data model in Tableau to your data model in Data Cloud, you can recreate any necessary portions of the model using Tableau joins.

Authentication

To create segments in Tableau, you must allow Tableau to connect to Data Cloud using the Salesforce Data Cloud connector. If the Data Cloud connector isn't already configured on your Tableau site, follow these steps.

In the connected app, add the following scopes:

- Perform ANSI SQL queries on Customer Data Platform data (cdp_query_api)
- Manage Customer Data Platform profile data (cdp_profile_api)
- Manage Customer Data Platform Ingestion API data (cdp_ingest_api)
- Perform segmentation on Data Cloud data (cdp_segment_api)

User permissions requirements

To create a segment, work with your Salesforce admin to confirm that you have access to the following application programming interfaces (APIs):

- Write access for the Create Segment API
- Read access for the Data Cloud Metadata API

Field requirements

When you create a segment, use fields in your filters that are either existing database fields (rather than fields created by Tableau), or groups. Fields that are cast to other data types might cause errors.

The following types of fields aren't supported in segment filters:

- Measures with MEDIAN, PERCENTILE, or ATTR aggregations
- Table calculations
- Calculations
- Bins
- Groups based on sets, calculations, or combined fields
- Tableau-generated fields, such as:
  - Metadata fields (measure names/values)
  - Generated map-related fields (latitude and longitude)

    - Table type fields (count of object or logical table)

- Calculated insights
- Clusters

Filter requirements

When you create a segment, multiple filters are applied based on your configuration. Segment filters can include a combination of data source filters, context filters, view filters, and filters based on your viz selection.

Use quantitative filters for:

- A measure (with or without aggregation)
- A range of dates

Use categorical filters for segments with individual values selected.

The following types of filters aren't supported in segments:

- Categorical filters with a top, wildcard, or condition filter
- Relative to current date filters with anything other than date and year for next/last N
- Relative to current date filters with anything other than date, month, and year for the current period
- Date filters with Month/Day/Year
- Date filters with date truncation
- Date filters with a datetime exact comparison to another datetime

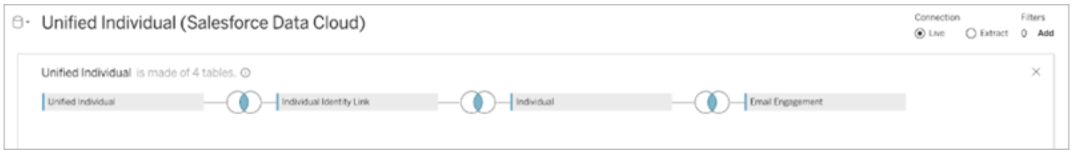
Relative date filters with a specified anchor date are supported.

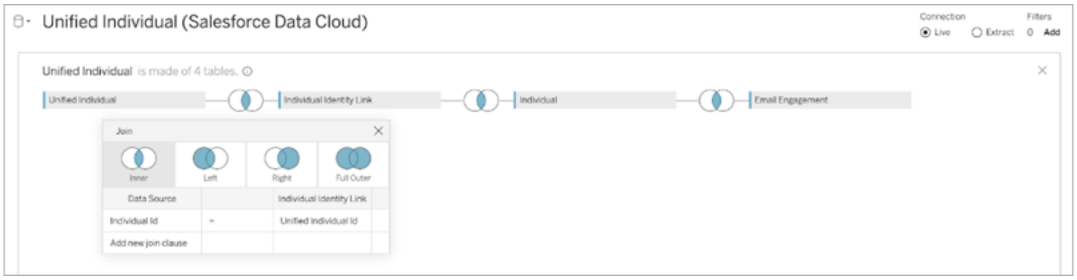
Create a segment using engagement data

To create a segment from Tableau to Data Cloud using engagement data, you must configure the correct modeling in Tableau using join clauses.

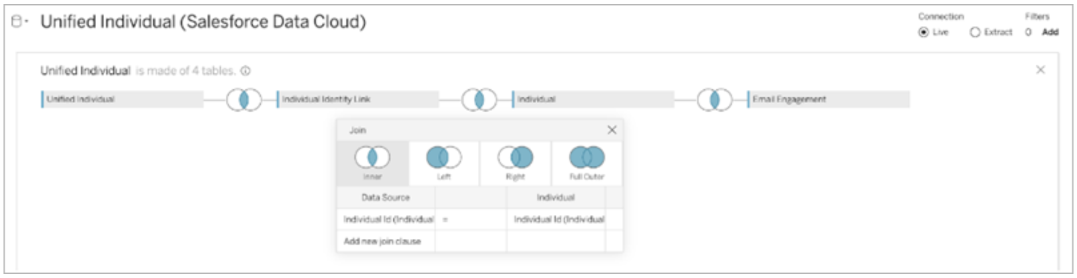
Use joins within a single logical table and join on the same field as defined in the relationships in the Data Model tab in Data Cloud.

For example, to create a segment using Email Engagement data for the Unified Individual in Tableau, configure your data model and map the relationships as shown.

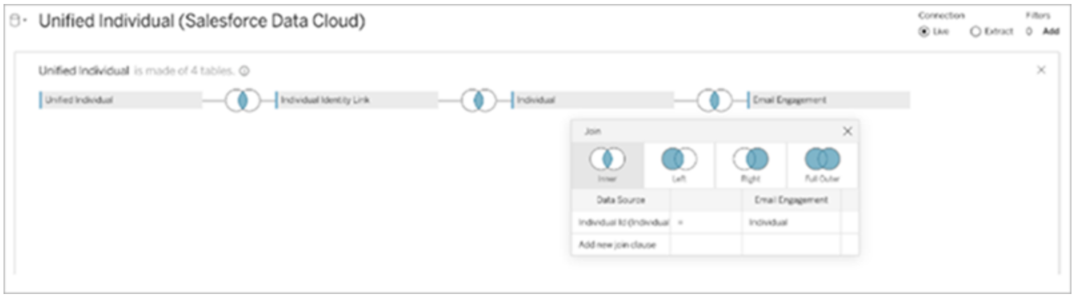

Unified Individual (Salesforce Data Cloud)
Connection
● Live ○ Extract
Filters
0 Add
Unified Individual is made of 4 tables.
Unified Individual
Individual Identity Link
Individual
Email Engagement


Unified Individual (Salesforce Data Cloud)
Connection
● Live ○ Extract
Filters
0 Add
Unified Individual is made of 4 tables.
Unified Individual
Individual Identity Link
Individual
Email Engagement
Join
Inner
Left
Right
Full Outer

Data Source		Individual Identity Link
Individual Id	=	Unified Individual Id
Add new join clause		


Unified Individual (Salesforce Data Cloud)
Connection
● Live ○ Extract
Filters
0 Add
Unified Individual is made of 4 tables.
Unified Individual
Individual Identity Link
Individual
Email Engagement
Join
Inner
Left
Right
Full Outer

Data Source		Individual
Individual Id (Individual	=	Individual Id (Individual
Add new join clause		

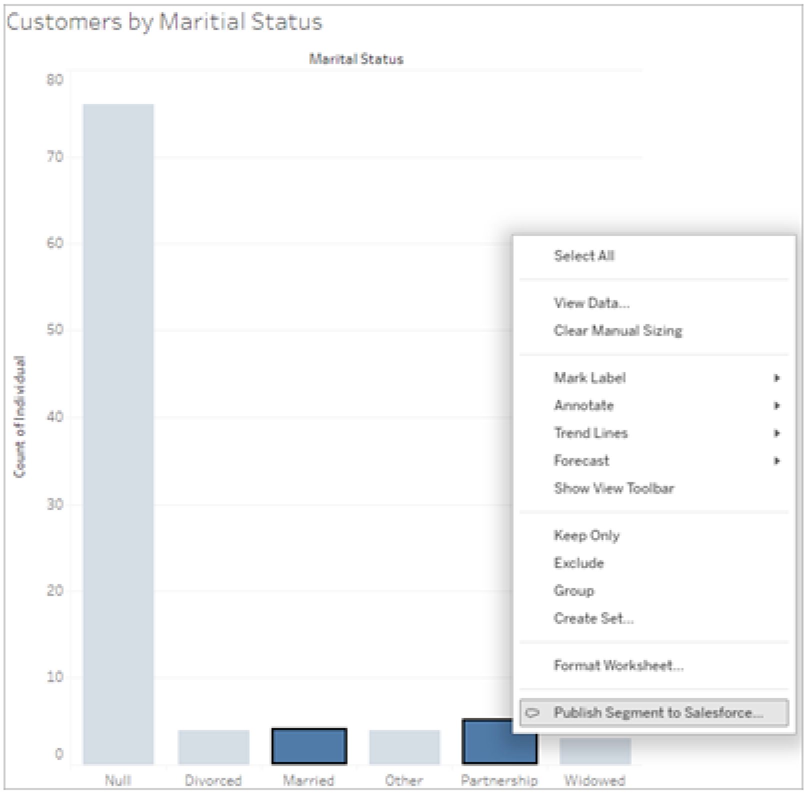

Unified Individual (Salesforce Data Cloud)
Connection
● Live ○ Extract
Filters
0 Add
Unified Individual is made of 4 tables.
Unified Individual
Individual Identity Link
Individual
Email Engagement
Join
Inner
Left
Right
Full Outer

Data Source		Email Engagement
Individual Id (Individual	=	Individual
Add new join clause		

Note: This example is for illustrative purposes only. Data in your Data Cloud instance might use different relationships.

Create a segment in Tableau

1. In Tableau, select the desired portion of the data in your viz, and then right-click and select **Publish Segment to Salesforce**.


Customers by Maritial Status
Marital Status
Count of Individual
80
70
60
50
40
30
20
10
0
Null
Divorced
Married
Other
Partnership
Widowed
Select All
View Data...
Clear Manual Sizing
Mark Label
Annotate
Trend Lines
Forecast
Show View Toolbar
Keep Only
Exclude
Group
Create Set...
Format Worksheet...
Publish Segment to Salesforce...

2. Configure your segment in the **Create Segment for Data Cloud** dialog.

   Segment name is required. The name must start with a letter and can only contain alphanumeric characters and underscores. The name can’t contain consecutive underscores or end with an underscore, and spaces aren’t allowed. In Data Cloud, the segment name displays as the name that you specify in the **Segment name** field plus a timestamp of when you create the segment.

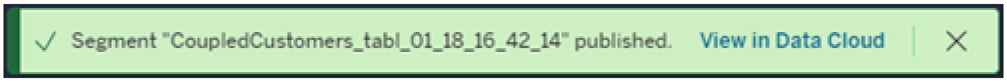
When you add filters in the dialog, the filter field names appear under **Rules**.

You can hover over a rule to learn more about it, such as the filter or mark selection that the rule was built on. Multiple rules might filter on the same field, but learning more about a rule’s origins can help you identify any duplicates.

As you add each filter, a segment population count displays. The population count represents the count of individual data points (typically customers) who meet your filter criteria. You can use the population count to verify that your segment is working as expected by confirming that the count is the same in Tableau and Data Cloud. Tableau counts all individual records in your viz, but the segment only counts distinct individuals. To see distinct individuals in a Tableau viz that matches the segment count, use the Count Distinct (COUNTD) aggregated function.

When you add rules, the **Description** is pre-populated with details about them. You can edit the description as needed, but there's a 255 character maximum. A description is optional, but it can make it easier to find the segment in Data Cloud.

3. Click **Create**. When the segment is created, a confirmation message appears with a link to view the segment in Data Cloud.



✓ Segment "CoupledCustomers_tabl_01_18_16_42_14" published.

If you receive an error after clicking **Create**, confirm that you meet the requirements to publish to Data Cloud and check the status of your organization’s Salesforce instance.

4. In the confirmation message, click **View in Data Cloud**.

For segments created in Tableau, you can modify the **Segment Name**, **Description**, and **Publish Schedule** in Data Cloud. To do so, click **Edit Properties**.

You can’t revise a segment’s rules after you publish it. Instead, you must delete the segment in Data Cloud and create a new one in Tableau.

5. From Data Cloud, your marketing team can publish the segment to the appropriate activation targets.

Configure Tableau Lightning Web Components and Single Sign-On (SSO) with Token Authentication

Tableau Lightning web components (LWC) allow Salesforce customers to drag and drop Tableau views and Tableau Pulse metrics onto Salesforce Lightning pages.

- The Tableau View component allows you to add embedded views from Tableau Cloud or Tableau Server.
- The Tableau Pulse component allows you to add embedded Tableau Pulse metrics from Tableau Cloud.

Tableau LWC seamless authentication allows you to view Tableau content using connected app trusted tokens without signing in. Seamless authentication is optional for Tableau View LWC, and is required for Tableau Pulse LWC.

Important:

• Salesforce Console apps do not support the use of Tableau Lightning web components.

• Case Record pages do not support the use of Tableau Lightning web components with Chatter emails.

Add Trusted URL

The Tableau view or Pulse URL that you want to add to your Lightning page must be added as a Trusted URL.

1. From your Salesforce app, select the gear in the top-right corner, and then select **Setup**.
2. On the left navigation pane, enter “Trusted URLs” in the **Quick Find** search bar.

3. Select the **Trusted URLs** settings page.
4. Select **New Trusted URL**.
5. Enter an **API Name** and **URL**, following the instructions on the settings page. **Note**: The URL must begin with https://
6. For CSP Context, select **All**.
7. For CSP Directives, check all boxes.
8. Select **Save**.

Turn on seamless authentication for Tableau LWCs

Tableau View and Tableau Pulse LWCs are available in the Lightning App Builder without any configuration. However, Tableau Pulse LWC requires token authentication to function.

Configure Salesforce settings

The following steps only need to be completed one time by a Salesforce admin:

1. From your Salesforce app, select the gear in the top-right corner, and then select **Setup**.
2. On the left navigation pane, enter “Tableau” in the **Quick Find** search bar.
3. Select the **Tableau Embedding** settings page.
4. Select the checkbox for **Turn on token-based single sign-on authentication**.

   > **Note**: This box must be checked to configure the Tableau Pulse LWC. For the Tableau View LWC, you can choose not to set up token authentication and instead sign in manually when the component loads.
   >
   > To use Tableau View LWC on Mobile, you must turn on token-based authentication and set up seamless authentication.

5. For **Select Tableau User Identity field**, set an org-level user field to authenticate the user in Tableau. You must select the Salesforce user field that corresponds with the Tableau username. The dropdown shows the field value for the current user, or null if no value is defined. If none of the user fields match the Tableau username, select an empty field (for example, Federation ID or a custom field). Then, populate the empty

field with the Tableau username for your users.

> **Note**: The Tableau User Identity field setting applies to all users and doesn’t need to be set on an individual basis.

6. Save your changes.
7. If you're the Tableau admin, keep the Salesforce settings **Tableau Embedding** tab open while you configure Tableau settings in the next section. If you aren’t the admin, share the **Issue URL** and **JWKS URI** with your Tableau admin.

Tip: The Tableau User Identity field setting applies to all users and doesn’t need to be set on an individual basis.

Configure Tableau settings

In one tab, open the Tableau Embedding settings page in your Salesforce org. In another tab, go to your Tableau site and follow these instructions to set up the Connected App.

For Tableau Server, follow these steps:

1. As a Tableau Server admin, sign in to the Tableau Services Manager (TSM) web interface.
2. Navigate to **User Identity & Access**, and then select the **Authorization Server** tab.
3. Select the checkbox for **Enable OAuth access for embedded content**.
4. Enter the **Issue URL** and **JWKS URI**, which you can find on the Salesforce org Tableau Embedding settings page. Use the **Copy** button on the Salesforce org settings page to copy the Issuer URL value, and then paste it into the TSM web interface. Repeat this process for the JWKS URI value.

> **Note**: The JWKS URI field is marked as optional in the TSM web interface, however this value is required to use Tableau LWC seamless authentication. Tableau Server needs to be able to reach the JWKS URI for seamless authentication to succeed.

5. Select **Save Pending Changes**.

6. Select **Pending Changes** in the upper-right corner of the page, and then select **Apply Changes and Restart** to stop and restart Tableau Server.

For more information, see Register your EAS with Tableau Server.

For Tableau Cloud, follow these steps:

1. Open the Tableau **Settings** page, and then choose the **Connected Apps** tab.
2. From the New Connected App dropdown, select **OAuth 2.0 Trust**.
3. On the Create Connected App dialog, enter the **Issue URL** and **JWKS URI**, which you can find on the Salesforce org Tableau View Embedding settings page. Use the **Copy** button on the Salesforce org settings page to copy the Issuer URL value, and then paste it into the Tableau settings page. Repeat this process for the JWKS URI value.

   Important: The Create Connected App dialog notes the JWKS URI field as optional, however this value is required to use Tableau LWC seamless authentication.
4. Select the checkbox for **Enable connected app**.
5. Select **Create**.

   Note: The Connected App is named External Authorization Server.

For more information, see Register your EAS with Tableau Cloud.

If you want to create a host mapping for this site, leave the Connected Apps tab open. You can use the URL for this page and the Copy Site ID button to populate the host mapping fields in the following section.

Allow capture of user attributes (Tableau Cloud only)

To leverage user attribute functions with Tableau LWCs, you must enable access in authentication workflows.

1. Open the Tableau **Settings** page, and then choose the **Authentication** tab.

2. Navigate to the **Control User Access in Authentication Workflows** section.

3. Select the checkbox for **Enable capture of user attributes in authentication workflows**.

Set up or edit host mapping

Follow these steps to create or edit a host mapping.

Create a new host mapping

1. From your Salesforce app, select the gear in the top-right corner, and then select **Setup**.

2. On the left navigation pane, enter "Tableau" in the **Quick Find** search bar.
3. Select the **Tableau Embedding** settings page.
4. From the Tableau Host Mapping section, select **Create New**.
5. Fill in the host mapping details:
    a. Tableau site URL: Enter a URL for the Tableau site that you want to map. The URL should contain the site name, unless it's an on-prem installation using the Default site. **Note**: If you want to create a host mapping for this site, leave the Connected Apps tab open. You can use the URL for this page and the Copy Site ID button to populate the host mapping fields in the following section.
    b. Tableau site ID: Enter the site ID for the Tableau site that you want to map. You can use the Copy Site ID button on the Connected App settings page or on the Share dialog.
    c. Tableau site host type: Select either **Tableau Cloud**, **Tableau Server (site-level EAS)**, or **Tableau Server (server-wide EAS)**.
6. Select **Save**. Or, if you want to return to the Tableau Embedding settings page without saving, select **Cancel**.

Edit a host mapping

> **Note**: If you've saved host mappings from before version 254.10, you must update the Tableau host type. For more information and for remediation instructions, see Update the host type for saved Tableau host mappings.

You can update the site ID and host type for an existing mapping. If you need to change the site URL, delete the existing mapping, and then create a new one with the correct URL.

1. From the Salesforce app Tableau Embeddings settings page, select Edit next to an existing host mapping.
2. Edit the **Tableau site ID** or **Tableau site host type** fields as needed.
3. Select **Save**. Or, if you want to return to the Tableau Embedding settings page without saving, select **Cancel**.

Create user attribute claims definitions

You can leverage User Attribute Functions (UAF) with your Tableau View and Pulse Lightning web components (LWC) to surface specific data based on the attributes of the user looking at a visualization. For more information, see Leverage User Attribute Functions (UAF) with Tableau Lightning Web Components.

Add Tableau LWCs to a Lightning page using Lightning App Builder

Tableau LWCs are available on App, Home, and Record Lightning pages only. For more information about Lightning page types and using the Lightning App Builder, see Lightning App Builder in Salesforce Help.

> **Note:** Case Record pages do not support the use of Tableau Lightning web components with Chatter emails.

To add a Tableau View or Tableau Pulse LWC to an existing Lightning page, follow these steps:

1. Navigate to the Lightning page that you want to edit.
2. Select the gear icon in the top right.
3. Select Edit Page.
4. Proceed to the **Add a Tableau LWC to a Lightning page** section below.

To add a Tableau View or Tableau Pulse LWC to a new Lightning page, follow these steps:

1. From your Salesforce app, select the gear in the top-right corner, and then select **Setup**.
2. On the left navigation pane, enter “Lightning App Builder” in the **Quick Find** search bar.
3. Select the **Lightning App Builder** setup page.
4. Select **New**.
5. Select the page type that you want to create. Tableau LWCs are available on App, Home, and Record pages.
6. Select **Next**.
7. Enter a name and select a layout for the new page, and then select **Done**.

Add a Tableau LWC to a Lightning page

1. From the Components list on the left side of the page, drag and drop the Tableau View or Tableau Pulse component onto the page.
2. Configure the LWC:
   - Configure a Tableau View Lightning Web Component
   - Configure a Tableau Pulse Lightning Web Component

Save and activate the page

1. When you’ve finished adding and configuring a Tableau View or Tableau Pulse LWC, select **Save**.
2. If you’ve created a new page, you are prompted to activate the page so that it’s visible to users. Select **Activate**.
3. On the **Page Settings** tab of the Activation page, enter a name, choose an icon, and select your visibility preference.
4. (Optional) On the **Lightning Experience** tab of the Activation page, you can add the page to various Lightning Experience Apps.
5. (Optional): On the **Mobile Navigation** tab of the Activation page, you can add the page to the Mobile Navigation Menu.
6. Select **Save**.

Embed multiple Tableau views

You can embed more than one Tableau view on a Salesforce Lightning page as long as all views come from the same site. Tableau only supports a single session, and that session is specific to the site. The most recently granted session will wipe out the previous one.

To embed Tableau views from multiple sites, you must create a separate Lightning page that is site-specific.

Tableau LWC single sign-on for Mobile

Note: Tableau View and Pulse LWCs are available on iOS 17.2.1+.

Consider the following best practices to prevent issues for mobile users:

- Lightning page type: Mobile users can access App Pages and Record Pages, but not Home Pages.

  Note: Record Pages must be associated with a specific type of record.

- If you use the same page for both desktop and mobile users, select **Activation** to verify that the Lightning page is set as the Org Default for both desktop and phone form factors.
- Consider creating separate Lightning pages for desktop and mobile to provide a tailored visual experience. The height for the Tableau View component is fixed and won’t dynamically adjust to different screen sizes.
- To add a scroll bar to a view, select **Show Toolbar** from the Tableau View component properties pane.
- For the App Page type, select **Activation**, and then select the **Lightning Experience** tab. Add your page to the LightningBolt list to make the page easier to find on mobile.
- On mobile, iOS blocks cross-site traffic by default. Open your mobile settings, select Salesforce settings, and then turn on **Allow Cross-Website Tracking**. For more information, see Enable cross-website tracking.

Troubleshooting Tableau LWC SSO with Token Authentication

Update the host type for saved Tableau host mappings

If you’ve saved host mappings from before version 254.10, you must update the Tableau host type.

1. On the **Tableau Embedding** settings page, verify that your saved host mappings have one of the following Tableau host types: **Tableau Cloud**, **Tableau Server (server-wide EAS)**, or **Tableau Server (site-level EAS)**.

2. If the mapping has some other Tableau host type (for example, TABLEAU_CLOUD or TABLEAU_SERVER), select **Edit** to edit the host mapping.

3. On the Edit Tableau Host Mapping page, select the appropriate setting from the Tableau site host type dropdown, and then select **Save**.

4. Repeat steps 1-3 for all saved mappings as necessary.

Verify the Salesforce and Tableau configuration

1. Verify that the **Issuer URL** and **JWKS URI** values match in both Salesforce and Tableau Settings and that JWKS URI ends with **id/keys**.
   - For Tableau Cloud, open the Salesforce Settings Tableau Embedding page in one tab. In another tab, open the Tableau Settings Connected Apps tab. On the Connected Apps tab, select **External Authorization Server**, and then select **Edit**. Verify that the **Issuer URL** and **JWKS URI** values match and that the JWKS URI ends with id/keys.
   - For Tableau Server, open the Salesforce Settings Tableau Embedding page in one tab. Then, sign in to the Tableau Services Manager (TSM) web interface, navigate to **User Identity & Access**, and then open the **Authorization Server** tab.

2. Verify Host Mapping: If you’ve saved a host mapping, verify that it has the correct site ID and host type.

Verify the JWT token

In the Tableau View Lightning web component property editor, select Debug Mode to verify that the JWT token is working as expected.

1. Open the console logs and copy the token.
2. Go to the jwt.io website and paste the token into the **Encoded** field.
3. Verify the following:
    - The subject (“sub”) matches the Tableau username.
    - For Tableau Cloudand Tableau Server (site-level EAS), the audience (“aud”) is “tableau: {site ID}”.
      For Tableau Server (server-wide EAS), the audience (“aud”) is “tableau”.
    - The scope (“scp”) includes both “tableau:views:embed” and “tableau-:insights:embed”.
    - The issuer (“iss”) EAS server is accurate.

Verify page activation

Sometimes, a user creates a Lightning page, but it hasn’t been activated or assigned anywhere, so users can’t find it. Select **Activation** to verify that the Lightning page is set as the Org Default for the intended form factors.

Tip: When debugging, it’s helpful to drag and drop a Rich Text component onto your page. Add a brief description of the page type and the view URL that you’re trying to embed. This allows you to be sure that the page being viewed by the end user is the page that the admin is editing.

Confirm that Tableau View LWC is working without seamless authentication (Tableau View LWC only)

1. From the Tableau View pane on your Lightning page, clear the checkbox for **Default Authentication Token**, and then save the changes.
2. If you’re signed in to Tableau in another tab, sign out. Ensure that navigating to the View URL redirects you to the Tableau sign-in page. Do not sign in.
3. Navigate to the Lightning page. The Tableau View LWC should display a **Sign in to Tableau** button.

4. Select **Sign in to Tableau**, and then enter your Tableau credentials to sign in.
   Note: If the view doesn't load, this indicates a broader issue with authenticating to Tableau.

Error: LWC component version no longer supported (Tableau View LWC only)

To resolve this error, follow these steps:

1. In the Components list, search for "Tableau", and then drag and drop a new **Tableau View** component onto the page.
2. Copy all properties from the Tableau View pane for the old component over to the new component.
3. Select the delete icon on the old component.

Error: To enable Tableau Pulse LWC, please reach out to your Salesforce admin to configure seamless authentication for Tableau (Tableau Pulse LWC only)

To resolve this error, follow the steps on this page to **Turn on seamless authentication for Tableau LWCs**.

See Also

Troubleshoot Connected Apps

Register EAS to Enable SSO for Embedded Content

Leverage User Attribute Functions (UAF) with Tableau Lightning Web Components

You can leverage User Attribute Functions (UAF) with your Tableau View and Pulse Lightning web components (LWC) to surface specific data based on the attributes of the user looking at a visualization. User attribute functions provide row-level security so that people viewing your visualization only see data relevant to them. For more information about UAFs, see Unlock the Power of Personalized Analytics with User Attribute Functions.

Prerequisites

- Single Sign-On (SSO) with Token Authentication is configured for Tableau Lightning Web Components. See Configure Tableau Lightning Web Components and Single Sign-On (SSO) with Token Authentication.
- Tableau is configured to capture user attributes in authentication workflows. See Allow capture of user attributes.
- Tableau content to be embedded includes user attribute functions. For an example of how to use user attribute functions in a Tableau workbook, see Ensure the content author includes user attribute functions.

Tableau UAF Claims Definitions in Salesforce

Tableau UAF claim definitions allow you to include claims for user attributes in the JWT. The values for these attributes can be pulled from Account, User, Opportunity, or Case objects in Salesforce. When used in conjunction with user attribute functions in Tableau content, only data matching the specified attributes is displayed.

For example, a Tableau dashboard may be configured to only show sales data where the value in its [State/Province] data column matches one of the values in the JWT claim for the attribute 'state'.

Syntax: USERATTRIBUTEINCLUDES('attribute_name', expected value)

Example: USERATTRIBUTEINCLUDES('state', [State/Province])

Creating a claim definition in Salesforce can include the appropriate user-specific information in the JWT. In this example, the attribute 'state' may be populated with values from Accounts where the current user is the Account Owner by pulling values from the Billing State/Province field.

Example Claim Definition

- Definition Name: state_Account_BillingState
- Attribute Name: state
- Target Object: Account
- Target Object Field: Billing State/Province
- Viewer Target Object Relationship: Current Viewer is the Account Owner

In the case of a sales representative who owns accounts in Washington, Oregon, and California, the JWT will include a claim for 'state' with the values [WA, OR, CA]. The Tableau dashboard would then only show data with [State/Province] values matching WA, OR, or CA.

Create a definition

To create a user attribute definition, follow these steps:

1. From your Salesforce app, select the gear in the top-right corner, and then select **Setup**.
2. On the left navigation pane, enter “Tableau” in the **Quick Find** search bar.
3. Select the **Tableau UAF Claims Definition** settings page.
4. Select **Create New**.
5. Fill in the definition values:
    a. Definition Name: Enter a unique name. (Example: state_Account_BillingState)
    b. Attribute Name: Enter the attribute name specified by the user attribute function in Tableau. (Example: state)
    c. Target Object: Select the target object from which you want to pull the values. Tableau LWCs currently support the User and Account objects.

   d. Target Object Field: Select the field on the target object from which you want to pull the values. (Example: Billing State/Province)

   e. Viewer Target Object Relationship: Select the relationship between the current viewer and the Target Object. (Example: **Current Viewer is the Account Owner**).

6. Select **Save**. Or, if you want to return to the Tableau UAF Claims Definition settings page without saving, select **Cancel**.

Add a definition to a Tableau Lightning web component page

Home, App, and Record Lightning pages

To add a definition:

1. Select **Select…**.

2. Use the arrows to move available definitions to the **Selected** field.

3. Select **OK**.

4. Repeat for all Tableau Lightning web components on the same page. For more information, see Considerations for multiple components on the same page.

Experience Cloud pages and the Utility Bar

Enter a comma-separated list of UAF claim definition names. To copy definition names, from the Salesforce app, navigate to the **Tableau UAF Claims Definition** setup page, and select **Copy**.

Considerations for multiple components on the same page

If multiple Tableau View or Tableau Pulse Lightning web components are added to the same page, each component must have the same set of UAF Definition Names. Only one of the components authenticates to Tableau, and that session will be used to load both components. This means that the relevant user attribute information for both components must be present in that session, no matter which component does the authentication.

For example:

- If you have two Tableau View components and one needs user attribute information from Definition A and the other needs the user attribute information from Definition B, both components must include both Definitions A and B.
- If a Tableau View component needs Definition A but the Tableau Pulse component on the same page doesn't need any user attribute information, both components must include Definition A.

Delete a definition

To delete a user attribute definition, follow these steps:

1. From your Salesforce app, select the gear in the top-right corner, and then select **Setup**.
2. On the left navigation pane, enter "Tableau" in the **Quick Find** search bar.
3. Select the **Tableau UAF Claims Definition** settings page.
4. Select **Delete** for the definition that you want to delete.

Home, App, and Record Lightning pages

If you delete a definition that is already added to a Tableau LWC, refresh the page in Lightning App Builder to update the available definitions. Deleted definitions are automatically removed.

Experience Cloud pages and the Utility Bar

Deleted definitions are not automatically removed from the Tableau LWC component field. Deleted definitions in the **UAF Definition Names** component field won't cause problems, but do create unnecessary and confusing clutter. To remove definitions from the Tableau LWC component field, select the UAF Definition Names field, and manually delete any names that are no longer in use.

Configure a Tableau View Lightning Web Component

The Tableau View Lightning web component (LWC) allows Salesforce customers to drag and drop embedded Tableau views from Tableau Cloud or Tableau Server onto Salesforce Lightning pages. Tableau View LWC supports embedding on App, Home, and Record pages, as well as Experience Cloud pages.

For instructions to turn on a Tableau LWC, add a trusted URL, set up seamless authentication and host mapping, and add a component to a Lightning page, see Configuring Tableau Lightning Web Components.

When you've added a Tableau View LWC to your Lightning page, configure the component fields.

Component field	**Description**
URL for the Tableau view	This field is required. Enter the URL for the Tableau View that you want to embed. To find the URL, open a new tab and find the Tableau view that you want to embed. Select **Share**, and then select **Copy Link**. **Note**: The URL must be for a view, not a workbook.
Enable Single Sign-On	Checking this box is required if you're using token-based authentication.
Site ID	This field is required for seamless authentication if there isn't a host mapping specified for the URL used in the **Tableau view** field. If a host mapping exists for the Tableau site, the contents of this field are ignored.
Show Tabs	Check the box if you want to show tabs.

Show Toolbar	Check the box if you want to show the toolbar.
Height	Height in pixels.
Custom Query Parameters	Used for static filtering of the view. Enter as FieldName=FieldValue (for example, Manufacturer=3M).
UAF Definition Names	**App, Home, and Record pages** Select from UAF claim definitions configured in the Tableau UAF Claims Definition settings. To add a definition: 1. Select **Select…**. 2. Use the arrows to move available definitions to the **Selected** field. 3. Select **OK**. **Experience Cloud pages** Enter a comma-separated list of UAF claim definition names. To copy definition names, from the Salesforce app, navigate to the **Tableau UAF Claims Definition** setup page, and select **Copy**.
Debug Mode	Check the box to turn on debug mode.
Force refresh toggle	When troubleshooting, you can toggle this checkbox to refresh only this component instead of refreshing the whole Lightning App Builder Page or all components on the Lightning Page.
Set Component Visibility: Filters	Create filters for when to display the component. For example, you can filter on a specific user, permissions, or device form factor. To add a filter: 1. Select **Add Filter**. 2. Choose **Select** to pick a field to filter on.

3. Complete your selection, and then select **Done**.
4. Select **Done** to save your filter.

Important: You must enter field names as they are defined in the data source. For example, if the data source is in English, but the data source fields are translated to Japanese for a user, the user must enter the original English field name.

Fields available only on Record pages

The following fields make it possible to dynamically filter on up to two fields. For example, you can filter on "Account Id" using the checkbox and "State/Province" using the advanced filters.

Component field	Description
Filter on Record Id	Used for dynamic filtering of the view using the Record Id. The name of the field in the data source for the view must match the format “Record Type Id” and is case sensitive. For example, if the Lightning page is for Account records, the field in the view must be named “Account Id”.
Tableau Advanced Filter	Used for dynamic filtering using a specific field of the current record. Enter the name of the field in the data source for the view.
Salesforce Advanced Filter	Used for dynamic filtering using a specific field of the current record. Select the corresponding field on the Salesforce record.

Tableau View component troubleshooting

From the page that contains the Tableau View Lightning web component, select the gear icon, and then select **Edit Page**.

1. Click on the Tableau View Lightning web component to open the property editor.
2. Confirm that the **URL for the Tableau view** field contains a valid URL for a Tableau view (not a workbook). Open the **Share** dialog for a Tableau view, and then choose **Copy Link**.
3. The checkbox for **Default Authentication Token** must be selected.
4. Verify the **Site ID** field if no host mapping has been saved for this site. **Note**: The Site ID field is ignored if a host mapping is defined for the site.

- For Tableau Cloud, the field must be populated with the Site ID copied from the embedded Tableau view Share dialog.
- For Tableau Server, the field must be blank.

For other Tableau LWC and seamless authentication information and troubleshooting, see Configuring Tableau Lightning Web Components.

Configure a Tableau Pulse Lightning Web Component

The Tableau Pulse Lightning web component (LWC) allows Salesforce customers to drag and drop embedded Tableau Pulse metrics from Tableau Cloud onto Salesforce Lightning pages. Tableau Pulse LWC supports embedding on App, Home, and Record pages, as well as Experience Cloud and the Salesforce Utility Bar.

For instructions to turn on a Tableau LWC, add a trusted URL, set up seamless authentication and host mapping, and add a component to a Lightning page, see Configuring Tableau Lightning Web Components.

When you’ve added a Tableau Pulse LWC to your Lightning page, configure the component fields.

Component field	Description
Tableau Pulse URL	This field is required. Enter the URL for the Tableau Pulse page or metric that you want to embed.

Site ID	This field is required for seamless authentication if there isn't a host mapping specified for the URL used in the **Tableau Pulse URL** field. If a host mapping exists for the Tableau site, the contents of this field are ignored.
Height	Height in pixels. When set to the default value of 0, height adjusts automatically to best fit the selected layout.
Layout	Determines the size and level of detail displayed. Choose from Full, Compact, or Mini.
UAF Definition Names	**App, Home, and Record pages** Select from UAF claim definitions configured in the Tableau UAF Claims Definition settings. To add a definition: 1. Select **Select…**. 2. Use the arrows to move available definitions to the **Selected** field. 3. Select **OK**. **Experience Cloud pages and Salesforce Utility Bar** Enter a comma-separated list of UAF claim definition names. To copy definition names, from the Salesforce app, navigate to the **Tableau UAF Claims Definition** setup page, and select **Copy**.
Debug Mode	Check the box to turn on debug mode.
Force refresh toggle	When troubleshooting, you can toggle this checkbox to refresh only this component instead of refreshing the whole Lightning App Builder Page or all components on the Lightning Page.
Set Component Visibility: Filters	Create filters for when to display the component. For example, you can filter on a specific user, permissions, or device form factor.

To add a filter:

1. Select **Add Filter**.
2. Choose **Select** to pick a field to filter on.
3. Complete your selection, and then select **Done**.
4. Select **Done** to save your filter.

Important: You must enter field names as they are defined in the data source. For example, if the data source is in English, but the data source fields are translated to Japanese for a user, the user must enter the original English field name.

Tableau Pulse component troubleshooting

From the page that contains the Tableau Pulse Lightning web component, select the gear icon, and then select **Edit Page**.

1. Click on the Tableau Pulse Lightning web component to open the property editor.
2. Confirm that the **Tableau Pulse URL** field contains a valid URL for a Tableau Pulse page or metric.
3. Verify that the **Site ID** field is populated with the Site ID for the Tableau site. To find the Site ID, open the Share dialog for the workbook or view from the Tableau site.

For other Tableau LWC and seamless authentication information and troubleshooting, see Configuring Tableau Lightning Web Components.

Receive Notifications, Search, and Share Using the Tableau App for Slack

The Tableau App for Slack lets you work and collaborate right where you work in Slack. In Tableau 2023.1 or later, you can search for views and workbooks, and easily access your favorite and recently viewed Tableau content from the Tableau App for Slack. With the Tableau App for Slack, you can also see snapshots of visualizations, with links back to your

Tableau site for further exploration. Some features (such as sharing and searching Tableau content from Slack) aren’t yet available in Tableau Server. Currently, Tableau Server users can receive notifications.

In Tableau 2021.3 and later, you can get Tableau notifications in Slack for data-driven alerts, sharing activity, and comment mentions. If the notification contains a view or workbook you have access to, the notification will also contain a visual snapshot.

Administrators can connect their Tableau site to a Slack workspace to enable the Tableau App for Slack for their entire organization. For more information, see "Integrate Tableau with a Slack Workspace" in the Tableau Cloud or Tableau Server help.

After your Tableau admin connects your Tableau site to a Slack workspace:

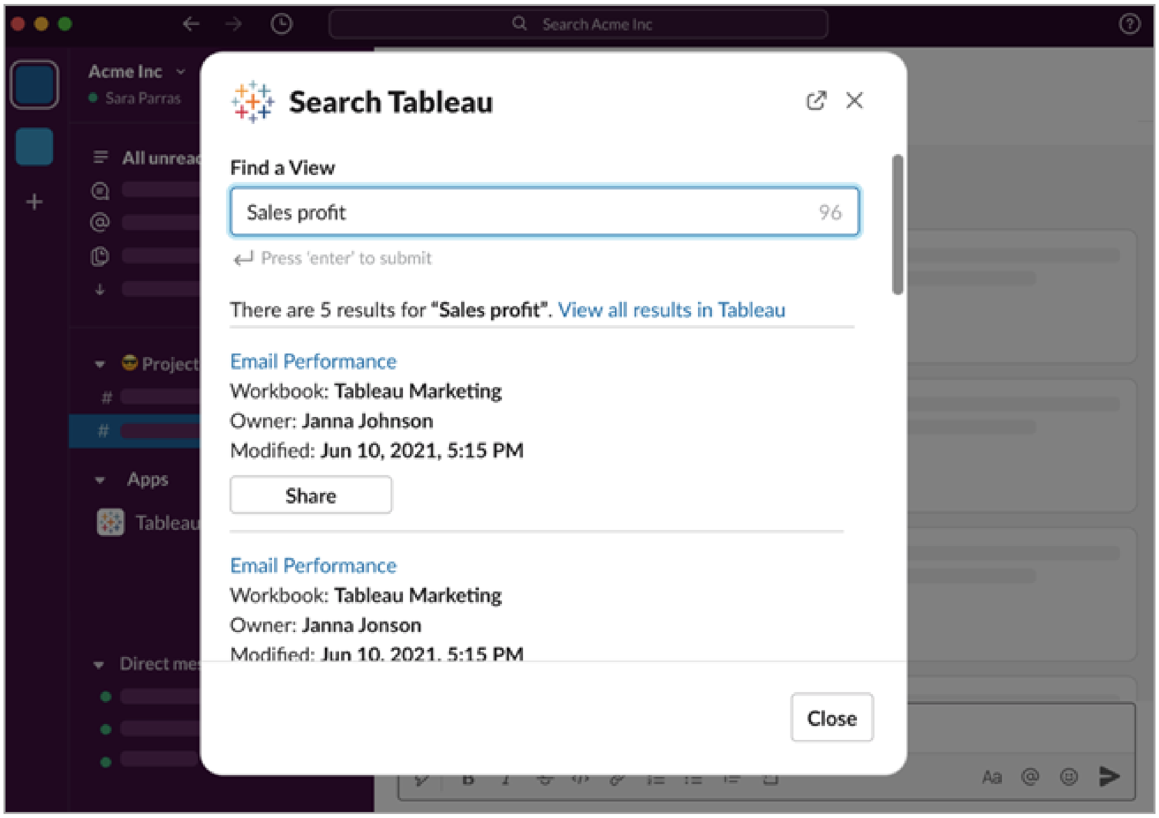
1. Add the Tableau App for Slack.
2. Select **Connect to Tableau**.
3. Log in to your Tableau site.
4. Authorize the app by choosing **Allow**.

Note: For information about privacy, see the Privacy Policy.

Search, share, and access recents and favorites from Slack

From the Tableau App for Slack **Home** tab, you can search for views and workbooks on your Tableau Cloudsite.

After you’ve found the Tableau content you’re looking for, select the name of the Tableau content to open it directly in Tableau or select Share to send the content to an individual or Slack channel. You can also write a custom message to provide context about the Tableau content you’re sharing.



Search Acme Inc
Acme Inc
Sara Parras
All unread
Project
Apps
Tableau
Direct me

Search Tableau

Find a View

Sales profit 96

Press 'enter' to submit

There are 5 results for **"Sales profit"**. View all results in Tableau

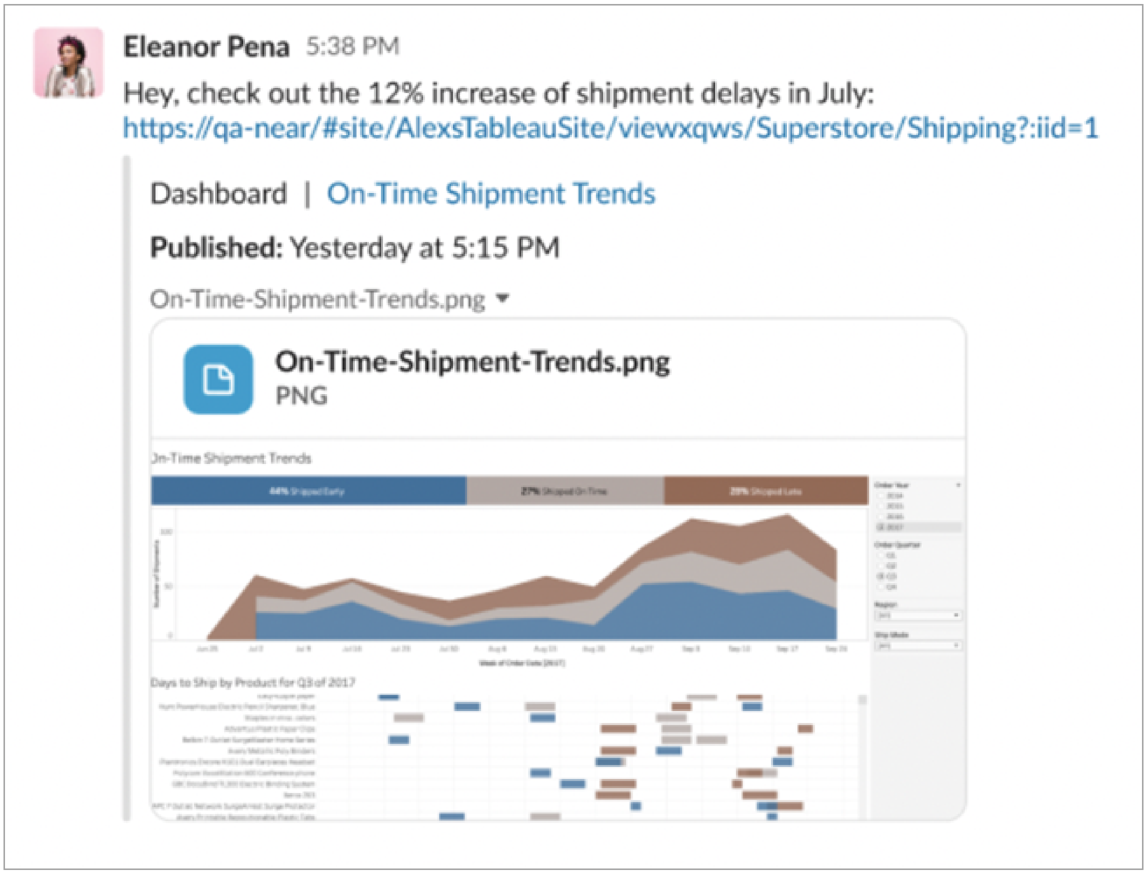
Email Performance
Workbook: **Tableau Marketing**
Owner: **Janna Johnson**
Modified: **Jun 10, 2021, 5:15 PM**

Share

Email Performance
Workbook: **Tableau Marketing**
Owner: **Janna Jonson**
Modified: **Jun 10, 2021, 5:15 PM**

Close

Choose **Share with Snapshot** to include a preview (Slack link unfurling) of the Tableau content in your message. You can share a snapshot if the Tableau content doesn't contain filters that restrict data access (for example, row-level security). The snapshot is visible to all people you share it with, regardless of their access level.



Eleanor Pena 5:38 PM

Hey, check out the 12% increase of shipment delays in July:
https://qa-near/#site/AlexsTableauSite/viewxqws/Superstore/Shipping?:iid=1

Dashboard | On-Time Shipment Trends

Published: Yesterday at 5:15 PM

On-Time-Shipment-Trends.png ▾

On-Time-Shipment-Trends.png
PNG

And without leaving Slack, you can access recently viewed Tableau content and your Tableau favorites. From the Tableau App for Slack **Home** tab, you see the five Tableau views or workbooks you visited most recently. You can also access five of your favorite Tableau views or workbooks.

Select the name of the Tableau view or workbook to open it directly in Tableau, or select the more actions menu (...) to share favorite or recently viewed Tableau content.

Receive Tableau notifications in Slack

Comments

Get notified when you're @mentioned in a comment to keep the conversation going. For more information, see Comment on Views.

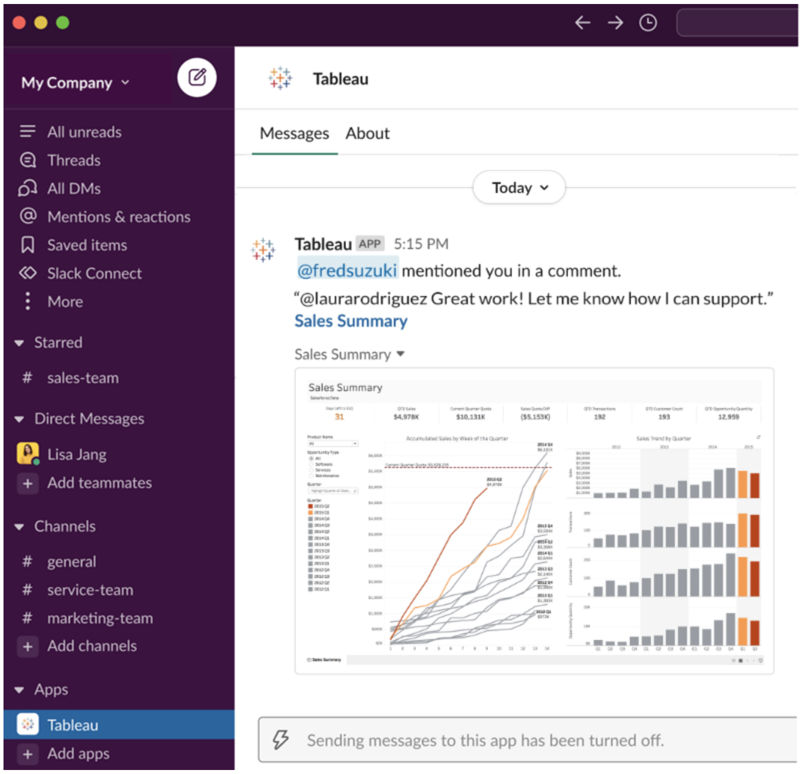

My Company
All unreads
Threads
All DMs
Mentions & reactions
Saved items
Slack Connect
More
Starred
sales-team
Direct Messages
Lisa Jang
Add teammates
Channels
general
service-team
marketing-team
Add channels
Apps
Tableau
Add apps
Tableau
Messages
About
Today
Sales Summary

Tableau APP 5:15 PM
@fredsuzuki mentioned you in a comment.
"@laurarodriguez Great work! Let me know how I can support."
Sales Summary

Sending messages to this app has been turned off.

Share

See when a teammate sends a Tableau asset your way, including views, workbooks, and more. For more information about sharing, see Share Web Content.

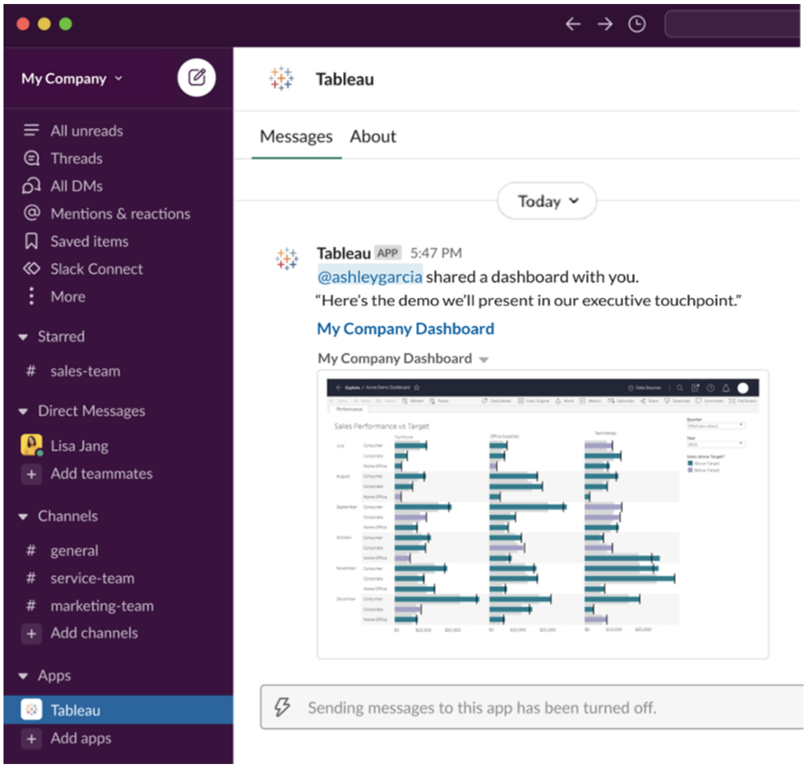

My Company
All unreads
Threads
All DMs
Mentions & reactions
Saved items
Slack Connect
More
Starred
sales-team
Direct Messages
Lisa Jang
Add teammates
Channels
general
service-team
marketing-team
Add channels
Apps
Tableau
Add apps
Tableau
Messages
About
Today

Tableau APP 5:47 PM

@ashleygarcia shared a dashboard with you.

"Here's the demo we'll present in our executive touchpoint."

My Company Dashboard

My Company Dashboard

Sending messages to this app has been turned off.

Data-driven Alerts

You can specify a threshold for your data and get alerted when it's met. For more information, see Send Data-Driven Alerts from Tableau Cloud or Tableau Server.

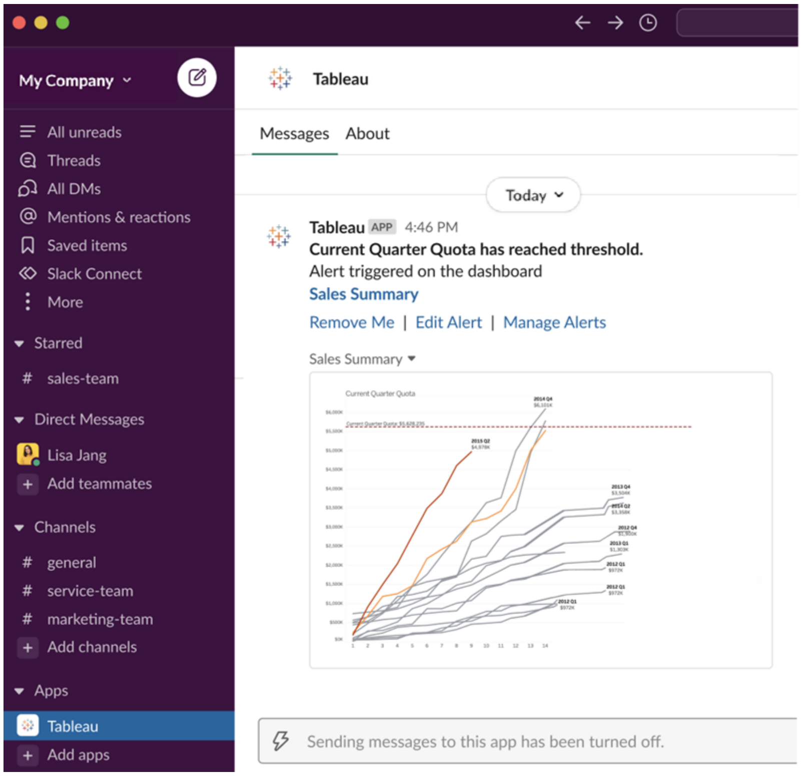

My Company
All unreads
Threads
All DMs
Mentions & reactions
Saved items
Slack Connect
More
Starred
# sales-team
Direct Messages
Lisa Jang
Add teammates
Channels
# general
# service-team
# marketing-team
Add channels
Apps
Tableau
Add apps
Tableau
Messages
About
Today
Sales Summary

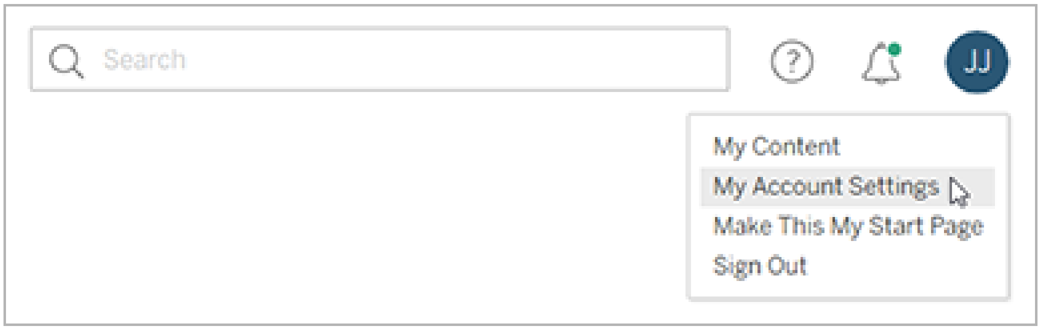
Tableau APP 4:46 PM
Current Quarter Quota has reached threshold.
Alert triggered on the dashboard
Sales Summary
Remove Me | Edit Alert | Manage Alerts

Sending messages to this app has been turned off.

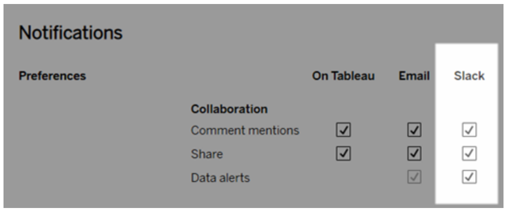
Manage Tableau notifications for Slack

Your Tableau site admin can turn on or off all notifications across the site. Tableau admins and Slack workspace admins integrate your Tableau site with Slack, and control whether site users can receive notifications. If it's enabled and your Tableau site administrator allows notifications, all site users can receive notifications in Slack through the Tableau App for Slack. Sometimes notification preferences aren't available because the site has other settings configured that affect notifications.

To control which notifications appear in your Slack workspace, or to turn off Slack notifications, at the top of a page, click your profile image or initials, and then select **My Account Settings**.



Under Notifications, select or clear the check boxes under **Slack** for comment mentions, share, and data alerts.



Notifications

Preferences	On Tableau	Email	Slack
Collaboration			
Comment mentions	☑	☑	☑
Share	☑	☑	☑
Data alerts		☑	☑

Select **Save Changes**.

For more information, see **Change notification settings** in Manage Your Account Settings.

Interact with Data in Tableau

This tutorial walks you through some of the basics of viewing and interacting with data visualizations, or views, in Tableau Server.

Tableau is a tool that lets you interact with published visualizations to explore insights, ask questions, and stay on top of your data. Here's how to get started.

Go ahead. It's safe to click around

Tableau is built for interaction. What you do to a visualization changes how it looks for you, just for now.

Others will still see the visualization as it originally appeared. And the data used to build it stays the same, too.

1: What is a Tableau Site?

A Tableau Site is a place for your team to share data and data visualizations with each other. You can explore what they've published and made available to you.

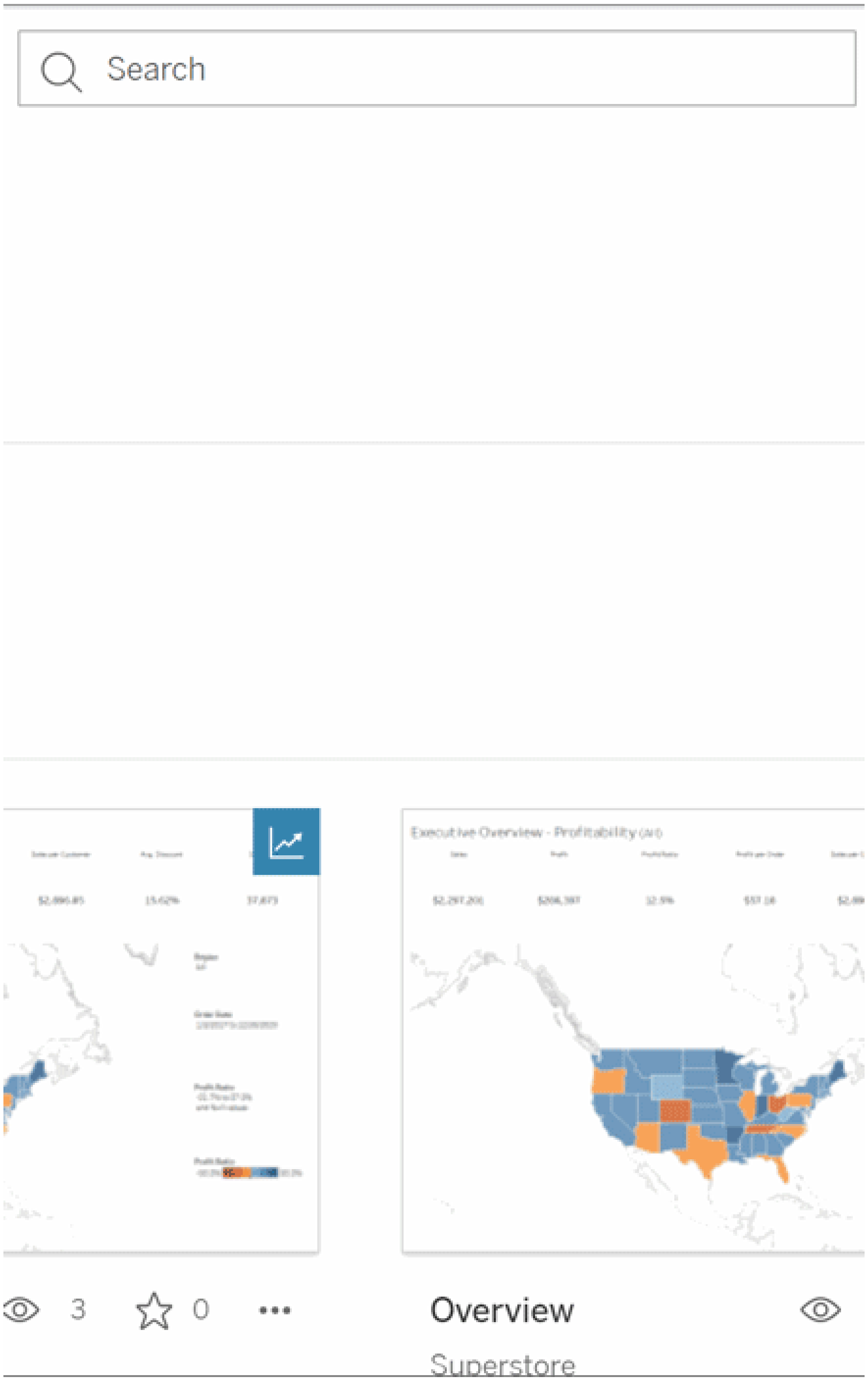
When you sign in to your Tableau site, you'll land on the home page.

Username
Password
Sign In →

2: Search for a viz

Tableau calls visualizations on a site Views. Use search to find views or workbooks (a package of views in a single file).

Search results will show all the different content types relevant to your query.


Search
Executive Overview - Profitability
3
0
•••
Overview
Superstore

You can select See All for all search results if the views in the quick search aren't what you were looking for, or use the Explore page to browse. There you'll see all the different types of content a Tableau site can host.

3: Interact with Content

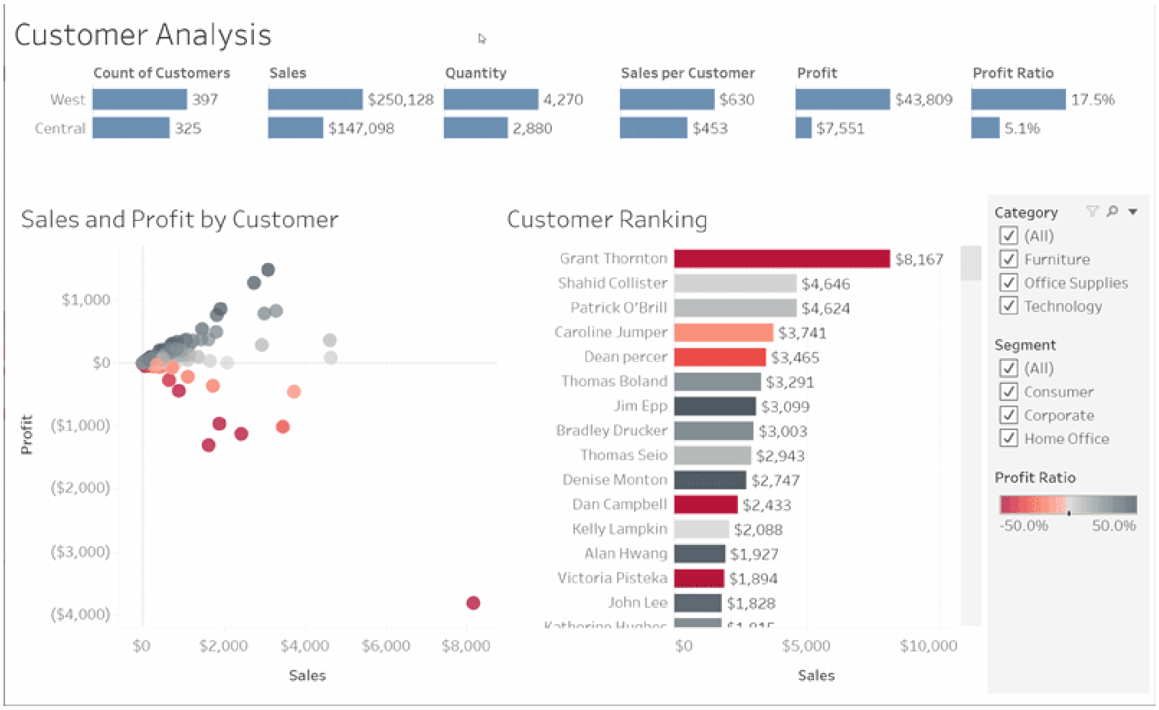
A published view is a canvas for you to interact and understand your data. Remember, you won't hurt or change the underlying data, or change what others see.

Here are some of the tools in your toolbox to find data insights.

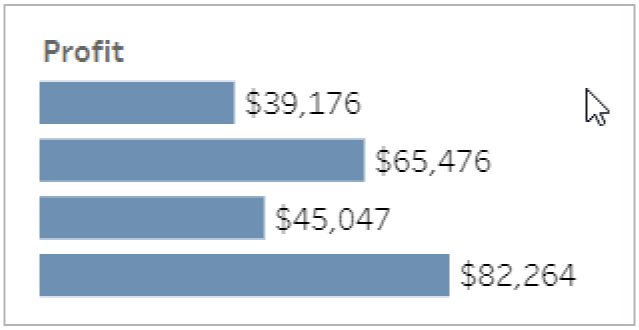
See Details and Sort Data

Now that you know you can click on the data, let's check it out.

As you move the mouse across a view, you might see tooltips that reveal details about each data point, or mark. You can also select multiple marks.

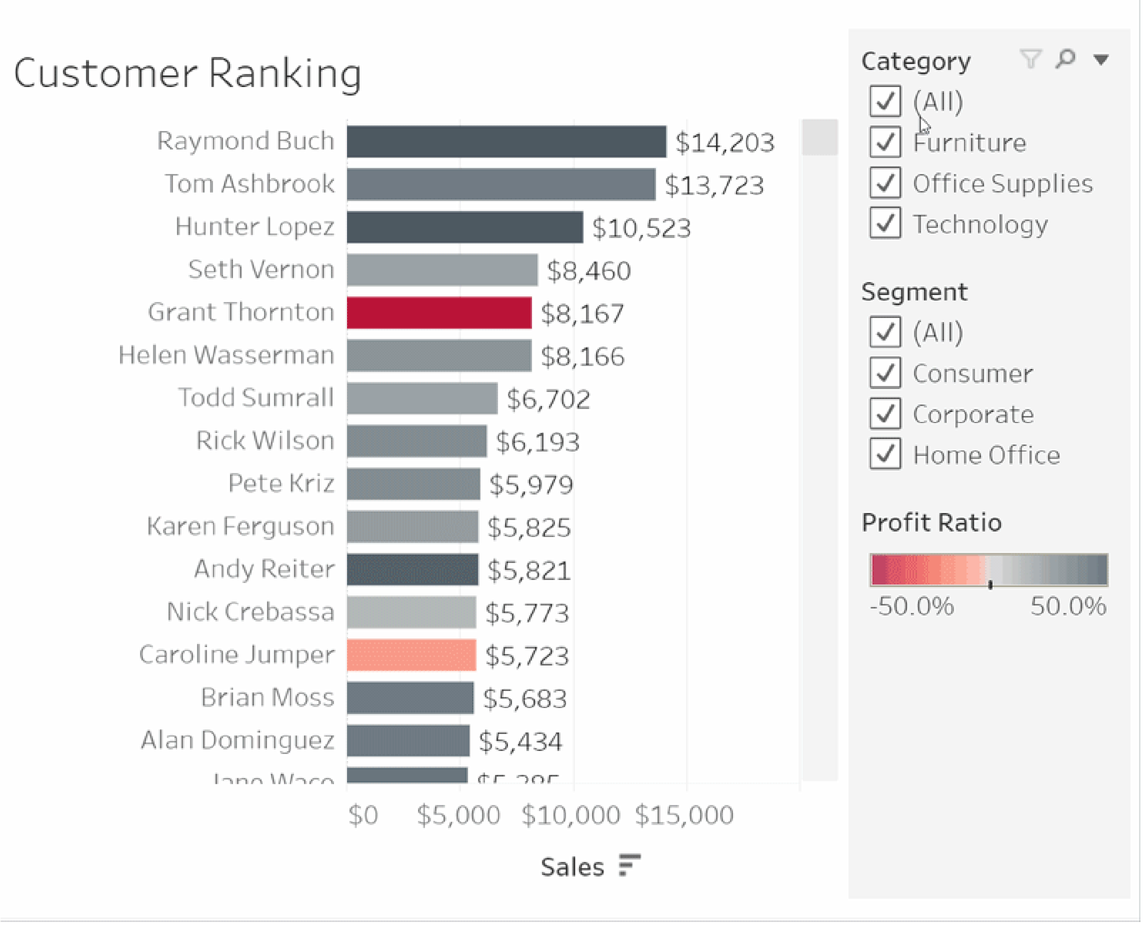

Customer Analysis
Count of Customers
Sales
Quantity
Sales per Customer
Profit
Profit Ratio
West
397
$250,128
4,270
$630
$43,809
17.5%
Central
325
$147,098
2,880
$453
$7,551
5.1%
Sales and Profit by Customer
$1,000
$0
($1,000)
($2,000)
($3,000)
($4,000)
Profit
$0
$2,000
$4,000
$6,000
$8,000
Sales
Customer Ranking
Grant Thornton $8,167
Shahid Collister $4,646
Patrick O'Brill $4,624
Caroline Jumper $3,741
Dean percer $3,465
Thomas Boland $3,291
Jim Epp $3,099
Bradley Drucker $3,003
Thomas Seio $2,943
Denise Monton $2,747
Dan Campbell $2,433
Kelly Lampkin $2,088
Alan Hwang $1,927
Victoria Pisteka $1,894
John Lee $1,828
$0
$5,000
$10,000
Sales
Category
☑ (All)
☑ Furniture
☑ Office Supplies
☑ Technology
Segment
☑ (All)
☑ Consumer
☑ Corporate
☑ Home Office
Profit Ratio
-50.0%
50.0%

Sort tables alphabetically or numerically by hovering over a column header and clicking the sort icon.



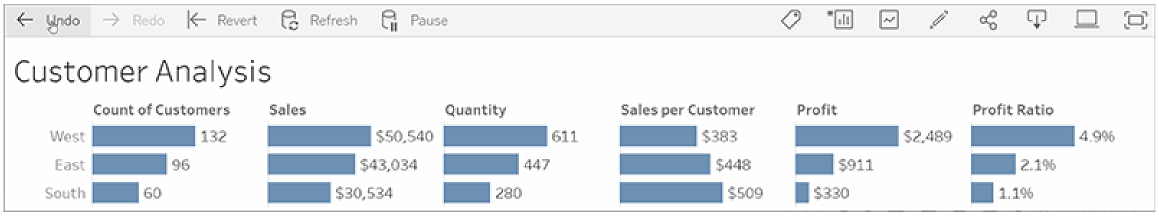
Filter Data

Trim or limit the visible data to a specific area, date, or category.


Customer Ranking
Raymond Buch $14,203
Tom Ashbrook $13,723
Hunter Lopez $10,523
Seth Vernon $8,460
Grant Thornton $8,167
Helen Wasserman $8,166
Todd Sumrall $6,702
Rick Wilson $6,193
Pete Kriz $5,979
Karen Ferguson $5,825
Andy Reiter $5,821
Nick Crebassa $5,773
Caroline Jumper $5,723
Brian Moss $5,683
Alan Dominguez $5,434
$0
$5,000
$10,000
$15,000
Sales
Category
☑ (All)
☑ Furniture
☑ Office Supplies
☑ Technology
Segment
☑ (All)
☑ Consumer
☑ Corporate
☑ Home Office
Profit Ratio
-50.0%
50.0%

Undo/Revert

Maybe you didn’t mean to exclude everything but one area. Click Undo to remove the last change, or use Revert to undo all your selections.

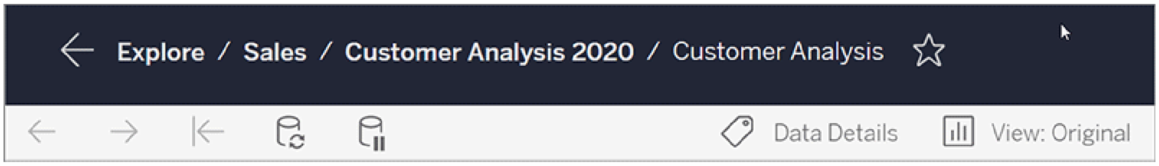

Undo
Redo
Revert
Refresh
Pause

Customer Analysis

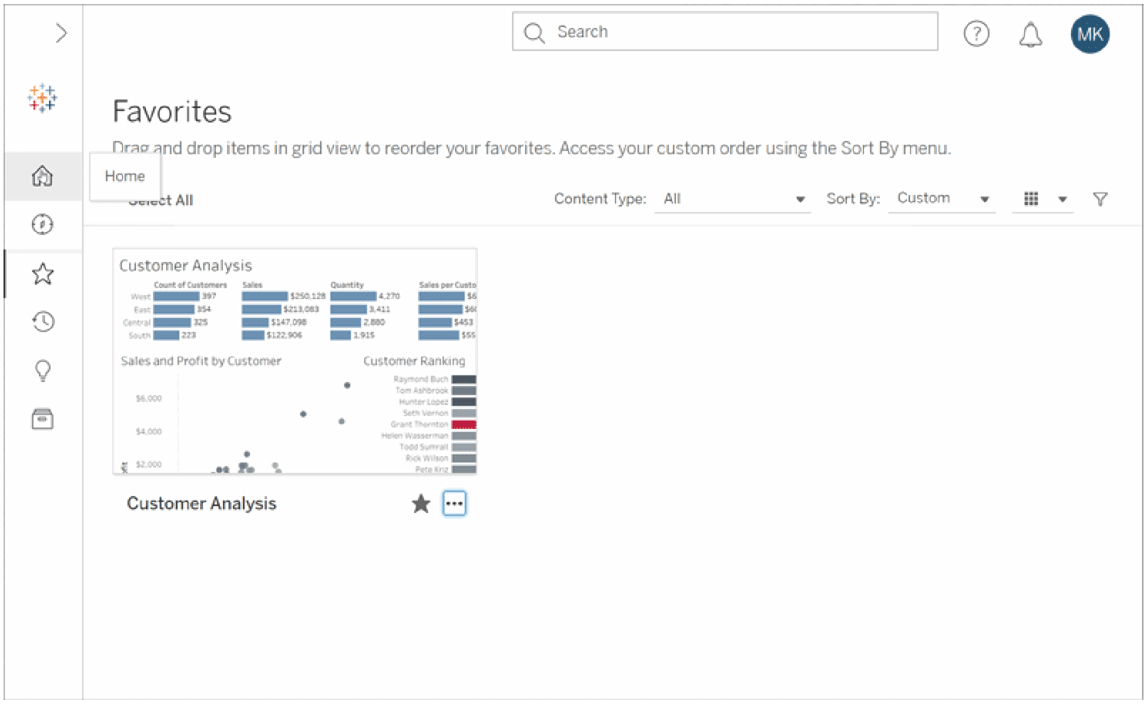
	Count of Customers	Sales	Quantity	Sales per Customer	Profit	Profit Ratio
West	132	$50,540	611	$383	$2,489	4.9%
East	96	$43,034	447	$448	$911	2.1%
South	60	$30,534	280	$509	$330	1.1%

4: Keep up

This view can automatically update with new data, so you don’t need to go searching for new charts to get the latest information. Keep it handy by clicking the star icon to add it to your favorites.


Explore / Sales / Customer Analysis 2020 / Customer Analysis
Data Details
View: Original

All favorites are added to the Favorites page in the navigation panel. And any recent dashboard or view you explored also appears in the Home page, waiting for you next time.



Favorites

Drag and drop items in grid view to reorder your favorites. Access your custom order using the Sort By menu.

Content Type: All

Sort By: Custom

Search
MK
Home
Select All
Customer Analysis
Count of Customers
Sales
Quantity
Sales per Custo
West
East
Central
South
Sales and Profit by Customer
Customer Ranking
Customer Analysis

There’s a lot you can do in Tableau Server, and this just explored some of the basics. For more information, see What Can I Do with a Tableau Web View?

Happy exploring!

Create and Troubleshoot Metrics (Retired)

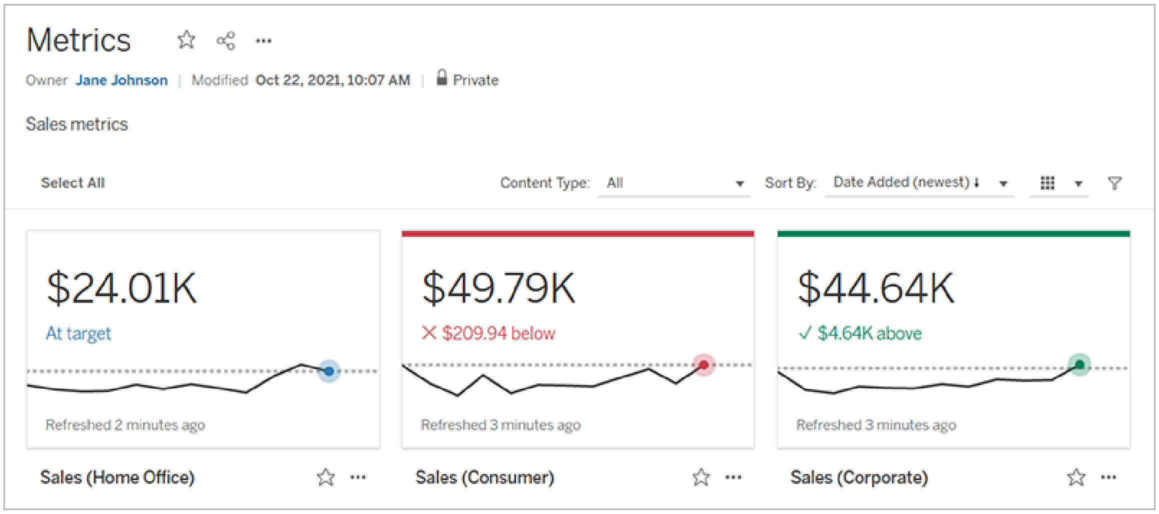
Retirement of legacy metrics

This article is about Tableau's legacy metrics feature, which was retired in Tableau Cloud in February 2024 and in Tableau Server version 2024.2. In October 2023, Tableau retired the ability to embed legacy metrics in Tableau Cloud and in Tableau Server version 2023.3.

Tableau Pulse introduces a new way to track metrics. With Tableau Pulse, the metrics you create are used to generate insights about your data. These data insights are sent directly to users who follow the metrics, so they can learn about changes to their data in their flow of work. For more information, see Create Metrics with Tableau Pulse.

If you have legacy metrics that you want to keep, note the data source, measure, and time dimension for those metrics and recreate them in Tableau Pulse. Legacy metrics won't be automatically migrated to Tableau Pulse.

Metrics provide a fast way to stay informed about your data. Because metrics update automatically and display their current value in the grid and list view of your content, you can check all the key numbers you care about in seconds.


Metrics
Owner Jane Johnson | Modified Oct 22, 2021, 10:07 AM | Private
Sales metrics
Select All
Content Type: All
Sort By: Date Added (newest)
$24.01K
At target
Refreshed 2 minutes ago
Sales (Home Office)
$49.79K
✕ $209.94 below
Refreshed 3 minutes ago
Sales (Consumer)
$44.64K
✓ $4.64K above
Refreshed 3 minutes ago
Sales (Corporate)

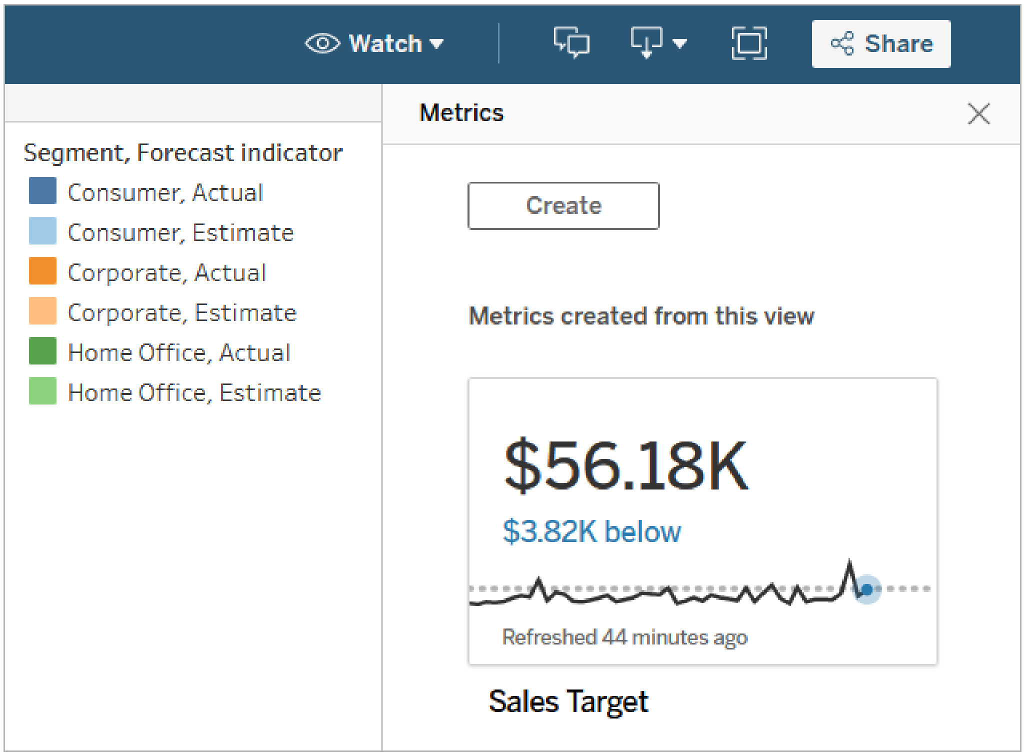
At their most basic level, metrics show the value of an aggregate measure, like the sum of sales. More complex metrics can include timelines, comparisons, and statuses that provide an easy to understand indicator of how you’re performing relative to a prior point in time or a value you have defined.

If you have a set of dashboards that you regularly check, create metrics for the numbers that you want to monitor, then track them in one place by adding them to your favorites or a collection, or by creating them in the same project. That way, you don’t need to load and filter the dashboards unless you want to dig deeper into your data.

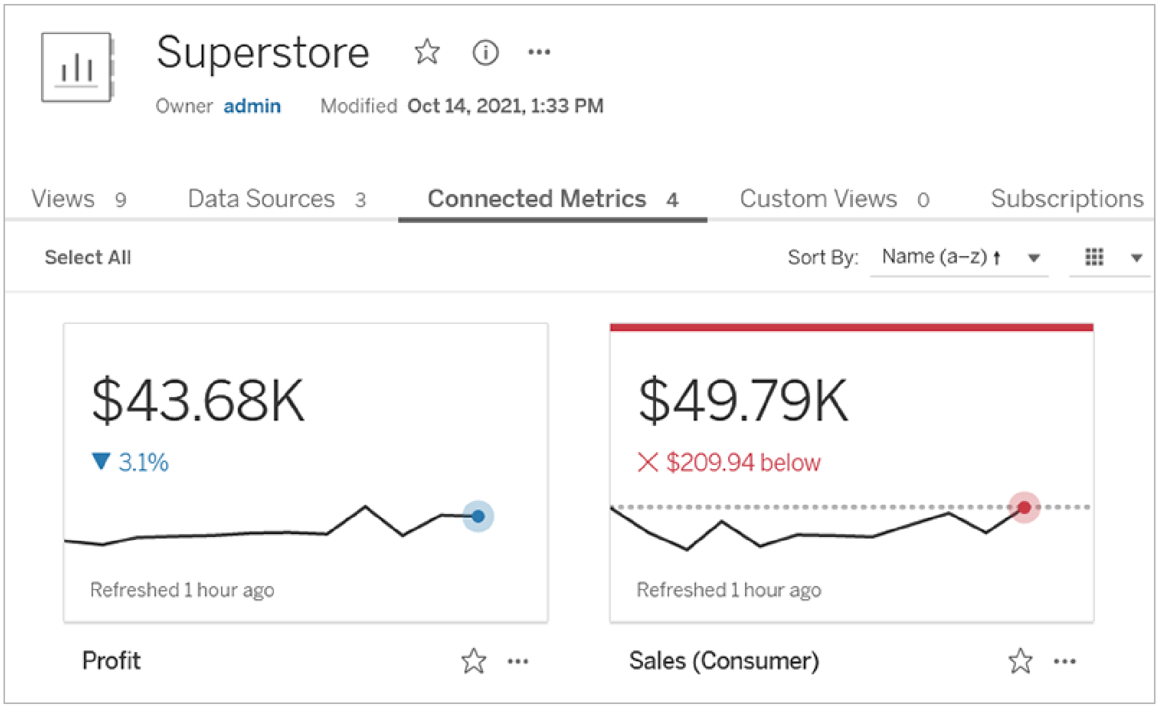
Find metrics on your site

There are a few ways to find metrics on your Tableau site. To browse all the metrics that you have permission to view, navigate to the Explore page, then select **All Metrics** from the content type menu.

If you’re looking for metrics related to a particular view or workbook, check the connected metrics for that content. To see connected metrics for a view, open the view, then click **Watch** > **Metrics** in the view toolbar. The metrics displayed are ordered from the newest creation date to the oldest.


Watch
Share
Segment, Forecast indicator
Consumer, Actual
Consumer, Estimate
Corporate, Actual
Corporate, Estimate
Home Office, Actual
Home Office, Estimate
Metrics
Create
Metrics created from this view
$56.18K
$3.82K below
Refreshed 44 minutes ago
Sales Target

To see connected metrics for all the views in a workbook, navigate to the workbook, then click the **Connected Metrics** tab. You can sort these metrics using the Sort By menu.

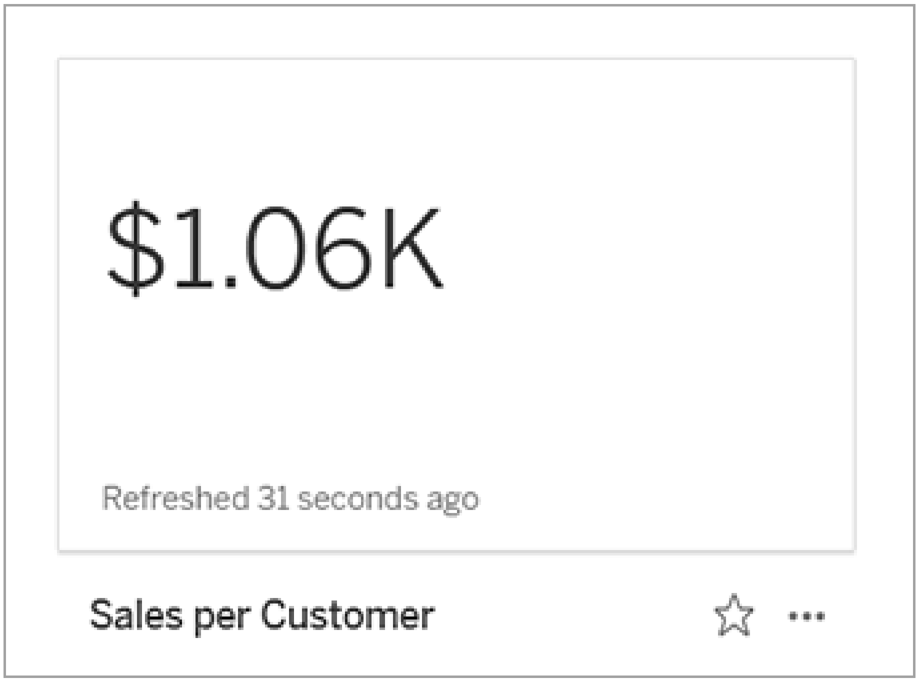

Superstore
Owner admin
Modified Oct 14, 2021, 1:33 PM
Views 9
Data Sources 3
Connected Metrics 4
Custom Views 0
Subscriptions
Select All
Sort By:
Name (a–z) ↑
$43.68K
▼ 3.1%
Refreshed 1 hour ago
Profit
$49.79K
✕ $209.94 below
Refreshed 1 hour ago
Sales (Consumer)

Components of a metric

The only data required to define a metric is an aggregate measure. Metrics are created from a mark in a view, and the measure associated with that mark defines the metric. The measure must be aggregated, because an unaggregated mark will not change over time. For information about dimensions and measures in Tableau, see Dimensions and Measures, Blue and Green.

A metric can optionally be defined by a date dimension, and you can configure a comparison and a status for your metric. Each of these components will add context to the data presented on the metric card.

Metrics that have only a measure defining them will appear as a single number. This number will update when the data updates, but there will be no timeline on the card.



$1.06K

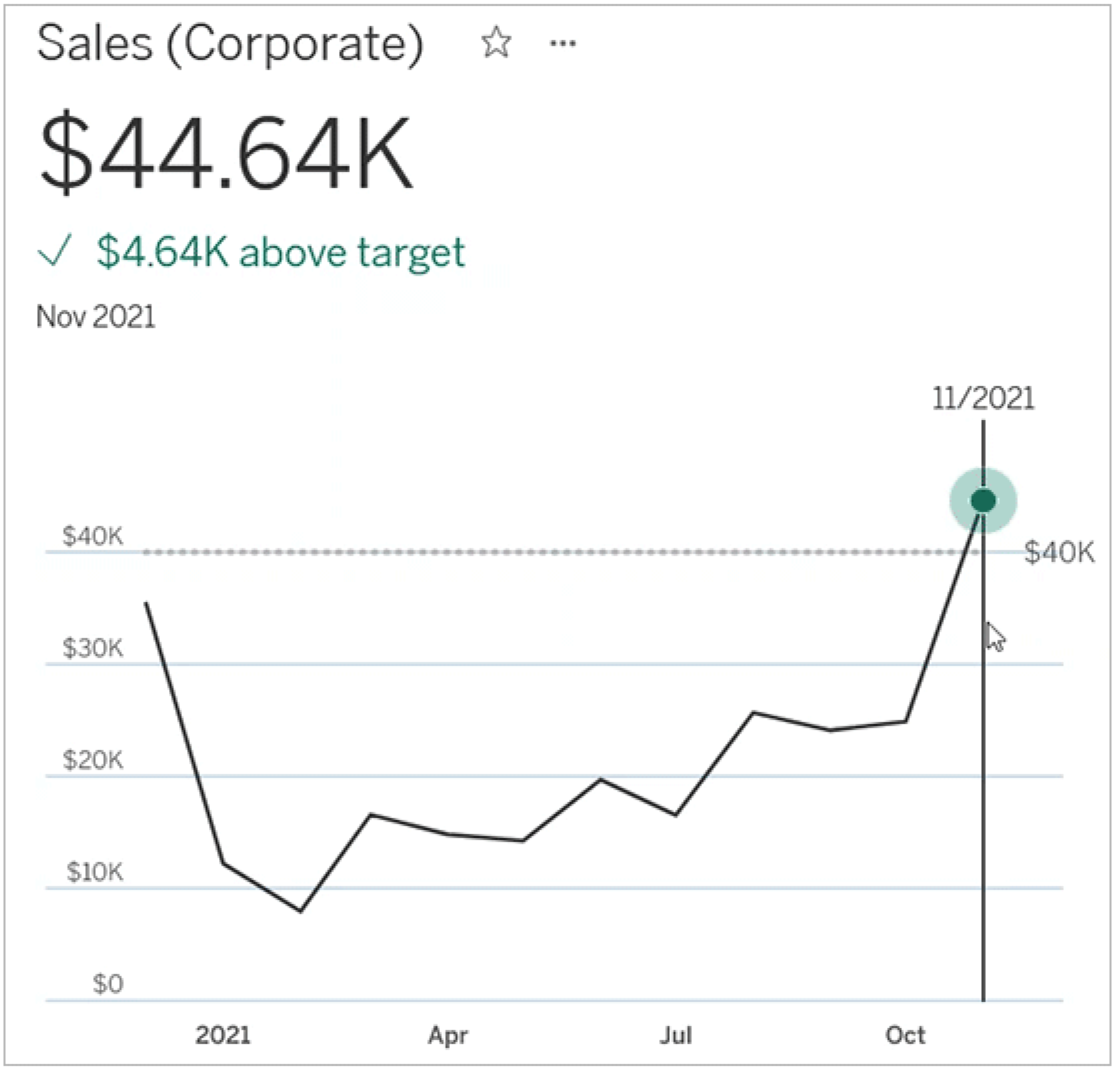
Refreshed 31 seconds ago

Sales per Customer

Timeline

When you select a mark to define a metric, if the mark has a date dimension associated with it, that dimension becomes part of the metric definition. Metrics with a date dimension show a timeline, and you can configure the historical comparison for the metric. By default, the historical comparison is to the previous mark.

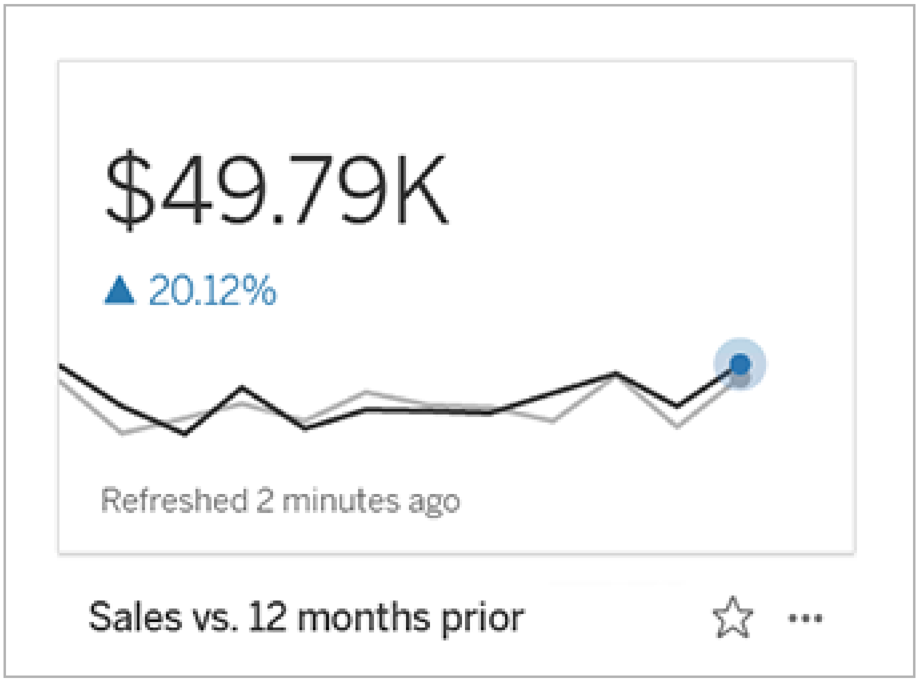
When you open a metric's details page, the timeline shows the value of the measure based on the granularity of the date dimension, for example, daily sales or monthly users. Hover over the points on the timeline to see historical values.


Sales (Corporate)
☆ ···
$44.64K
✓ $4.64K above target
Nov 2021
11/2021
$40K
$30K
$20K
$10K
$0
$40K
2021
Apr
Jul
Oct

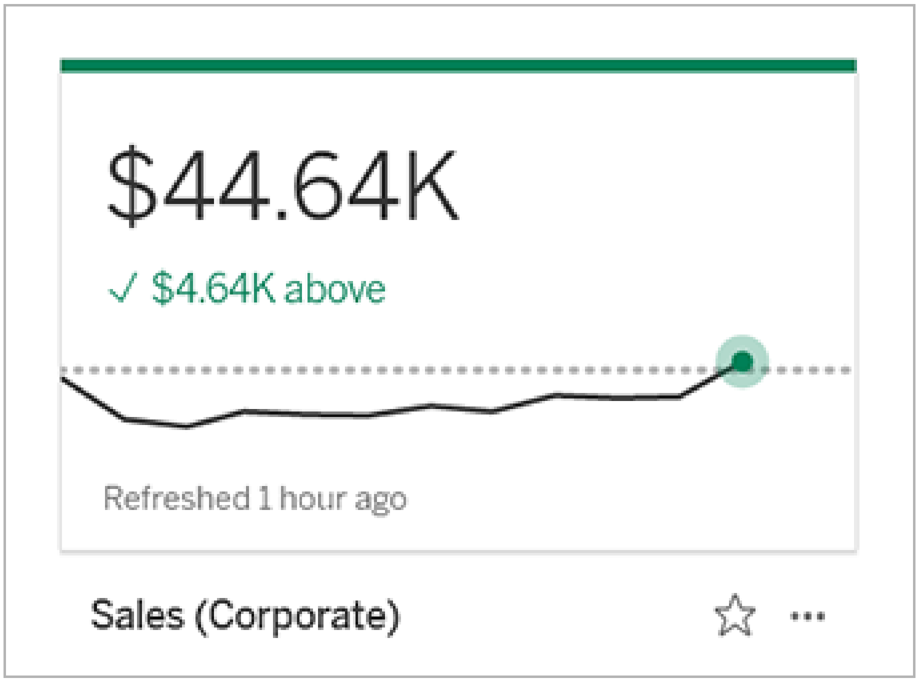
Comparison

There are two types of comparisons that you can configure for metrics: historical comparisons and constant comparisons. You can configure a historical comparison only if a metric has a date dimension associated with it, but constant comparisons can be added for any type of metric.

A historical comparison is a relative comparison between the current value and a specified number of hours, days, or other unit of time previous. For example, you could set a comparison between the current value for monthly sales and the value from 12 months ago. Every time data is added to a metric, the historical comparison will adjust relative to the date or time of the new data.


$49.79K
▲ 20.12%
Refreshed 2 minutes ago
Sales vs. 12 months prior

Constant comparisons are to a single value that doesn’t change as new data is added. You might set a comparison to represent a threshold to stay above, for example, if you need to maintain a 90% on-time delivery rate. Or you might define a cumulative goal you are working toward, for example, a monthly sales target.



$44.64K

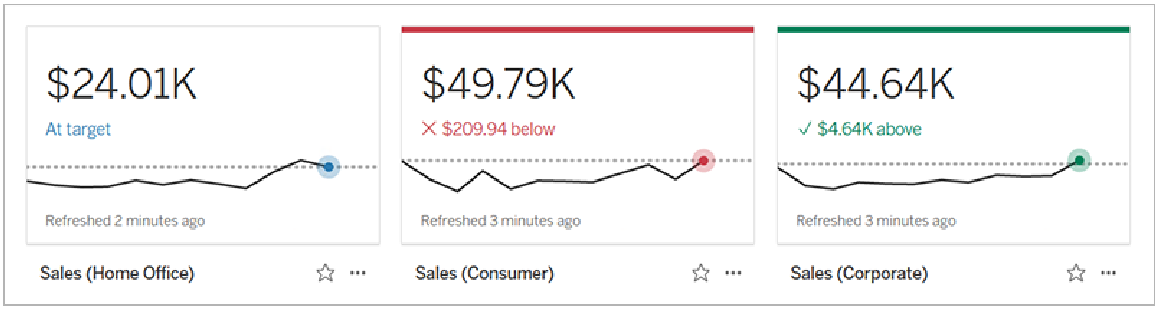
✓ $4.64K above

Refreshed 1 hour ago

Sales (Corporate)

Status

For metrics with a constant comparison, you can define whether being above, below, or at the comparison value is good, bad, or neutral. A metric with a “good” status will display a check mark next to the comparison value, and the metric card will have a green band at the top. A metric with a “bad” status will display an X next to the comparison value, and the metric card will have a red band at the top. Metrics with a “neutral” status appear the same as metrics without a status indicator; there is no icon or color applied to the card.



$24.01K

At target

Refreshed 2 minutes ago

Sales (Home Office)

$49.79K

✕ $209.94 below

Refreshed 3 minutes ago

Sales (Consumer)

$44.64K

✓ $4.64K above

Refreshed 3 minutes ago

Sales (Corporate)

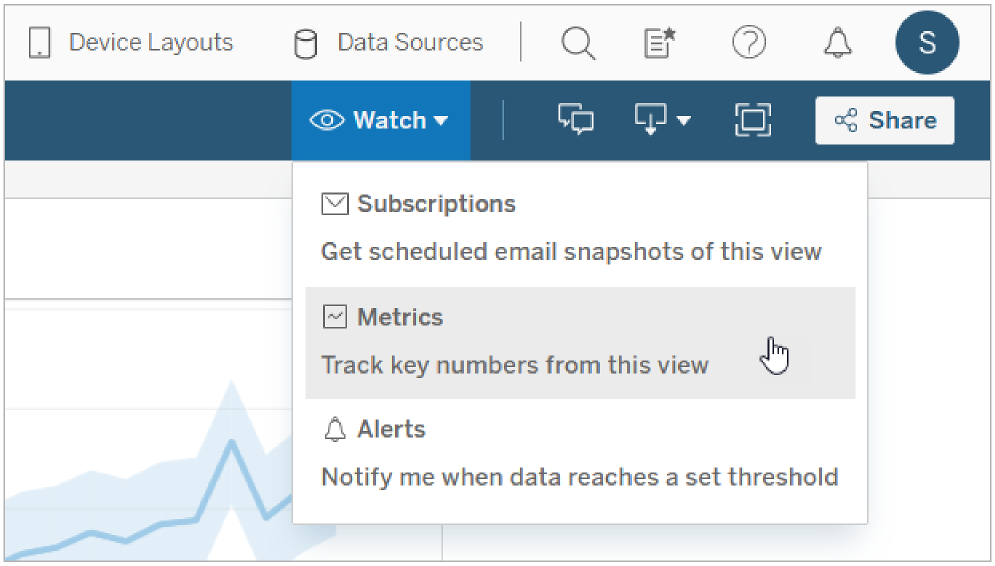
Create a metric from a view

If you have a site role of Creator or Explorer (can publish), and you have the Create/Refresh Metric capability on the relevant workbook, you can create metrics on Tableau Cloud or Tableau Server.

Before you create a metric, check the connected metrics for the view to make sure that the metric you are planning to create doesn't already exist. Instead of creating a duplicate metric, open the existing metric and add it as a favorite.

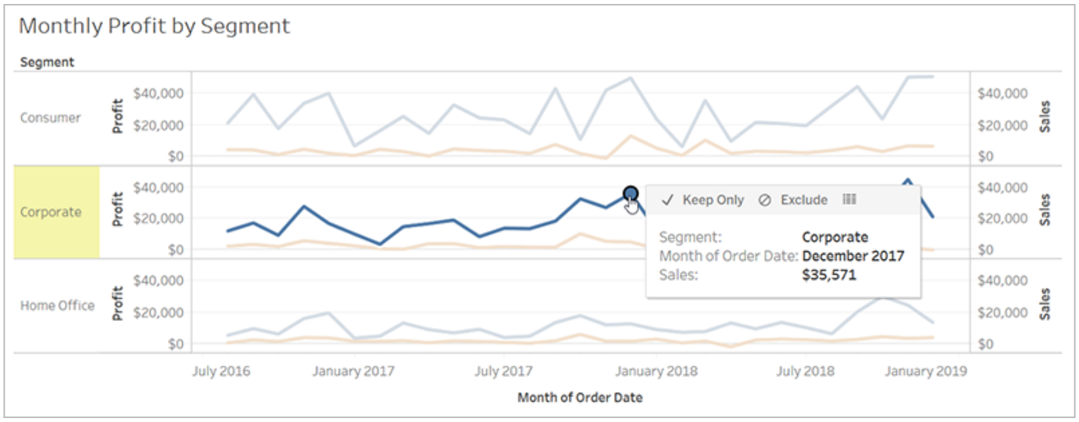
Select the mark to define your metric

1. Navigate to the view that you want to create a metric from.
2. On the view toolbar, select **Watch** > **Metrics**.


Device Layouts
Data Sources
S
Watch
Share
Subscriptions
Get scheduled email snapshots of this view
Metrics
Track key numbers from this view
Alerts
Notify me when data reaches a set threshold

The metrics pane opens.

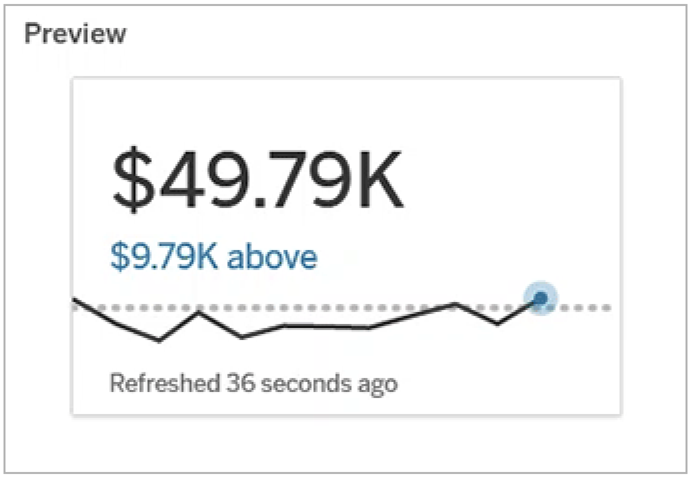
3. If the pane shows connected metrics, select the **Create** button to enter authoring mode.
4. Select a mark. If you encounter an error, see When you can't create a metric.


Monthly Profit by Segment
Segment
Consumer
Corporate
Home Office
Profit
Sales
$40,000
$20,000
$0
✓ Keep Only
⊘ Exclude
July 2016
January 2017
July 2017
January 2018
July 2018
January 2019
Month of Order Date

Segment: Corporate
Month of Order Date: December 2017
Sales: $35,571

The measure associated with this mark defines your metric. Any filters you apply to the mark are applied to your metric. If this mark has a date dimension associated with it, that date dimension also defines your metric, and your metric will display a timeline.

The metrics pane shows a preview of your metric. The value in the preview is the most recent value for the metric, which may differ from the value of the mark you selected if it was not the most recent in the time series. The preview updates as you try different configurations.


Preview
$49.79K
$9.79K above
Refreshed 36 seconds ago

Describe and configure your metric

The options available to configure your metric depend on the mark you select and on the type of comparison you choose.

1. The **Name** field is pre-populated based on the mark you select. You can give the metric a different name. A metric must have a unique name within the project it belongs to.

2. Under **Description**, enter an optional message to help others understand your metric. For example, describe filters applied to the metric or indicate the data source used by the metric.

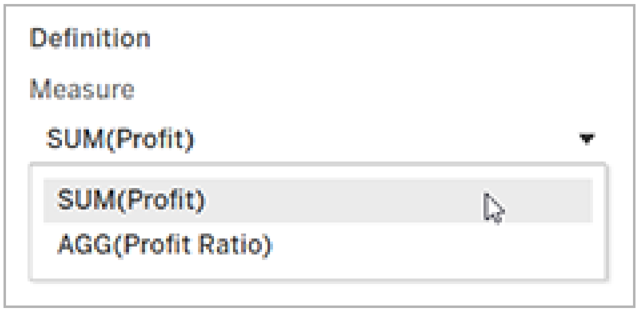
3. For the **Date Range** (only for metrics with a date dimension), select one of the default options, or set a custom range. If your metric has a large number of marks, limiting the date range can make it easier to read the timeline.

4. Select the **Comparison Type** for the metric: historical or constant.

5. For **Historical** comparisons:
   - Enter how far prior you want to compare against. The unit of time for the comparison is the same as the granularity of your data, such as hours or months.
   - Select **Show Comparison Line** to include a second line for the comparison period on the timeline.

6. For **Constant** comparisons:
   - Enter the value to compare against. Don’t include commas or symbols in this field. To enter a percentage, simply type the number without the percent sign, for example, enter 25 instead of 0.25 for a target of 25%. When you enter a valid target value, the preview updates to show how far above or below the target the current value is.
   - Set the **Status** for the comparison to indicate whether being above, at, or below the value is good, bad, or neutral. By default, the status is set to neutral. Check the metric preview to see how different statuses affect your metric.

7. Under **Definition** > **Measure**, select the measure to use for your definition from the drop-down. This option appears only if the mark you select has more than one measure associated with it.



Definition

Measure

SUM(Profit)

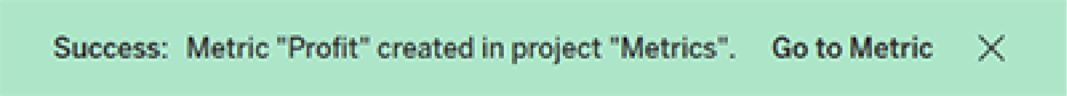
Finalize your metric

1. Under **Project**, select **Change Location** to choose a different project for the metric. By default, your metric will be added to the same project that the view belongs to.

   Every metric in a project must have a unique name. Because a metric's name and project are initially set based on the mark you select, you might run into a conflict when you try to save your metric, if another user has already created a metric from that mark. Either choose a different project or name for your metric or, if you want to overwrite the existing metric, see Overwrite a metric.

2. Click the **Create** button.

   A message appears with a link to the metric in the project you added it to.

   Success: Metric "Profit" created in project "Metrics".

3. Verify that the permissions for your metric are correct, following the guidance in Set permissions.

   By default, a metric inherits the permissions of the project it is created in. Anyone with access to your metric will be able to see the metric's data, even if they don't have permission to access the connected view or data source.

Now that you've created a metric, you can manage the metric the same way you manage other independent pieces of content on your Tableau site. Though metrics are created from a view, they exist independently of that view, unlike data driven alerts or subscriptions. You can move the metric to a different project without moving the connected view. For information about managing content on your Tableau site, see Manage Web Content.

Overwrite a metric

Once a metric is created, you can change the name, description, and configuration of the metric, but you can't change how the metric is defined. If you want to change the data that the metric uses, you must overwrite it. In order to overwrite a metric, you need to be the metric owner or be granted the correct permission capability.

1. To overwrite a metric, create a metric with the same name in the same project as the metric you want to overwrite.

   The Overwrite Metric dialog appears.

2. Click the **Overwrite** button.

When you overwrite a metric, the metric continues to appear for those who have added it to their favorites, and any changes made to permissions for the previous metric will apply to the new metric.

When you can't create a metric

If you select a mark on a chart that doesn't support metrics, you'll get an error message explaining why you can't create a metric. The table below summarizes these scenarios.

Reason	Scenarios
You don't have the correct permissions.	• The workbook owner or an administrator has denied the Create/Refresh Metric capability. For more information, see Permissions.
You can't access the complete data.	• Row level security or user filters limit the data you can see. For more information, see Restrict Access at the Data Row Level.
The password for the workbook's data source is not	• The workbook prompts for a password. For more information, see Set Credentials for Accessing

Reason	Scenarios
embedded or is no longer valid.	Your Published Data.
The data isn't at the correct level of granularity.	• The data in the chart isn't aggregated. Metrics use aggregations, such as sum or average. For more information, see Data Aggregation in Tableau. • There are multiple values per cell of data—a result of data blending. For more information, see Troubleshoot Data Blending.
The date dimension is not supported.	• The chart includes both date parts and date values. For more information, see Change Date Levels. • The date dimension uses the ISO 8601 calendar rather than the standard Gregorian calendar. For more information, see ISO-8601 Week-Based Calendar. • The date dimension is aggregated at the custom level of Month / Year or Month / Day / Year. For more information, see Custom Dates.

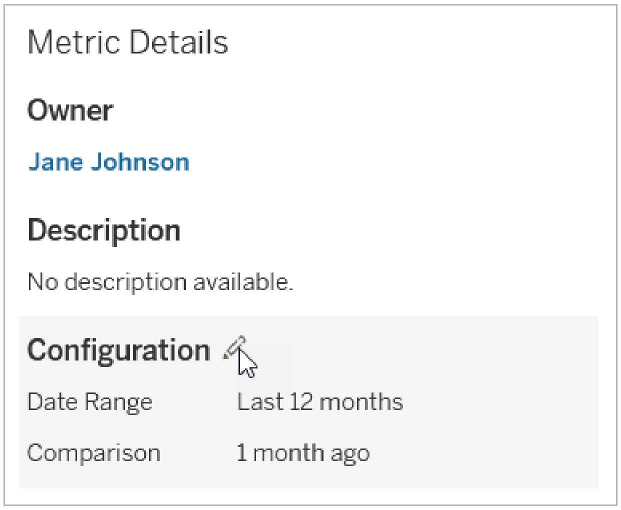
Edit a metric's configuration

Starting in 2022.2, you can change the configuration for a metric. A metric's configuration includes the comparison, date range, and status indicator. The configuration options available depend on the type of metric. Metrics with a timeline allow you to set a historical comparison or a constant comparison. Single number metric support only a constant comparison.

A metric's configuration does not include the metric definition (the measure and date dimension that generate the metric value). If you want to change the definition, overwrite the metric with a new metric.

To edit a metric's configuration, you must have the overwrite capability for the metric.

1. Open the metric details page for the metric you want to edit.
2. Mouse over the configuration section. Click anywhere on the section to enter editing mode.



Metric Details

Owner

Jane Johnson

Description

No description available.

Configuration

Date Range Last 12 months

Comparison 1 month ago

3. For a timeline metric, set the date range to display on the metric card and details.
4. Select the comparison type. For a constant comparison, set a comparison value and status. For a historical comparison, set how far prior you want to compare against and choose whether to show a comparison line on the timeline.
5. Click **Save**. Your configuration changes will appear to anyone who views the metric.

How metrics refresh

When a metric refreshes, it checks the connected view (the view the metric was created from) for new data. A refresh doesn’t necessarily update the value of a metric, because there may be no changes to the data.

Metrics refresh at a frequency either based on an extract’s refresh schedule or, for live data, every 60 minutes. The time of the last refresh is displayed on the metric.

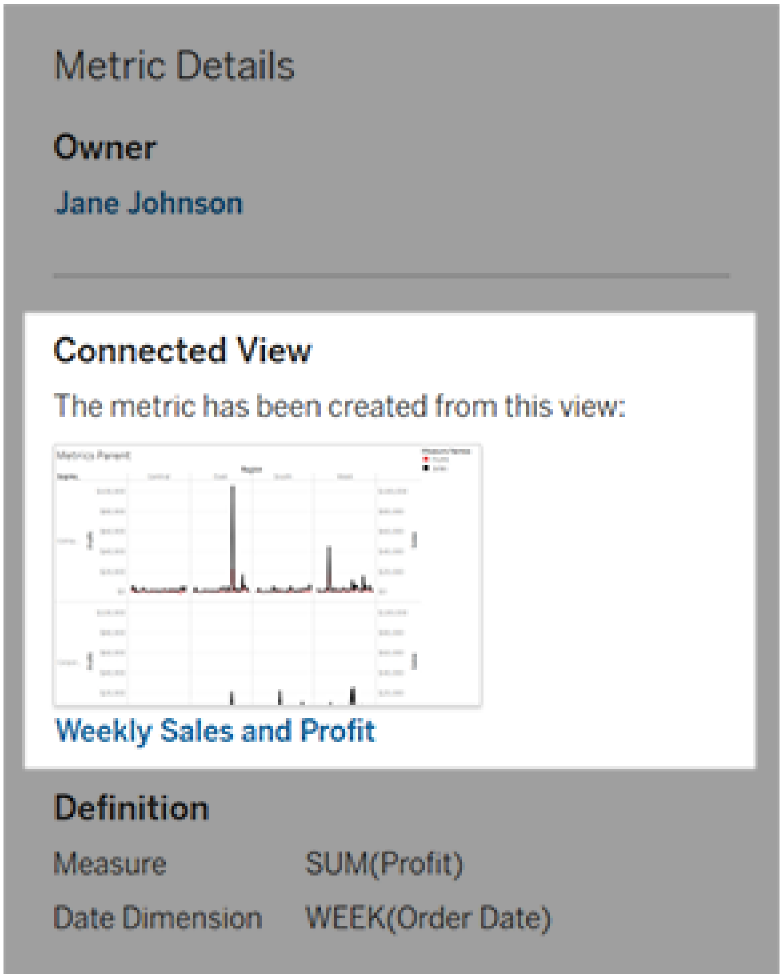
Fix failing refreshes

If a metric isn’t able to access the connected view or its underlying data, the refresh will fail. If the refresh for your metric fails, you’ll receive a notification, which notes the time of the failure and the affected metric.

Metric refreshes may fail for one of the following reasons.

- The connected view was deleted or modified.
- Permissions changed for the connected view.
- The password for the data source is no longer embedded or is no longer valid.
- The metric owner doesn’t have the required site role to refresh the metric. A site role of Creator or Explorer (can publish) is required.
- There was a temporary connectivity issue, which will resolve itself.

To identify the cause of the failure, look at the metric details. Make sure that the metric owner has the required site role to refresh the metric. Then inspect the **Connected View**.



Metric Details

Owner

Jane Johnson

Connected View

The metric has been created from this view:

Weekly Sales and Profit

Definition

Measure	SUM(Profit)
Date Dimension	WEEK(Order Date)

If the connected view is still listed

Open the view to investigate the cause of the failure.

If the view loads, check that the measure and (optional) date dimension that define the metric are still present in the view.

- If the view appears to be unchanged, you might no longer have permission to refresh metrics from it. The content owner or a Tableau administrator can change the Create/Refresh Metric permission capability. For more information, see Permissions.
- If the measure is no longer present, the view has been modified so the metric can't connect to the data needed to refresh. The content owner or a Tableau administrator can check the revision history and restore previous versions. For more information, see View Revision History.

If the view doesn’t load, but instead prompts for a password or displays an error when connecting to the data source, the password for the data source is not embedded or is no longer valid. The content owner or a Tableau administrator can edit the data source connection to embed the password. For more information, see Edit Connections.

If there is no connected view listed

The view was deleted or you no longer have permission to access the view. Contact your Tableau administrator for assistance.

Resume suspended refreshes

If a refresh fails enough times, the refresh is suspended. You’ll receive a notification if the refresh for your metric is suspended.

When a metric refresh is suspended, Tableau no longer attempts to get new data for the metric. Metrics with suspended refreshes continue to present historical data.

If the cause of the failure is fixed, you can resume the refresh.

1. Open the affected metric.
2. On the warning message, click **Resume refresh**.

Tableau attempts to perform the refresh. If this attempt succeeds, you'll receive a notification, and the refresh will resume on schedule. If the attempt doesn't succeed, your refresh remains suspended.

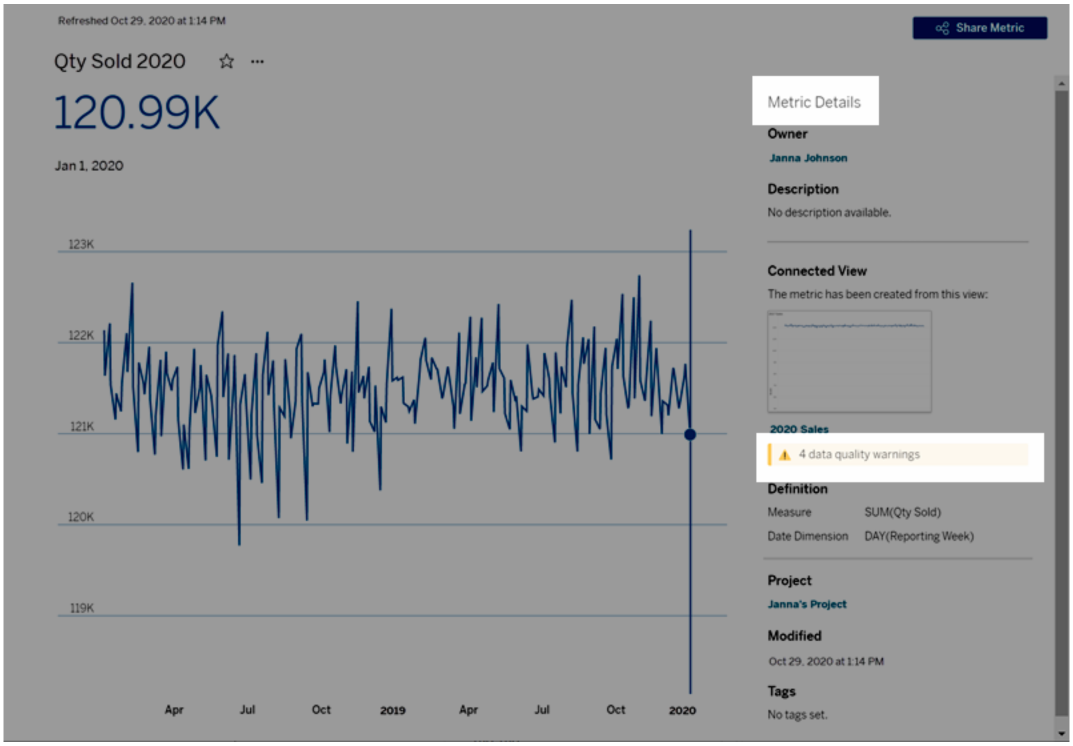
Try overwriting the metric if the connected view is still available. For more information, see Overwrite a metric. Otherwise, you can keep the metric to reference past data or delete the metric.

Note: If the metric refresh is suspended because you don't have the required site role for it to refresh, you won't be able to resume the refresh or delete the metric.

Metrics appear in Tableau Catalog

Starting in 2019.3, Tableau Catalog is available with Data Management in Tableau Cloud and Tableau Server. When the Tableau Catalog is enabled in your environment, you can see metrics in the Catalog lineage tool, and metrics affected by data quality warnings display those warnings. For more information about Tableau Catalog, see "About Tableau Catalog" in the Tableau Server or Tableau Cloud Help.

When you have metrics defined for the numbers you want to monitor, it's important to know if the data that the metrics rely on are impacted in any way. You can use Catalog in a couple of ways to know this. First, data quality warnings set on the data your metric is based on show on the metric. These warnings appear when you open a metric in Tableau Mobile, and in Tableau Server and Tableau Cloud when you hover over a metric in grid view and on the metric details page, as shown below:



Refreshed Oct 29, 2020 at 1:14 PM

Qty Sold 2020

120.99K

Jan 1, 2020

Metric Details

Owner

Janna Johnson

Description

No description available.

Connected View

The metric has been created from this view:

2020 Sales

4 data quality warnings

Definition

Measure SUM(Qty Sold)

Date Dimension DAY(Reporting Week)

Project

Janna's Project

Modified

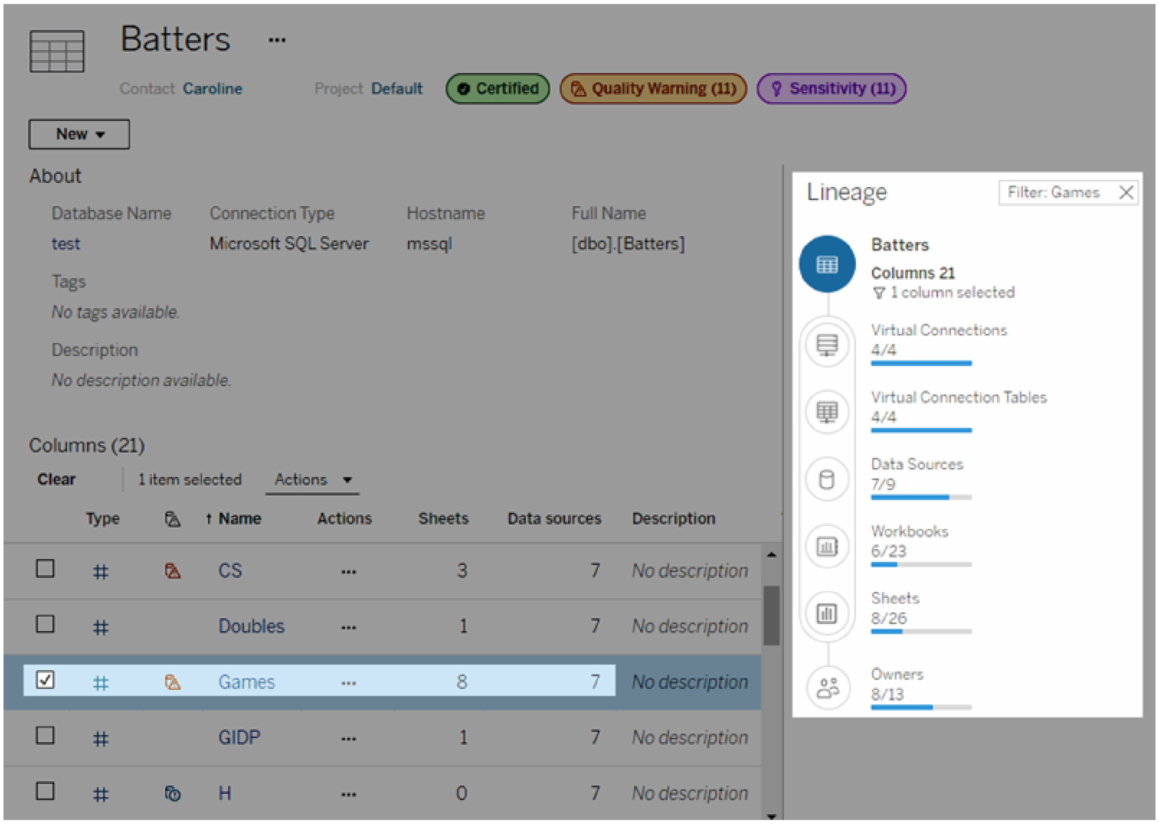
Oct 29, 2020 at 1:14 PM

Tags

No tags set.

For more information, see "Set a Data Quality Warning" in the Tableau Server or Tableau Cloud Help.

You can also use the lineage tool in Tableau Catalog to see the upstream sources that your metric relies on. When doing an impact analysis, you can see which metrics are affected if a certain column or a table is changed or deprecated, or if certain workbooks are removed. Including metrics in the lineage means that Catalog gives a full picture of the impact changes can have on the assets in your environment.



Batters ···

Contact Caroline   Project Default   Certified   Quality Warning (11)   Sensitivity (11)

About

Database Name	Connection Type	Hostname	Full Name
test	Microsoft SQL Server	mssql	[dbo].[Batters]

Tags

No tags available.

Description

No description available.

Columns (21)

	Type		↑ Name	Actions	Sheets	Data sources	Description
☐	#		CS	···	3	7	*No description*
☐	#		Doubles	···	1	7	*No description*
☑	#		Games	···	8	7	*No description*
☐	#		GIDP	···	1	7	*No description*
☐	#		H	···	0	7	*No description*

Lineage   Filter: Games

Batters
Columns 21
1 column selected

Virtual Connections 4/4

Virtual Connection Tables 4/4

Data Sources 7/9

Workbooks 6/23

Sheets 8/26

Owners 8/13

For more information, see "Use Lineage for Impact Analysis" in the Tableau Server or Tableau Cloud Help.

Set a Data Freshness Policy for Query Caches and View Acceleration

Understand data freshness for Query Caches

You’ve built your workbook, and your team loves it. But sometimes people need to click the Refresh button for the most up-to-date data to appear in the viz. You built the workbook using a live connection, so why does the data need to be refreshed? The answer is performance.

To improve performance, Tableau caches the results of queries used to fetch data, so subsequent visits can reuse and return that cached data faster. You can click the Refresh button to retrieve updated data, but this can add to potential performance costs.

To balance data performance and freshness, set a data freshness policy for your workbook. When you set a data freshness policy, your data is refreshed at the time you specify. Tableau won't visualize cached data that doesn't meet the freshness policy you've set.

Understand data freshness for View Acceleration

With the View Acceleration feature, Tableau precomputes selected workbooks to generate views, resulting in significantly reduced load times. A precomputation schedule is created based on the data freshness policy or extract schedule that you set for the selected workbooks to provide data that is both performant and fresh. View Acceleration is available for only Tableau Server.

To minimize resource consumption, the number of precomputation jobs that you can run is limited to 12 per day. For example, if your data freshness policy is set to less than two hours, the performance benefits of View Acceleration are limited to the first 12 refreshes in a day.

Choose what's best for your workbook

Some people might not want caching so that they always have the freshest data, while other people might want large caches to reduce overhead and improve workbook performance. The first step in setting a data freshness policy is to decide what's right for your business.

Tableau Cloud refreshes cached data every 12 hours by default, and workbook owners can set data freshness policies at the workbook level.

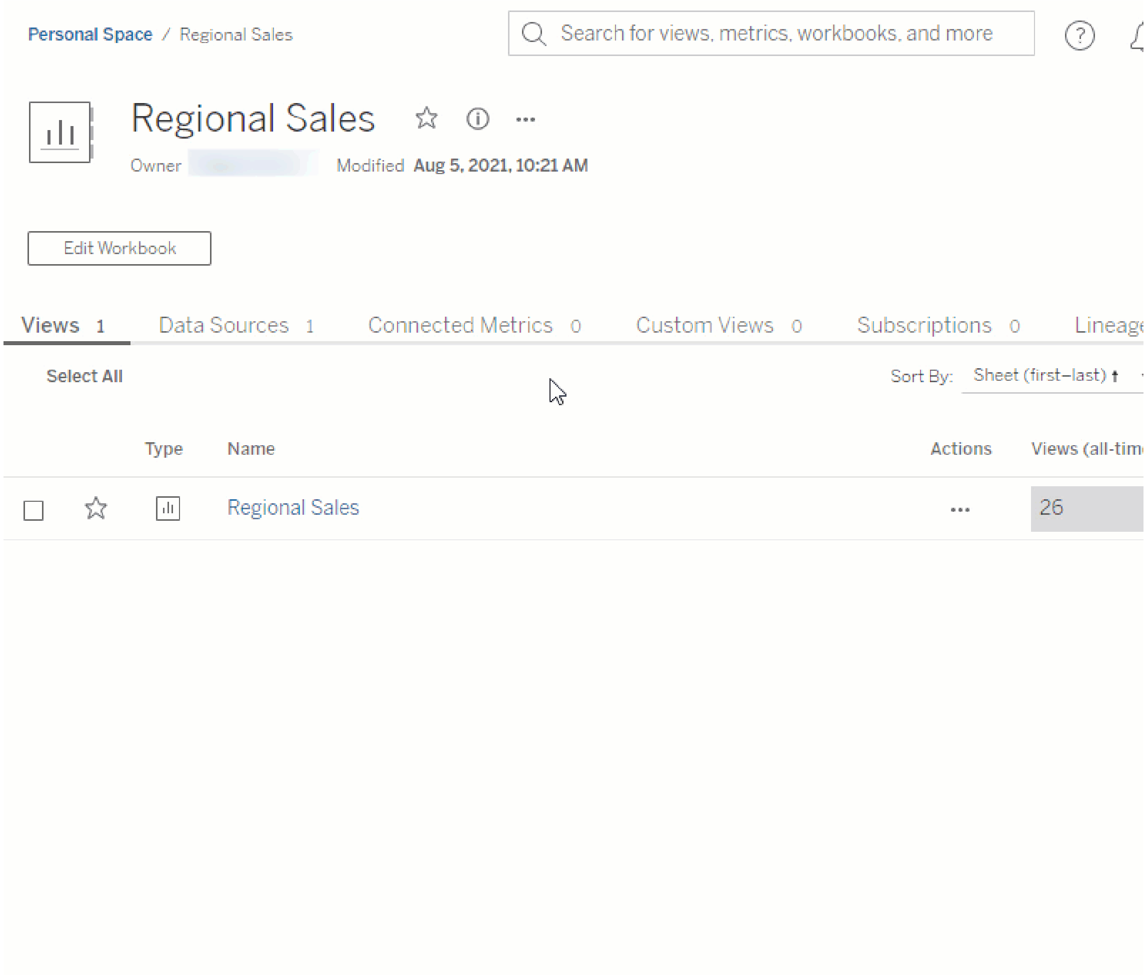
In Tableau Server, server administrators can set a default caching policy for all sites on the server, and workbook owners can set data freshness policies at the workbook level.

> **Note:** Data freshness policies aren’t available in Tableau Desktop or for workbooks that use extract and file-based data sources.

Edit a workbook data freshness policy

To edit a workbook data freshness policy, you must be the workbook owner, and the workbook must have a live connection to the data source.

1. Sign in to a site on Tableau Cloud or Tableau Server.
2. From the Home or Explore page, navigate to the workbook you want to set a policy for.
3. Click the details icon ⓘ.
4. From the Workbook Details dialog, click **Edit Data Freshness Policy**.
5. Choose one of the following options:
   Site default (12 hours)
   Always live (Tableau will always get the latest data)
   Ensure data is fresh every
   Ensure data is fresh at
6. Click **OK**.


Personal Space / Regional Sales
Search for views, metrics, workbooks, and more
Regional Sales
Owner [redacted]
Modified Aug 5, 2021, 10:21 AM
Edit Workbook
Views 1
Data Sources 1
Connected Metrics 0
Custom Views 0
Subscriptions 0
Lineage
Select All
Sort By: Sheet (first–last)
Type
Name
Actions
Views (all-tim
Regional Sales
26

Site default refreshes your data every 12 hours, which is a great option if your audience regularly uses your dashboard, but doesn’t need up-to-the-minute data freshness.

Always live provides the freshest data at all times, which can increase loading time.

Ensure data is fresh every... allows you to specify how often data is refreshed with the granularity of minutes, hours, days, or weeks.

Ensure data is fresh at... allows you to schedule the time and day for data refreshes. If you have an important meeting every Monday, Wednesday, and Friday at 09:00 AM Pacific time, then you can set your data refresh to occur at 08:45 AM every Monday, Wednesday, and Friday, so you have the freshest data when your meeting starts.

Developer Resources

The Tableau Developer Portal is the place to go for everything related to extending and automating Tableau. There you can get access to the following:

- **JavaScript API**—Integrate Tableau views into your own web applications.
- **Tableau Cloud Manager REST API**—Centrally administer and configure multiple Tableau Cloud sites and their users in at the tenant.
- **Tableau REST API**—Manage provisioning, permissions, and publishing on Tableau Server or Tableau Cloud via HTTP. The REST API gives you access to the functionality behind the data sources, projects, workbooks, site users, and sites. You can use this access to create custom applications or to script interactions with server resources.
- **Tableau SDK**—Use C, C++, Java, or Python to create extracts from any data and then to publish your extracts.
- **Tableau Metadata API**—Using GraphQL, you can discover and query Tableau content and related external assets and metadata..
- **Web Data Connector**—Create a Tableau connection in JavaScript to almost any data that's accessible over HTTP. This can include internal web services, JSON data, XML data, REST APIs, and many other sources.
- **ODBC connector**—Create a connection using ODBC (Open Database Connectivity), which is a data-access protocol that's supported by a wide array of data sources. In Tableau Desktop, you can connect to any ODBC-compliant source using the built-in ODBC connector.

In addition to these resources, you can get complete documentation and examples, and collaborate with the Tableau developer community.

Notes for Tableau Cloud users

- When you make REST API calls to Tableau Cloud, you need to use the URL for the instance on which your site exists. For example, **https://10ay.online.tableau.com/**

  For information, see **Specifying Resources for Tableau Cloud** under Using URIs to Specify Resources.

- Not all of the methods provided in the Tableau REST API are applicable to Tableau Cloud. For information, see the API listing by category in the API Reference.

Go to the developer community

Tableau Next

Get Started

- Tableau Next Overview
- Understanding Salesforce and Data Cloud Terms
- About Tableau+
- Trailhead: Tableau Next Quick Look
- **MORE**

Admins and Analysts Set It Up

- Admin: Set up Tableau Next
- Connect and Prepare Data in Tableau Next
- Add Metrics to Semantic Models
- Create Visualizations and Dashboards in Tableau Next
- **MORE**

Business Users Get Insights

- Bring Insights into the Flow of Work
- Explore Metrics and Insights
- Create Goals with Tableau Next
- Get Data Alerts for Metrics
- **MORE**

Tableau Next Overview

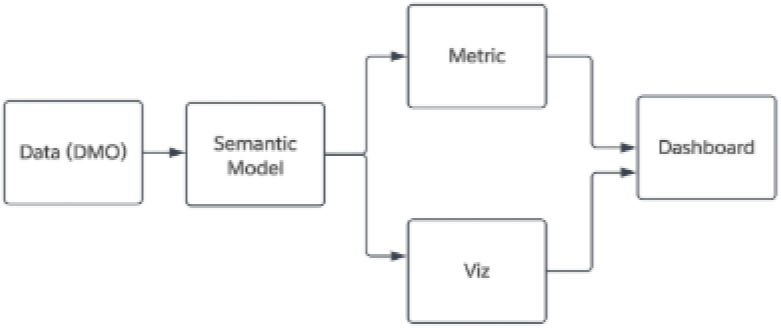
Tableau Next is a flexible, API-first analytics platform built with a unified data layer and trusted semantics, and integrating Salesforce with Agentforce. Curious about how Tableau Next fits with Tableau? See Tableau's Products and Features.

Tip: For details about Tableau Next, check out Tableau Next documentation in the Salesforce Help Center.

Tableau Next is structured around the concept of workspaces as organizational units for assets. Assets are the "pieces" used in analytics, starting with data, which is enriched with semantics, then analyzed with vizzes and metrics, and finally presented in dashboards.

Types of assets and where they're created and located:

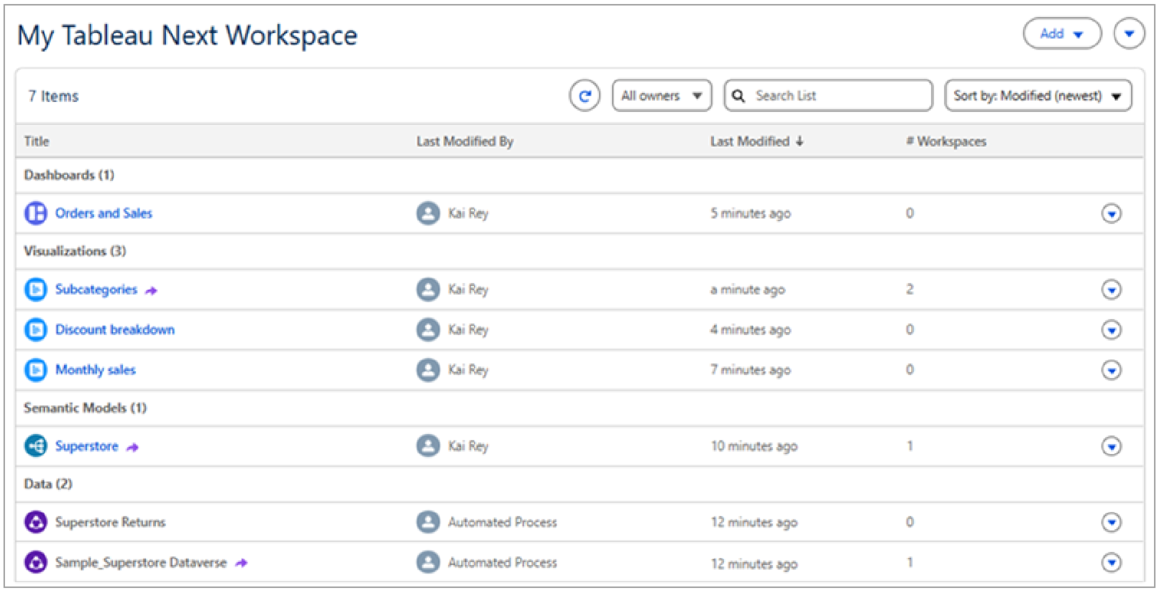
- Data is always a Data Cloud object: a DMO, DLO, CIO, or CSV stored as a DLO. For more information, see Essential data terms and concepts.
- Semantic models can be created in Data Cloud or Tableau Next. They are created with the Semantic Model Builder.
- Metrics are created from a semantic model, either in Data Cloud or Tableau Next.
- Vizzes are created in Tableau Next. Vizzes are created with the Visualization Builder.
- Dashboards are created in Tableau Next. Dashboards are created with the Dashboard Builder.



Analysis isn't useful until it's seen and acted on. Sharing and embedding Tableau Next assets happens in the flow of work, including in Slack. And with Agentforce integration baked in, an agent to help you create or consume analysis is at your fingertips.

Workspaces to organize, build, and share your analytic assets

Workspaces can contain these assets directly or contain references to an asset. Assets can be located in the workspace itself, in another workspace, or in Data Cloud. A reference to an asset is a link to an asset is located outside the workspace. The list of assets in a workspace is a list of possible pieces that can be used together for an analysis.



My Tableau Next Workspace

Title	Last Modified By	Last Modified ↓	# Workspaces
Dashboards (1)			
Orders and Sales	Kai Rey	5 minutes ago	0
Visualizations (3)			
Subcategories	Kai Rey	a minute ago	2
Discount breakdown	Kai Rey	4 minutes ago	0
Monthly sales	Kai Rey	7 minutes ago	0
Semantic Models (1)			
Superstore	Kai Rey	10 minutes ago	1
Data (2)			
Superstore Returns	Automated Process	12 minutes ago	0
Sample_Superstore Dataverse	Automated Process	12 minutes ago	1

As a general rule, create a new workspace whenever you're working on a discrete project that needs its own collection of assets. If the same assets are needed for related analysis, the same workspace can be used. When the analysis question is different—even if some of the same assets might be relevant—it can be useful to make a different workspace.

Assets must live in a single workspace. They can be used across multiple workspaces by adding a reference to an existing asset. The asset isn't copied into the other workspace when it's added as a reference, it's simply bookmarked there for easy access.

Types of assets in workspaces

Data can be in Data Cloud or may be external and referenced by a Data Cloud object. A Tableau Next workspace simply holds the connection information to the data.

- Tableau Next can connect to DMOs (data model objects), DLOs (data lake objects), and CIOs (calculated insight objects) from Data Cloud.
- A CSV file can be connected to a Tableau Next workspace and the data uploaded and stored in Data Cloud as a DLO.

For a deeper dive into data in the context of Tableau and Tableau Next, see Essential data terms and concepts.

Semantic models form the semantic layer and consist of a data model (what DMOs to use and how they relate to each other) and business definitions on the data (field names, aggregations, calculations, and so on). At the core, semantics add meaning by providing context to the raw data. Semantic models are built using the Semantic Model Builder, which is found in Tableau Next and Data Cloud. The technology that powers the semantic models is Tableau Semantics, which also controls the queries necessary for analytics.

For a close look into semantic models in the context of Tableau and Tableau Next, see Essentials of data semantics.

Metrics are built on semantic models in Tableau Next or Data Cloud and are a streamlined way to track changes to a measure over time. Metrics can be grouped and filtered by different dimensions. Unlike vizzes, metrics have a consistent format and digest capabilities to provide at-a-glance insights into key data trends.

Vizzes are the units of analysis. A viz is a single chart or graph, built with a drag and drop Visualization Builder. For example, these can be bar charts, line graphs, or scatter plots.

Dashboards can contain metrics from Tableau Next or Data Cloud, vizzes from Tableau Next, and dashboard-specific widgets such as text, filters, and buttons. Dashboards can also pull in actions that are driven by Salesforce Flows. Because you can format a dashboard and add more context than you can with a viz, most analytics consumed by business users should be dashboards rather than vizzes.

Your data and semantics where you are

As Tableau Next and Tableau continue to build stronger integrations, we're adding the ability to do analysis where you want regardless of where your data lives.

Why would you have data in one place and want to do analysis in another? You might want to do analysis in an environment that is distinct from where your data is for any number of reasons:

- You want to work in a more familiar environment.
- You need to use functionality only available in a specific platform.
- You want to do the analysis where your consumers are.

Tableau Cloud and Tableau Desktop have a Tableau Semantics connector for accessing and using semantic models from Tableau Semantics.

Tableau Next for the site admin

Tableau Next is deeply integrated with Data Cloud. Getting analysts and analytics consumers into Tableau Next involves several steps:

1. Set up Data Cloud for Tableau Next
2. Set up Tableau Semantics
3. Create the Tableau Next admin
4. Enable Tableau Next
5. Assign a user the Tableau Next permission set

For more information, see Admin: Set Up Tableau Next in the Tableau Next Help.

Understanding Salesforce and Data Cloud Terms

As Tableau Next and Tableau continue to build stronger integrations, we're adding the ability to do analysis where you want regardless of where your data lives. This means Tableau and Data Cloud terminology and philosophies are beginning to touch more. Users who are familiar with one ecosystem may find the other ecosystem confusing or alien, but at the end of the day it's all data. This topic is intended to help orient users regardless of which system they're used to or find themselves working in.

Essential data terms and concepts

There are plenty of words to describe data. In the most generic sense, a **data set** is the collection of data you're working with.

- A **database** is the technology platform that actually holds the data, such as Amazon Redshift, Firebird, Google Sheets, or Oracle.
- Data is often stored as a **table** of data. In a database, there may be multiple tables or views. In Excel or Google Sheets, each sheet tab is a table. In a csv file, the entire file is the table.
- If the data you need is spread across multiple tables, they need to be connected in a **data model**. A data model is the abstract representation of how tables are connected to each other.

Data in Salesforce

In Data Cloud, data is broken down into different concepts.

Data Type	Description
Data stream	The connection information, such as original source (S3, Amazon, SF, Google BigQuery, etc), as well as which fields are brought in, which field is the primary key, how often the data is refreshed, etc.
Data lake object (DLO)	Data ingested into Data Cloud or referenced from an external system such as Snowflake gets stored in a DLO. The data stored in a DLO is cleansed, transformed, and prepped for computation and analysis. Each table of data is its own DLO.
Data model object (DMO)	A Data Cloud object that describes the structure and schema of data stored in one or more data lake objects. A DMO is a table of data, but it might come from one or more DLOs. The DMO takes

Data Type	Description
	the DLO data and maps it into a reliable format. Identity resolution rulesets and other templatized formatting is applied in the DMO. The data mapping from a DLO to a DMO and the templatized nature of most DMOs is the harmonization power of Data Cloud. There are standard and custom DMOs.
Calculated insight object (CIO)	A data model object created after a calculated insight is processed. Calculated insights help build cube-style metrics with measures and dimensions on Data Cloud data. You can connect to an existing CIO in Data Cloud and add it as a data asset in your workspace.
Comma-separated value (CSV)	*For Tableau Next* A text file that stores data in a table-like format. CSV files are commonly used to move data between applications and programs. The file can be up to 10 MB. A CSV file can be brought into a Tableau Next workspace and the data uploaded and stored in Data Cloud as a DLO.

An aside on Salesforce Data Objects for the Tableau audience

The data stream is the connection information. The DLO is the raw dump of data from the data stream. Each DLO is a single table. A DMO has no direct analog in Tableau. A DMO can be mapped from multiple DLOs (similar to a "view" in a database) and each DMO is a single table. A CIO has no analog in Tableau where calculations are simply fields in the data source like any other.

Data in Tableau

A Tableau Data Source consists of database connection information, the data model, info about how to access the data (access credentials, etc) or refresh it, semantic information, and possibly even the data itself. The two main UI elements for creating and editing a data source are the data source tab and the Data pane.

Data source tab: The data source tab> is where the data connections are established to the underlying database or files and the data model is built by combining tables from one or more databases into a single data source using relationships, joins, and unions. If the data is left in its original database, it's a live connection. A copy of the data can also be brought into Tableau itself as an extract that can be refreshed if desired.

Data Pane: The Data pane is where semantic information is captured, including field names, member aliases, hierarchies, groups, sets, calculations, default aggregations and colors, and field descriptions.

Together, the modifications made in the data source tab and the Data pane form the **data source**. A data source can be a published asset, a file, or contained within the workbook it was created in.

- A published data source (PDS) is a standalone asset on Tableau Cloud or Tableau Server. NOTE: A published data source is the closest equivalent Tableau Classic has to a semantic layer or semantic model.
- Locally, you can also have file-based versions of a Tableau data source:
    - `.tds` is the file extension for a Tableau Data Source, which contains the non-data information (connection and semantics alone).
    - `.tdsx` is the file extension for a packaged Tableau Data Source, which contains the non-data information as well as the data itself.
    - `.hyper` is the file extension for an extract (previously `.tde`), which contains a copy of the data (the data itself).

An aside on Tableau data for the Salesforce audience

Tableau works with data from a wide variety of databases and technologies, both local and cloud-based. Because data isn't coming from a specific cloud with all the specific data objects that implies, there's no real concept of templatized data formats. There's a lot of flexibility in how to model and format data and no real idea of harmonization. Standardization and semantic models are mostly captured with published data sources (PDS).

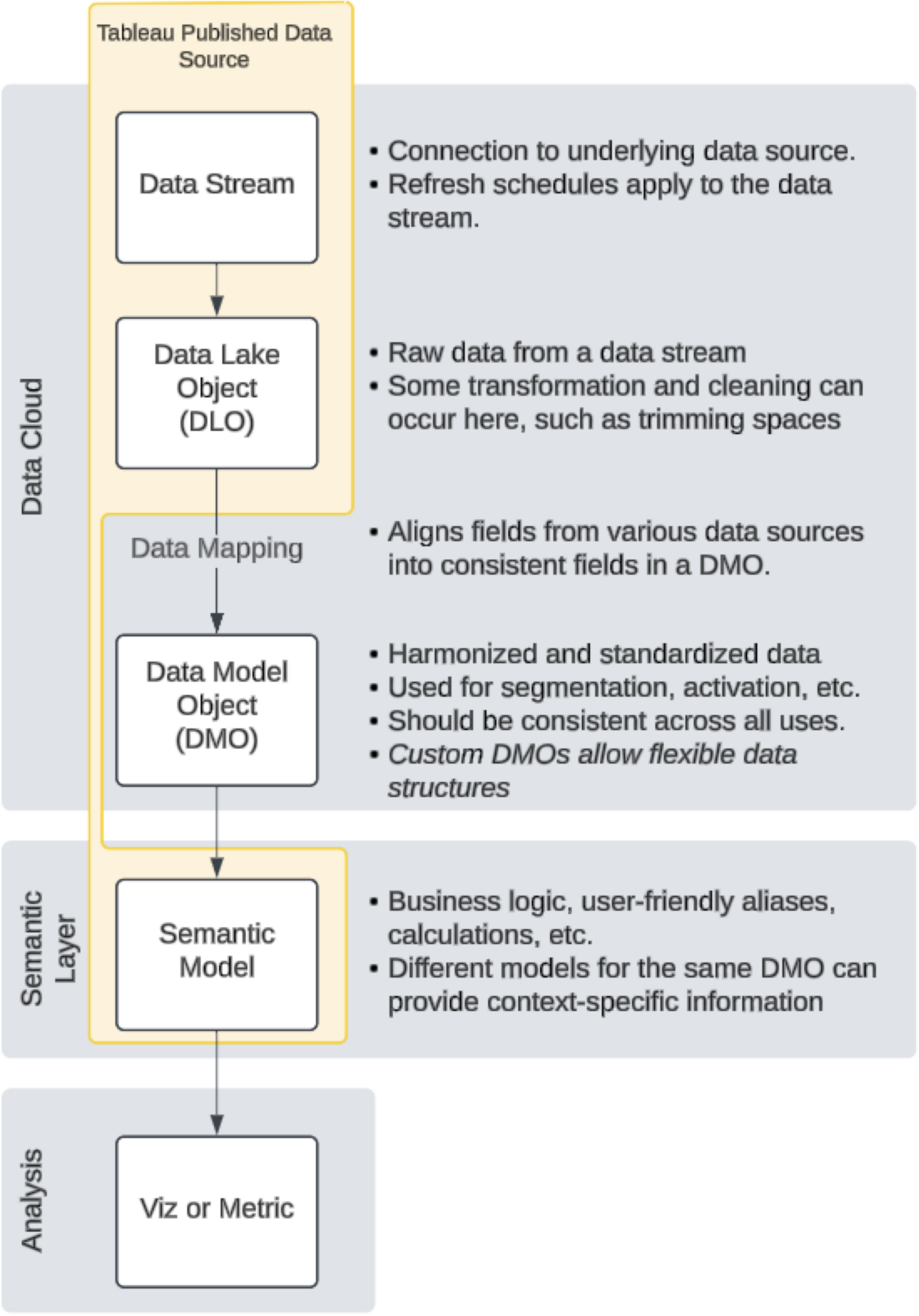


Tableau Published Data Source
Data Cloud
Data Stream
- Connection to underlying data source.
- Refresh schedules apply to the data stream.
Data Lake Object (DLO)
- Raw data from a data stream
- Some transformation and cleaning can occur here, such as trimming spaces
Data Mapping
- Aligns fields from various data sources into consistent fields in a DMO.
Data Model Object (DMO)
- Harmonized and standardized data
- Used for segmentation, activation, etc.
- Should be consistent across all uses.
- *Custom DMOs allow flexible data structures*
Semantic Layer
Semantic Model
- Business logic, user-friendly aliases, calculations, etc.
- Different models for the same DMO can provide context-specific information
Analysis
Viz or Metric

Essentials of data semantics

- **Data** is the raw facts (numbers and observations and measurements).
- **Information** is the interpretation of that data or the knowledge that comes from processing and understanding the data.
- **Semantics** is the stepping stone between the underlying data and the information that comes out of it.

The term comes from the linguistic concept of semantics vs syntax. Syntax is how you say something, semantics is what it means. That concept of "semantics is what it means" carries through to semantics as a data concept. Semantics includes things like how tables are combined in the data model, information about the fields or columns of data and how they might interact with each other, additional information such as default aggregation, and calculations performed on top of the raw data.

A data set might have all the information you need, but if you can't figure out how to get meaning out of it, it's useless.

The business use case can't be separated from the details of semantics. Semantics is the description of the data or its business context. Semantics can be broken down into categories such as data modeling; field metadata and descriptions; default aggregations; hierarchies, groups, and sets; and calculations.

Some examples:

- **Data modeling**
  - How the tables of data could connect to each other. Should the four quarterly sales tables be unioned? Should the doctor table be directly related to the patients table, or should they both be related to the appointments table?
- **Field metadata** (field name, data type, member aliases)
  - Is *Name* the name of an account or a contact?
  - Is *Discount* a boolean field for whether or not a discount is applied, a string field of the discount type, or a discrete measure of the discount amount?
- **Field descriptions**
  - Such as a comment that *APR* for this data set is Adjusted Pitching Runs, not Annual Percent Return, and it's calculated as `APR = L * IP - R / pf(P)`

where L: Average number of runs per inning pitched in the league, IP: Innings Pitched, R: Runs Allowed, pf(P): park factor for the player's home park P.

- **Default aggregations**
  - Should Listings be aggregated as a COUNT (counting every instance) or COUNTD (counting only unique values)?
  - Should the default aggregation of a measure be SUM or AVG?
- **Hierarchies, sets, groups**
  - In a collection of departments at a university, the engineering department may be its own college, where the departments of history, literature, philosophy, and political science may all form the college of Liberal Arts.
- **Calculations**
  - Fields that are derived from fields that exist natively in the data but need to be manipulated or combined, such as defining a stale support case as one that's been open for 10 days for a standard account but only 2 days for a premium account.

Semantics in Tableau and Tableau Semantics

Without a reusable semantic layer, data models, semantic definitions, and calculated fields may be made as one-offs over and over, introducing inefficiencies and the potential for error or misalignment.

Semantics in Tableau

Semantics isn't anything new to the Tableau audience. It's just been part of the data source—especially a published data source (PDS). Because of Tableau's philosophy of the cycle of visual analytics, semantics historically hasn't been abstracted out into a distinct layer. The authoring environment is the place where the data model (the data source tab) and semantics (the Data pane) are developed.

Tableau Semantics

As customers automate more processes, there's more and more benefit to separating out the semantics from analytics.

Enter Tableau Semantics, a product that fits into the Data Cloud and Tableau Next environments as a stand-alone semantic layer. The unit of a semantic layer is a semantic model. The semantic model contains both the data model (what data objects are used and how they connect) and semantic definitions for the data. The Semantic Model Builder is the UI for creating a semantic model. These semantic models can be built in Data Cloud or Tableau Next.

Tableau's Products and Features

Tableau as a term is now used in the Salesforce ecosystem to refer to analytics. The products historically known as *Tableau* are referred to in this topic as *Tableau by Tableau*. This distinguishes those products and features from *Tableau Next*, the Salesforce analytics platform integrated with Data Cloud, and *Tableau Semantics*, the semantic layer of Data Cloud and Tableau Next.

Tableau on the Salesforce platform

There are analytics products developed inside Salesforce that use Tableau branding. These products are built on a Salesforce code base and are native to the Salesforce CRM ecosystem.

- Tableau Semantics - a semantic layer integrated into Data Cloud and Tableau Next.
- Tableau Next - an agentic analytics platform built in Salesforce to combine the best of CRM Analytics, Tableau by Tableau, and AI, leveraging the power of Data Cloud. (Tableau Next was formerly "Tableau Einstein.")
  - Licensed as Tableau Next Creator and Tableau Next Consumer.

There are also integrations of Tableau by Tableau functionality available in Salesforce CRM.

- Tableau Pulse - a purpose-built edition of Tableau Pulse that brings out-of-the-box metrics and AI-powered insights directly into the flow of work in Salesforce.

Tableau by Tableau

Tableau by Tableau is a term we're using to describe the portfolio developed within the Tableau ecosystem.

- Tableau Desktop - the authoring tool. The original Tableau product, and the core of what Tableau is (as Desktop or web authoring), providing the ability to see and understand your data.
  - Can be used on its own to create vizzes and dashboards, or to publish analytics assets and curated data sources to Tableau Cloud or Tableau Server.
- Tableau Cloud or Tableau Server - the analytics platform. Cloud is fully hosted and Server is on-premises.
  - Contains both web authoring functionality that acts as a browser-based Tableau Desktop and a sharing and consumption platform for analytics assets.
- Tableau Prep - the data cleaning tool, used to create data outputs used by Desktop, Cloud, or Server.
  - Tableau Prep Builder - the data cleaning tool itself, where flows are built to combine, clean, and shape data.
  - Tableau Prep Conductor - the scheduling portion of the Tableau Prep products, Tableau Prep Conductor is available in Tableau Cloud or Tableau Server to schedule and automate running published Prep flows. Available as part of the Data Management tier in the Enterprise and Tableau+ license bundles.
- Tableau Public - the free platform to create and share data vizzes in the cloud (used in place of Desktop and either Cloud or Server). Tableau Public is opened and ungoverned, it is not secure and is for content that is intended to be publicly available (data journalism, just for fun, personal portfolios, etc).
- Tableau Mobile - a free app on the App Store and Google Play for consuming content published on Tableau Cloud or Tableau Server.
- Tableau Reader - a deprecated product that was used to consume Tableau Desktop workbooks. Reader was a free tool with no security or governance features and was replaced by the viewer role on Tableau Cloud and Tableau Server as the secure ways to share and consume analysis in Tableau.

There are also features and tools within Tableau products.

- Tableau Pulse - scoped metrics accessible where you work, available as part of Tableau Cloud (was originally a stand-alone product, now bundled with Tableau cloud)

and accessible in tools you already work in, such as Slack and email.
- Tableau Agent - the AI assistant to help you create visualizations or understand dashboards, available inside of Tableau Cloud and Tableau Desktop.
    - AI in Tableau is the portfolio of all generative AI (GAI) functionality across the product, including Tableau Pulse insights and Tableau Agent.
- Tableau Catalog - A data management tool for lineage, impact analysis, data quality warnings, etc. Available as part of the Data Management tier in the Enterprise and Tableau+ license bundles
- Tableau Cloud Manager (TCM) - a free administrative tool for managing multiple Tableau Cloud sites
- Tableau Bridge - a free tool for bringing data from non-cloud data sources into Tableau Cloud.
- Tableau Exchange - a platform for Tableau-built and 3rd party extensions, including accelerators, viz extensions, dashboard extensions, and data connectors. (The Salesforce version is Marketplace.)

Tableau's Tableau is sold as licenses.

- User license are tiered:
    - Tableau Viewer - a consumption seat on Tableau Server or Tableau Cloud.
    - Tableau Explorer - a consumption and data exploration seat on Tableau Server or Tableau Cloud.
    - Tableau Creator - an authoring seat on Tableau Server or Tableau Cloud, also giving access to Tableau Desktop and Tableau Prep.
- Licenses can be purchased as bundled editions (SKUs):
    - Tableau+ - a license edition for Tableau Cloud that includes user licenses for Viewers, Explorers, and Creators, as well as usage access to Data Cloud and Einstein Requests, and some additional functionality for Tableau Pulse. Also included with Tableau+ is Tableau Next.
    - Tableau Enterprise - a license edition for Tableau Cloud or Tableau Server that includes user licenses and additional features.

About Tableau Pulse

With Tableau Pulse, users receive personalized data insights about metrics that they follow. These insights are sent directly to users in Slack and email digests, giving them access to the data they need in the tools they already use. If users want to learn more about their data, they can visit a metric's insights exploration page on Tableau Cloud. On that page, users can engage in guided data analysis to understand what is driving changes to their data.

Tableau Pulse is available for Tableau Cloud. To get a site ready for Tableau Pulse, a site administrator must first turn on the setting and make sure that there's appropriate data to work with. Then, users can create metric definitions, which specify the core metadata for metrics. Users create metrics based on these definitions by adjusting filter and time options to scope the data in ways that are useful for different groups of followers.

The articles here help you get started with Tableau Pulse, whether you're a Tableau administrator setting up your site, a Creator defining the metadata that metrics are based on, a Viewer exploring existing metrics, or a developer embedding metrics.

Article	Audience	About
Set Up Your Site for Tableau Pulse	Site Administrators	Settings, permissions, and requirements for Tableau Pulse
Create Metrics with Tableau Pulse	Creators, Site Administrator Explorers, and Explorers (can publish)	Definitions and metrics and how to create them
Explore Metrics with Tableau Pulse	Creators, Explorers, and Viewers	The types of analysis you can do with existing metrics
Set Manual Goals and Thresholds with Tableau Pulse	Creators, Explorers, and Viewers	Goals and thresholds that let you track metric performance

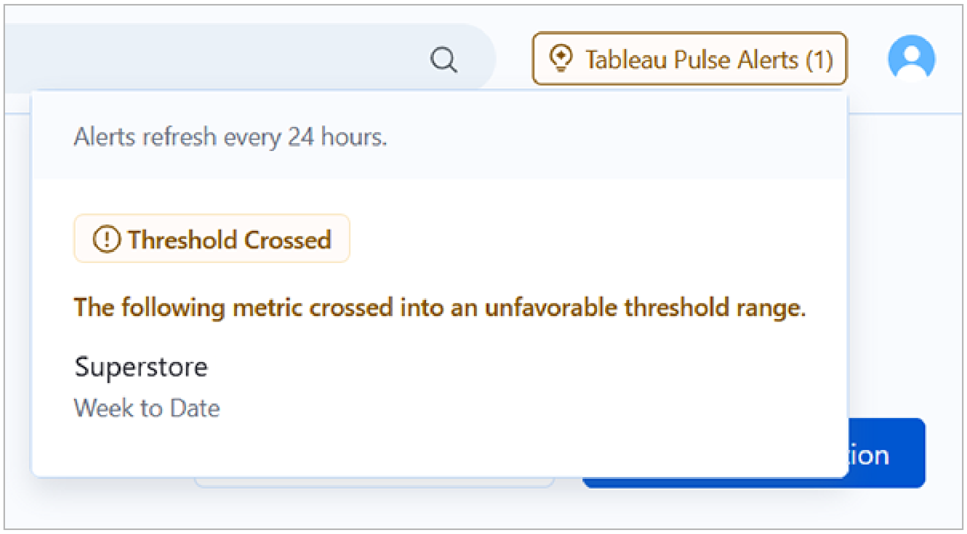
Article	Audience	About
Ask Questions and Discover Insights in Tableau Pulse	Creators, Explorers, and Viewers	Options for finding insights with Ask Q&A (single metric exploration) or with Enhanced Q&A (grouped metric exploration powered by AI in Tableau)
The Insights Platform and Insight Types in Tableau Pulse	Creators, Explorers, and Viewers	The insight types available in Tableau Pulse and general information about how the Insights platform works
Get Tableau Pulse Alerts	Creators, Explorers, and Viewers	New unfavorable trend alerts for the metrics that you follow
Work with Tableau Pulse Metrics and Dashboards	Creators, Site Administrator Explorers, and Explorers (can publish)	The Pulse dashboard object and recommended metrics based on dashboard data
Tableau Pulse REST API Methods	Developers	The API methods to create metrics, get metric details, generate insights, and more
Embed Tableau Pulse	Developers	The Tableau Embedding API web component for embedding metrics in a web page
Set Up the Pulse for Salesforce App	Salesforce customers	The Pulse app that Salesforce customers can purchase
Configure a Tableau Pulse Lightning Web Component	Salesforce customers	The Tableau Pulse Lightning web component for Salesforce Lightning pages
Interact with Data on Tableau Mobile	Creators, Explorers, and Viewers	Tableau Pulse on Tableau Mobile

Tableau Pulse release notes

Added July 24, 2025

Get threshold alerts

When a metric that you’re following crosses into an unfavorable threshold range, you get notified in email, Slack, and Tableau Mobile, and an alert appears on the Tableau Pulse site. For more information, see Get Tableau Pulse Alerts.



Alerts refresh every 24 hours.

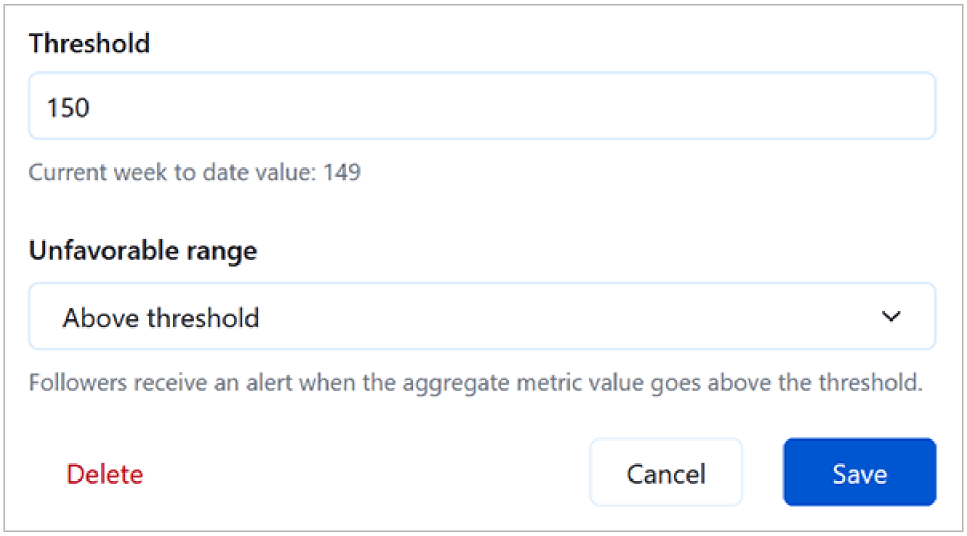
Threshold Crossed

The following metric crossed into an unfavorable threshold range.

Superstore
Week to Date

Set an unfavorable threshold range

Define whether a metric should stay above or below a threshold. You can set an unfavorable range for both data source thresholds and manual thresholds. When the aggregate value for a metric crosses into the unfavorable range, Tableau Pulse generates a threshold alert. For more information, see Configure data source goals and thresholds and Create a manual goal or threshold.



Threshold

150

Current week to date value: 149

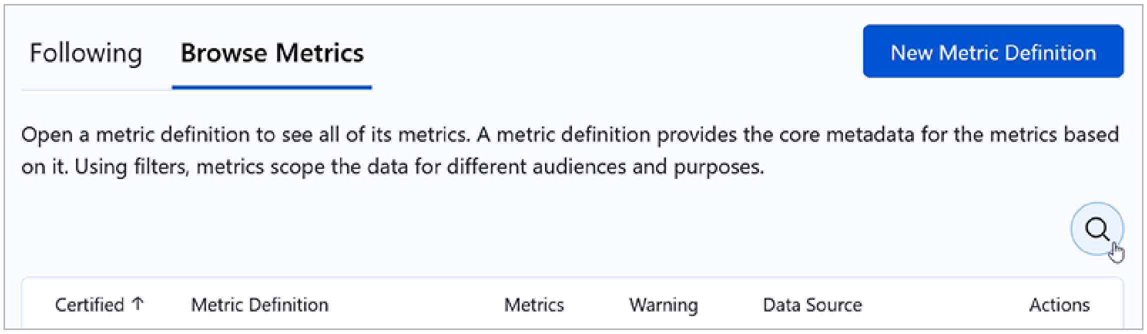
Unfavorable range

Above threshold

Followers receive an alert when the aggregate metric value goes above the threshold.

Search and sort metric definitions

On the Browse Metrics tab, select the search icon to search the list of metric definitions. Select the Certified, Metric Definition, or Metrics column headers to sort by those columns.



Open a metric definition to see all of its metrics. A metric definition provides the core metadata for the metrics based on it. Using filters, metrics scope the data for different audiences and purposes.

Certified ↑	Metric Definition	Metrics	Warning	Data Source	Actions

Added July 10, 2025

Discover insights across multiple metrics with cross-metric analysis

Enhanced Q&A (Discover) now supports cross-metric analysis, allowing you to compare metrics side-by-side and surface meaningful patterns. It can highlight shared contributors, detect when trends move together or in opposite directions, flag entities that are outliers across multiple metrics, and identify metrics that are jointly above or below expected ranges, all in a single, natural-language response. For more information, Ask Questions and Discover Insights in Tableau Pulse.

Added June 5, 2025

Stay informed with off-cycle alert emails

Tableau Pulse now sends an email if it identifies alerts on a day that you aren't scheduled to receive a digest. Previously, alerts were sent only as part of digests. If your digest frequency was set to weekly or monthly, you didn't get email notifications about alerts found on days without a digest. For more information about alerts, see Get Tableau Pulse Alerts.

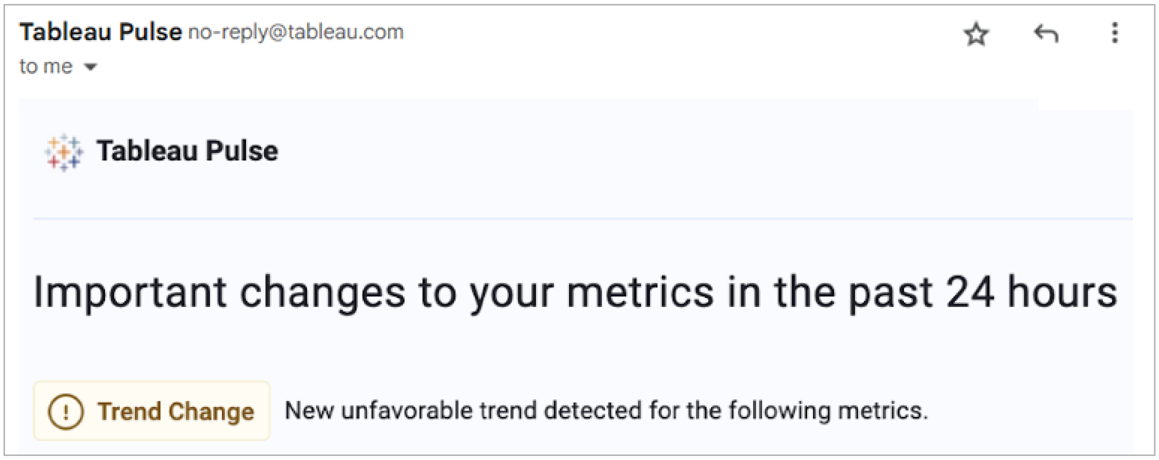


Tableau Pulse no-reply@tableau.com
to me

Tableau Pulse

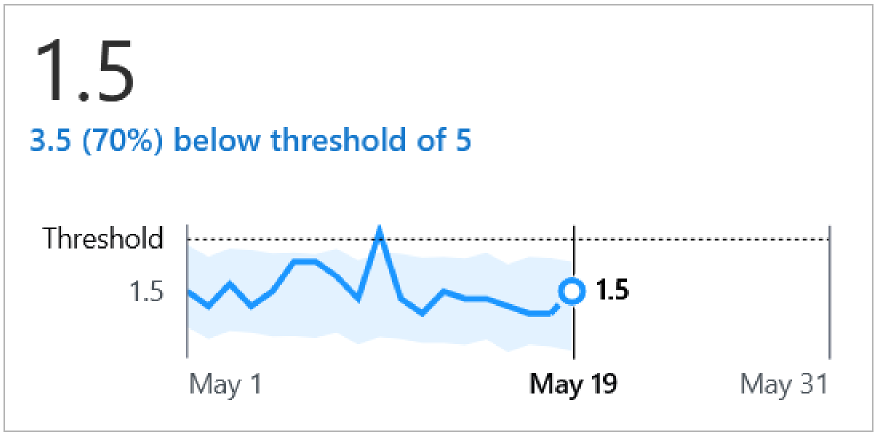
Important changes to your metrics in the past 24 hours

Trend Change New unfavorable trend detected for the following metrics.

Added May 22, 2025

Set thresholds for metrics

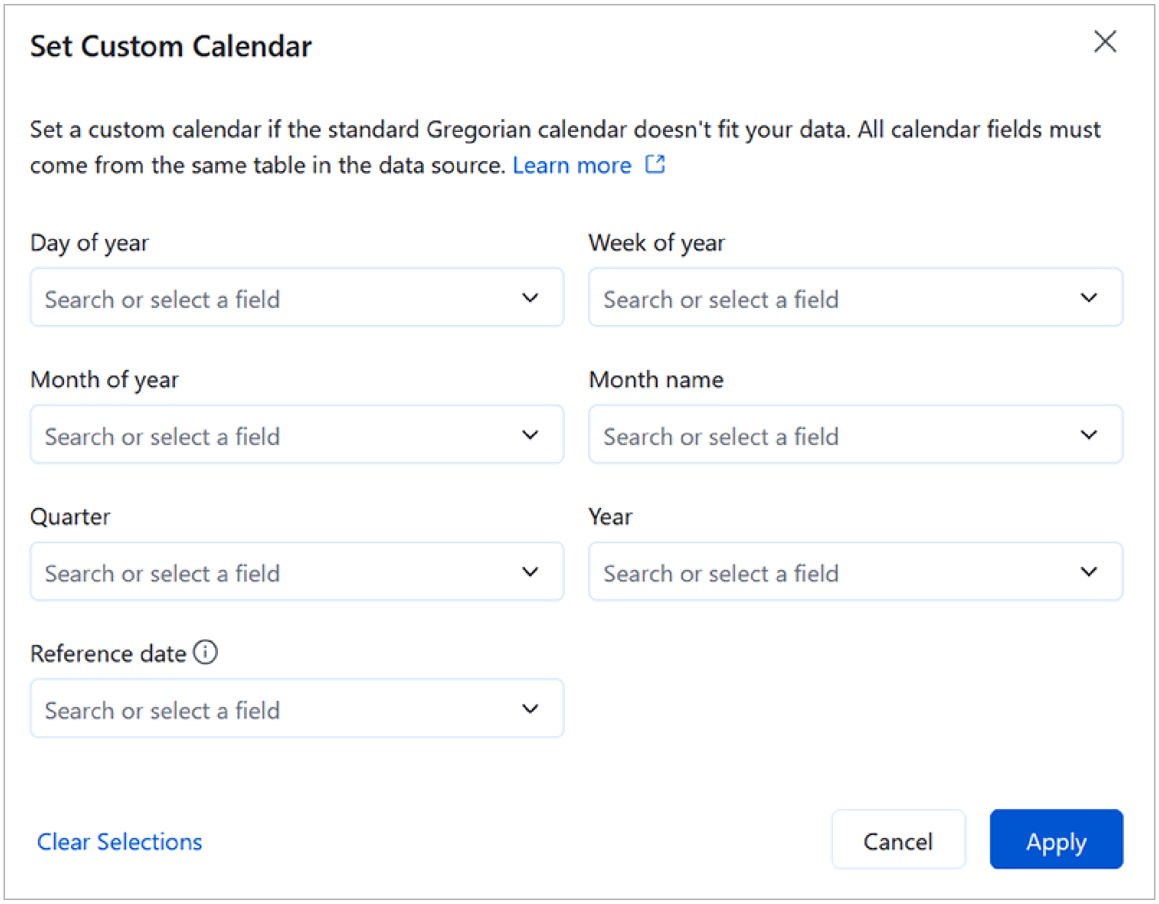
Measure how a metric is performing relative to a threshold value by setting a data source or manual threshold. Data source thresholds are dynamic values that you set on a metric definition. Manual thresholds are a single static value that you set on an individual metric. Anyone who views a metric sees the threshold value. For more information, see Configure data source goals and thresholds and Set Manual Goals and Thresholds with Tableau Pulse.



Added May 7, 2025

Set a custom calendar

If the standard Gregorian calendar doesn't fit your organization's data, set a custom calendar. You now have the flexibility to configure calendars such as a 4-5-4 retail calendar. Tableau Pulse aggregates metric data for different time ranges and comparison periods based on the custom calendar. For more information, see Set a custom calendar.



Set Custom Calendar

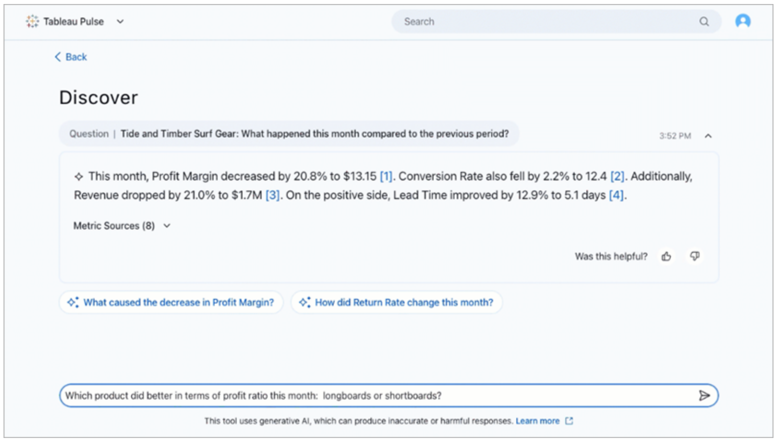
Set a custom calendar if the standard Gregorian calendar doesn't fit your data. All calendar fields must come from the same table in the data source. Learn more

Day of year
Search or select a field
Week of year
Search or select a field
Month of year
Search or select a field
Month name
Search or select a field
Quarter
Search or select a field
Year
Search or select a field
Reference date
Search or select a field
Clear Selections
Cancel
Apply

Ask questions based on dimension members in Enhanced Q&A (Discover)

Let your users follow their curiosity freely—exploring different regions, segments, or time periods—all through natural language in Enhanced Q&A (Discover). Discover can now handle questions that filter metrics based on dimension values (region, product, segment) or compare dimension members (West versus East) to uncover meaningful patterns.

For example, you could ask "Show sales for California" or "Compare APAC vs. EMEA" to automatically expand your exploration to the full set of compatible metrics. For more information, see Ask Questions and Discover Insights in Tableau Pulse.



Question | Tide and Timber Surf Gear: What happened this month compared to the previous period?

3:52 PM

This month, Profit Margin decreased by 20.8% to $13.15 [1]. Conversion Rate also fell by 2.2% to 12.4 [2]. Additionally, Revenue dropped by 21.0% to $1.7M [3]. On the positive side, Lead Time improved by 12.9% to 5.1 days [4].

What caused the decrease in Profit Margin?

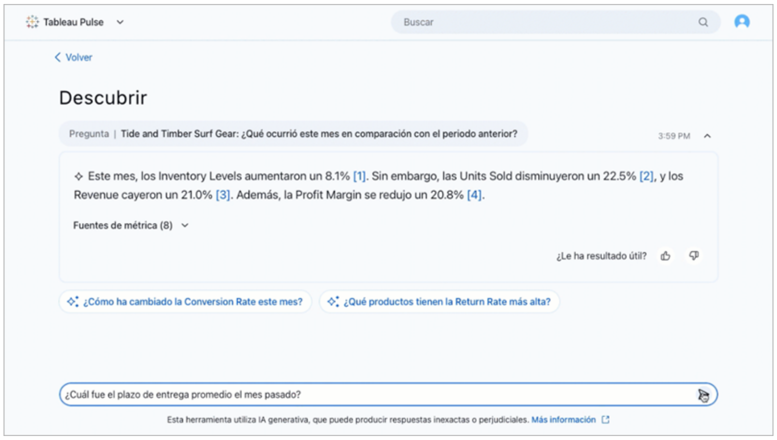
How did Return Rate change this month?

Which product did better in terms of profit ratio this month: longboards or shortboards?

This tool uses generative AI, which can produce inaccurate or harmful responses. Learn more

Ask questions and get responses in your preferred language with Enhanced Q&A (Discover)

Enhanced Q&A (Discover) now supports multilingual questions and responses, aligned with Tableau Cloud supported languages. Suggested questions, follow-up questions, and insight briefs adapt to the site's language setting. Discover detects your input language as you ask questions and it returns LLM responses in that language—even if it differs from the site or data language. Metric names and filters always remain in their original, authored language for clarity and consistency. For more information, see Multilingual support for questions and responses in Discover.



Pregunta | Tide and Timber Surf Gear: ¿Qué ocurrió este mes en comparación con el periodo anterior?

3:59 PM

Este mes, los Inventory Levels aumentaron un 8.1% [1]. Sin embargo, las Units Sold disminuyeron un 22.5% [2], y los Revenue cayeron un 21.0% [3]. Además, la Profit Margin se redujo un 20.8% [4].

¿Cómo ha cambiado la Conversion Rate este mes?

¿Qué productos tienen la Return Rate más alta?

¿Cuál fue el plazo de entrega promedio el mes pasado?

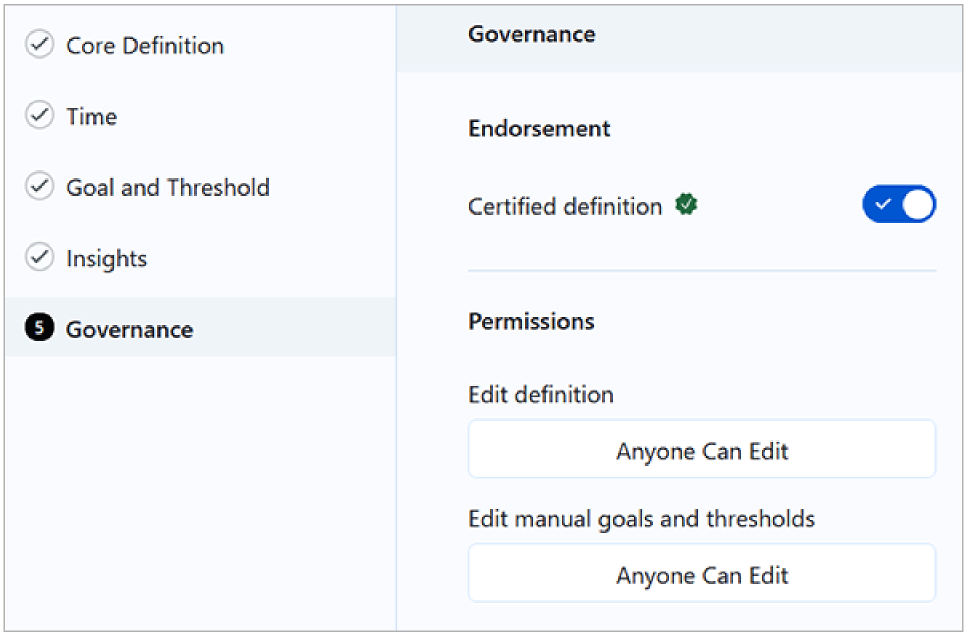
Esta herramienta utiliza IA generativa, que puede producir respuestas inexactas o perjudiciales. Más información

Added April 24, 2025

Certify metric definitions

Tell others that a metric definition is trusted and recommended by certifying it. A certified badge appears on metrics that are based on certified definitions. That badge helps users feel confident relying on those metrics to make business decisions.

You certify a metric definition on the new governance step that is part of editing or creating definitions. The existing permission settings for metric definitions have also moved to the governance step. For more information, see Configure governance.



Certified definition ✓

Edit definition: Anyone Can Edit

Edit manual goals and thresholds: Anyone Can Edit

Added April 10, 2025

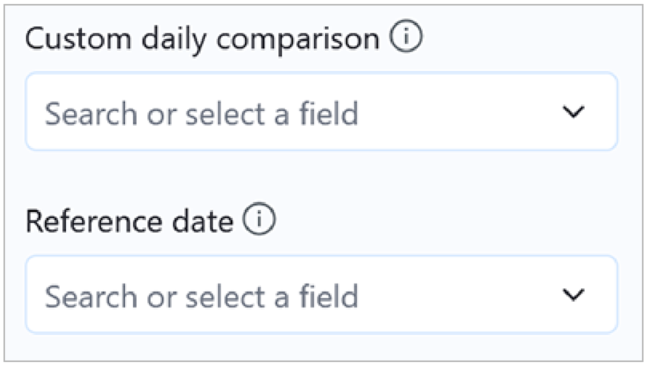
Customize the metrics in your insights summary

When you follow a metric, notable changes about that metric can appear in the insights summary at the top of your Tableau Pulse home page and in your Slack and email digests. You can now further customize these summaries by muting metrics. When you mute a metric, insights about that specific metric are removed from your summary without unfollowing the metric. For more information, see Customize your home page and digests.

Added March 27, 2025

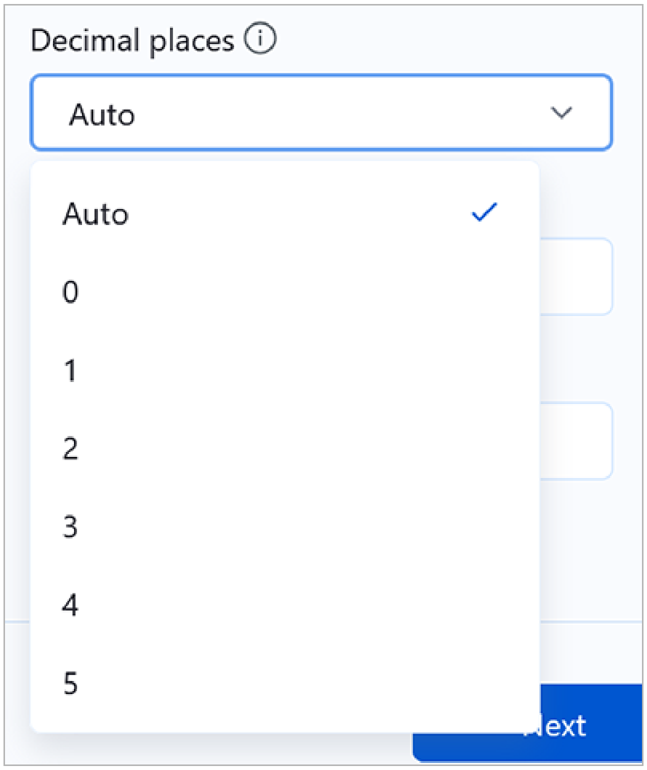
Set a custom comparison date for metrics

For metrics filtered to Today or Yesterday, a custom comparison overrides the comparison to the prior day or the same day from a year ago. This comparison option allows you to compare data for events that don’t fall on the same date each year. For more information, see Set a custom daily comparison.



Choose the number of decimal places for metric values

If your data needs to be formatted with a consistent number of decimal places, you can choose the precise number, from 0 to 5. By default, Tableau Pulse automatically determines the number of decimal places to show, with larger values showing fewer decimal places. For more information, see Define metric options.

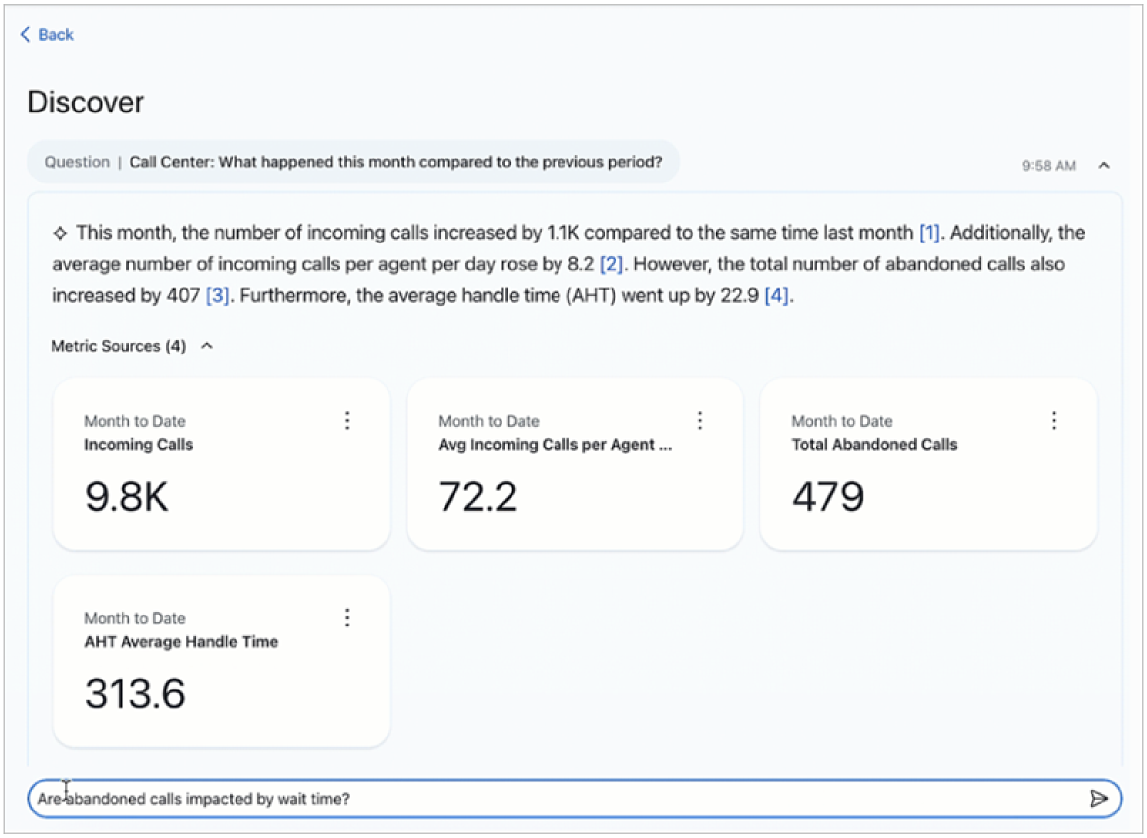

Decimal places

Auto

Added March 13, 2025

Discover more insights with enhanced Q&A (Tableau+)

Enhanced Q&A (Discover) makes it easier to explore insights across groups of business-critical metrics, and then dig deeper on the Discover page. When metrics in Tableau Pulse are grouped by data source, definition, or time range, Discover uses statistical algorithms to examine grouped metrics and surface insights that are relevant, interesting, and worth investigating.



Discover

Question | Call Center: What happened this month compared to the previous period?

✧ This month, the number of incoming calls increased by 1.1K compared to the same time last month [1]. Additionally, the average number of incoming calls per agent per day rose by 8.2 [2]. However, the total number of abandoned calls also increased by 407 [3]. Furthermore, the average handle time (AHT) went up by 22.9 [4].

Metric Sources (4)

Month to Date
Incoming Calls
9.8K

Month to Date
Avg Incoming Calls per Agent ...
72.2

Month to Date
Total Abandoned Calls
479

Month to Date
AHT Average Handle Time
313.6

Are abandoned calls impacted by wait time?

The enhanced Q&A experience provides intuitive key insights, relevant visualizations, source references, and suggested follow-up questions to help you dig deeper. Because it is powered by AI in Tableau, you can ask questions in your own words to get relevant, natural language answers about your data.

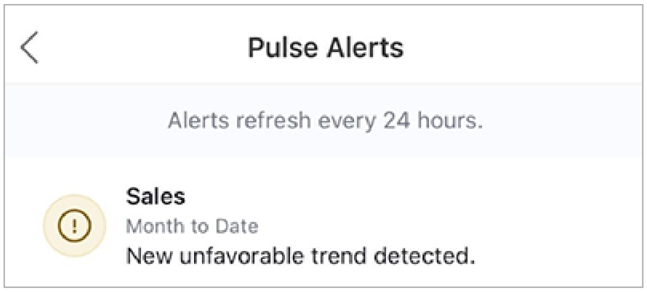
Enhanced Q&A (Discover) is available as a Tableau+ premium feature in Tableau Pulse on both web and mobile. Enhanced Q&A (Discover) must be turned on in Tableau Cloud site settings, and requires a connection to a Salesforce org that has Einstein generative AI set up for the selected Salesforce org. For more information, Ask Questions and Discover Insights in Tableau Pulse and Turn on enhanced Q&A (Discover) in Tableau.

Better semantic matches in any language for Ask Q&A

Turning on this setting enhances semantic matching for any language when you use Ask Q&A. When this setting is on, questions and insights text are sent to OpenAI as part of semantic matching. All calls to OpenAI go through the Einstein Trust Layer. For more information, see Turn on better semantic matches for Ask Q&A in Tableau

Get alerts for new unfavorable trends

If Tableau Pulse detects a new unfavorable trend in the data for a metric that you follow, you receive an alert about that trend in your email and Slack digests. If you use Tableau Mobile, you also receive a notification on your mobile device. For more information, see Get Tableau Pulse Alerts.



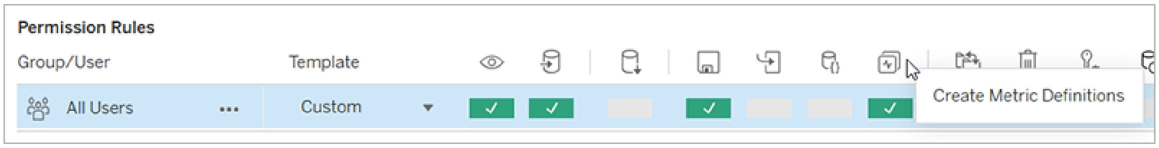
Pulse Alerts

Alerts refresh every 24 hours.

Sales
Month to Date
New unfavorable trend detected.

Control who can create metric definitions from a data source

Data sources have a new Create Metric Definitions permission capability. With this capability, you can now separately control who can create metric definitions from a data source and who can view metrics that use that data source. For more information, see Permissions for creating metric definitions.



Permission Rules

Group/User	Template
All Users	Custom

Adjust when Tableau Pulse starts generating digests

Tableau site administrators can set the time at which Tableau Pulse starts generating email and Slack digests. That way, if your data refreshes at a specific time, the digests reflect the freshest data. For more information, see Set the digest start time.

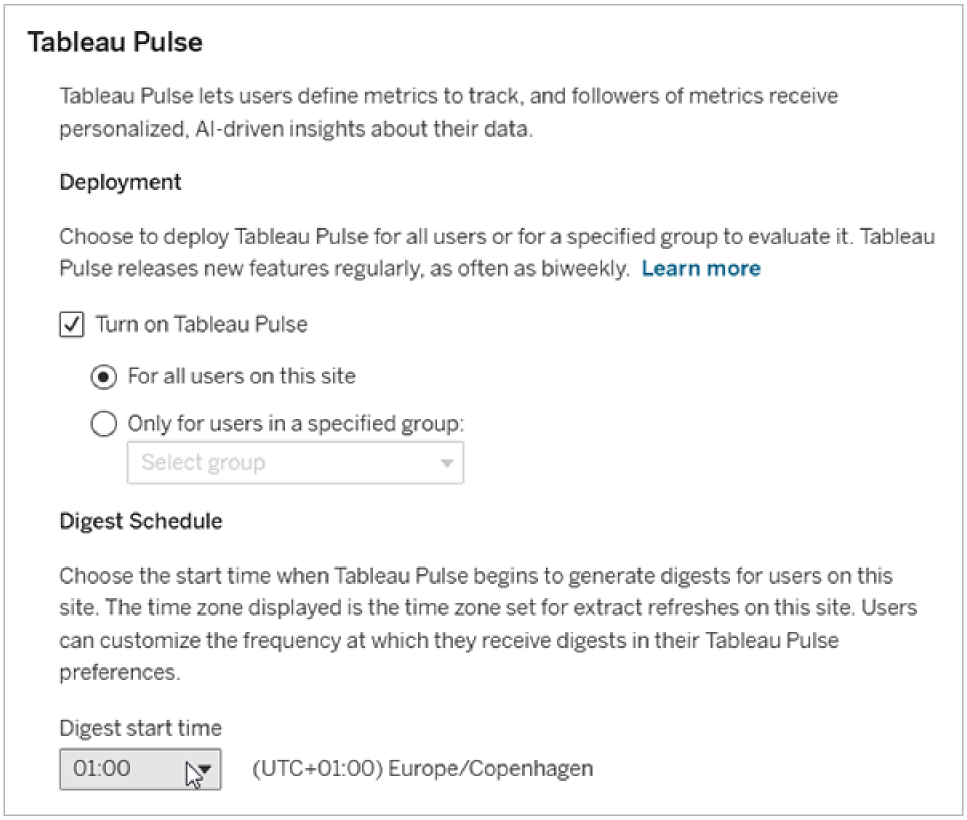


Tableau Pulse

Tableau Pulse lets users define metrics to track, and followers of metrics receive personalized, AI-driven insights about their data.

Deployment

Choose to deploy Tableau Pulse for all users or for a specified group to evaluate it. Tableau Pulse releases new features regularly, as often as biweekly. **Learn more**

☑ Turn on Tableau Pulse

● For all users on this site

○ Only for users in a specified group:

Digest Schedule

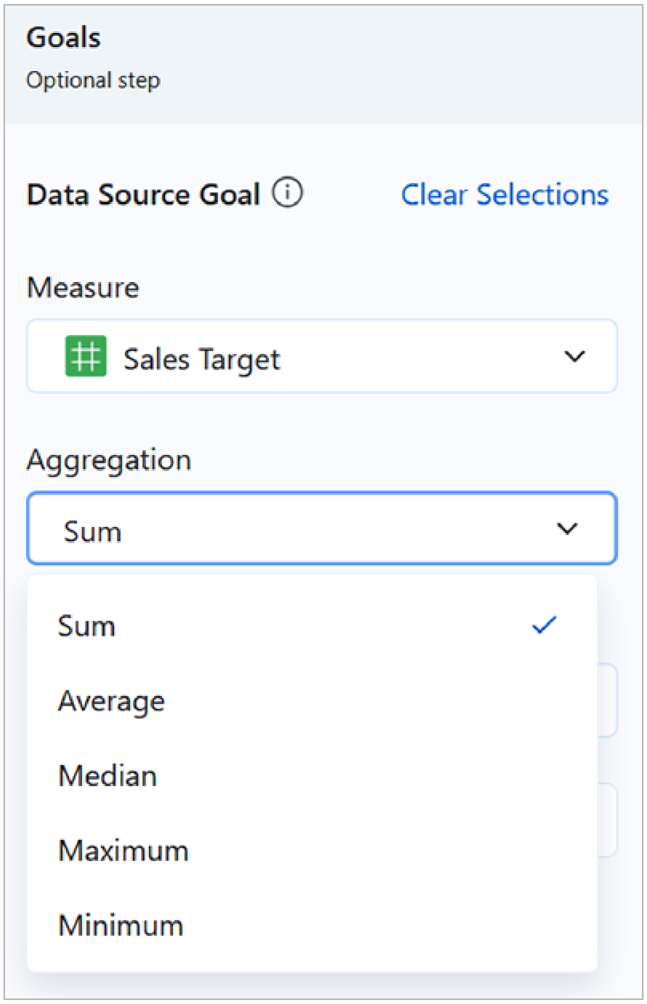
Choose the start time when Tableau Pulse begins to generate digests for users on this site. The time zone displayed is the time zone set for extract refreshes on this site. Users can customize the frequency at which they receive digests in their Tableau Pulse preferences.

Digest start time

01:00 (UTC+01:00) Europe/Copenhagen

Set the aggregation type for data source goals

You can now choose how Tableau Pulse aggregates the data for a data source goal. Measures can be aggregated as a sum, average, median, maximum, or minimum, and dimensions can be aggregated as a count or distinct count to produce a measure. Previously, all data source goals were aggregated as a sum. Additionally, you can now set data source goals for metric definitions that use any aggregation. Previously, you could create data source goals only for metric definitions where the measure was aggregated as a sum or count. For more information, see Configure data source goals and thresholds.



Goals

Optional step

Data Source Goal ⓘ Clear Selections

Measure

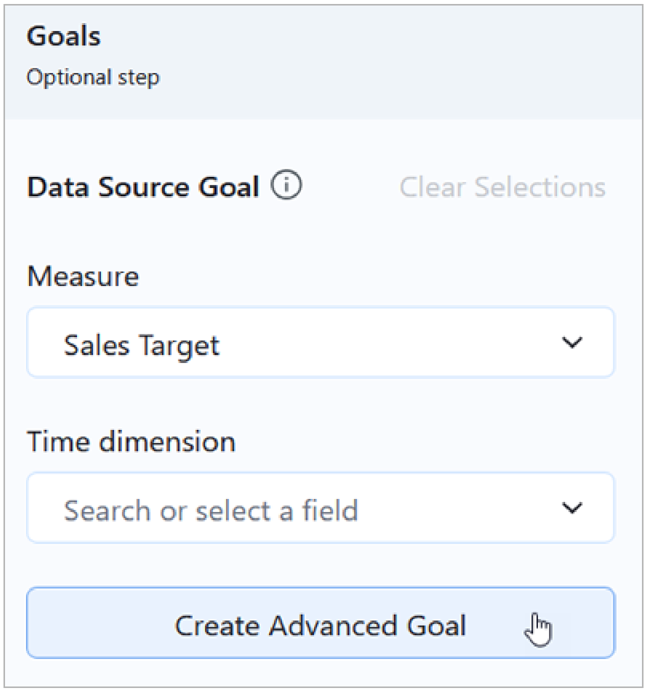
Sales Target

Aggregation

Sum

Create an advanced data source goal

The advanced editor lets you create data source goals using the familiar Tableau viz authoring environment. You can use the advanced editor to create goals based on calculated fields. For more information, see Configure data source goals and thresholds.



Goals

Optional step

Data Source Goal

Measure

Sales Target

Time dimension

Added in January 2025

Tableau Pulse data source goals

When creating or editing a metric definition, you can set a goal that uses a field from your data source to specify the goal values. This goal appears on the metrics based on the definition and is summed based on a metric's time range. For more information, see Configure data source goals and thresholds and Requirements for data source goals and thresholds.

Tableau Pulse available in 14 languages

Tableau Pulse now reflects the language and locale set by the user on Tableau Cloud and the language set for the device on Tableau Mobile. Tableau supports English (US), English (UK), French (France), French (Canada), German, Italian, Spanish, Brazilian Portuguese, Swedish, Japanese, Korean, Traditional Chinese, Simplified Chinese, and Thai. For more information, see Technical Specifications for Tableau Cloud.

Tableau Pulse links to related content

When creating or editing a metric definition, you can add links to related content. These links appear on each metric's Insights Exploration page. Consider including links to related dashboards, Slack channels, or workflows to help others follow up on the data. For more information, see Configure the core definition.

Tableau Pulse new border style for dashboard object

When embedding a metric in a dashboard, you can select the Tableau Pulse style option so that the dashboard object resembles the rounded-corner metric cards in Tableau Pulse. Without this style option, the metrics on a dashboard resemble other borderless dashboard objects. For more information, see Add metrics to dashboards and create metrics from dashboards.

Added in December 2024

Turn off the Unexpected Values insight in Tableau Pulse

In metric definition settings (Insights tab), you can turn off the Unexpected Values insight to hide the text description and expected range (blue shaded band in chart). For more information, see Insight types in Tableau Pulse.

Added in November 2024

Tableau Pulse personalized insight ranking setting

Administrators can turn Tableau Pulse personalized insight ranking off or on in site settings, independent of the setting to deploy Tableau Pulse. For more information, see Turn off Personalized Insight Ranking.

Added in September 2024

Tableau Pulse currency setting

When you set your definition to use the currency number format, you can now set which nation's currency to use, and Tableau Pulse will display that currency symbol and number format.

Added in August 2024

Tableau Pulse dashboard object

You can now add a Pulse Metric object to your dashboards. When you add this object, you can choose from metrics that connect to the same published data sources that are used by the workbook. For more information, see Add metrics to dashboards and create metrics from dashboards.

Tableau Pulse grouping and sorting

Customize your Tableau Pulse home page and digests by grouping and sorting metrics. You can now sort metrics based on how recently you followed the metric, or group metrics that share a metric definition or a data source. For more information, see Customize your home page and digests.

Tableau Pulse goals

Create a goal in Tableau Pulse to track a metric’s progress toward the goal. After a goal is created, you’ll see your progress toward that goal in your Tableau Pulse digests and on your Tableau Pulse home page. For more information, see Set Manual Goals and Thresholds with Tableau Pulse.

Tableau Pulse improved Ask experience for exploring insights

Ask more questions about a metric to get suggestions for insights based on the same metric definition. You can now enter questions that adjust the time granularity and apply dimensional filters for the current metric view. For example, "Sales in California last week," "Zoom into technology," or "What about yesterday?" For more information, see How Tableau Pulse Approaches NLP with Q&A to Empower Everyone.

Tableau Pulse for Salesforce app

The Pulse for Salesforce app connects your Salesforce org with Tableau, creates metrics based on your Salesforce data, and surfaces these metrics in Salesforce. For more information, see Set Up the Pulse for Salesforce App.

Added in July 2024

Tableau Pulse minimum time granularity

You can now set a minimum time granularity for a metric definition, which limits the time ranges that users can select when filtering to create metrics. This prevents users from selecting time ranges that would result in an empty chart because data doesn’t exist for that granularity. For more information, see Define the metric value.

Tableau Pulse week start based on data source

If the data source that a metric connects to has a different week start than the default (Sunday), the metric reflects that start day. That day appears as the first day of the week for metric charts and insights that deal with weekly values.

Tableau Pulse restrict metric definition editing

You can restrict who can edit or delete a metric definition so that only specific users and groups have access. For more information, see Restrict editing for definitions and manual goals and thresholds.

Tableau Pulse record-level outliers insight type

A new insight type, record-level outliers, is now available to help you easily spot outliers in your data that are impacting metric values. This insight type shows notably high or low values for a metric, in the context of row-level values of the metric across a period of time. For more information, see Insight types in Tableau Pulse.

Tableau Pulse outlier insight setting

Turn on or off the record-level outliers insight type to control whether Tableau Pulse looks for extremely high or low values in your data. For more information, see Configure insights.

Added in June 2024

Tableau Pulse date offsets

You can now add a date offset to your metric definition to change the final point in the time series from “Today” to a set number of days in the past. For more information, see Define the metric value.

Tableau Pulse adjustable metric filter improvements

The metric filter options that you can select now show only relevant values when definition filters have been applied to a metric definition. This means that if a metric definition has a definition filter set to limit the data to a certain region, for example, only cities in that region will appear as options for adjustable metric filters.

Tableau Pulse personalized insight ranking

Enhance your insights experience by letting Tableau Pulse know which insights you find most valuable. Your thumbs-up and thumbs-down feedback on insights influence which insights you see first.

Tableau Pulse charts in Slack

When you check your Tableau Pulse digest in Slack, you'll now see a sparkline chart that shows that period's data.

Added in March 2024

Tableau Pulse improved metric recommendations for dashboards

When you explore recommended metrics for dashboards, Tableau now shows more relevant and informative recommendations. Additionally, calculated fields from the data source now appear in recommendations.

Tableau Pulse pre-aggregated fields in metric definitions

When creating a definition, you can now select a field that is pre-aggregated in the data source and use it as the measure.

Tableau Pulse applied filters shown for metrics

When you visit the Insights Exploration page for a metric, the specific filters that are applied to that metric are now listed above the chart.

Tableau Pulse improved navigation options

The Tableau Pulse sparkle (upper-left corner of the Insights Exploration page) now includes drop-down options for navigating to the Tableau Cloud home page and followed metrics.

Tableau Pulse ad-hoc questions for insights

In the guided insights experience, click the Ask button and enter your own questions related to the insights surfaced for a metric. Receive semantically matched suggestions for more insights. For more information, see How Tableau Pulse Approaches NLP with Q&A to Empower Everyone.

Added in February 2024

Tableau Pulse follow metrics

Adjust filter values and follow different metrics based on the same definition. When you follow a metric, the time period and filter selections are preserved in your Tableau Pulse home page and digests. For more information, see Follow metrics.

Tableau Pulse guided insights

Tableau Pulse provides a path for exploring your data by surfacing questions for each insight that it detects for a metric. As you click through the suggested questions about your data, answers are revealed in easy-to-read charts with insights about the underlying data. For more information, see Explore metrics in detail, adjust the time range, or apply filters.

Tableau Pulse insights platform

The insights platform automatically detects drivers, trends, contributors, and outliers for metrics. It proactively flags and describes insights that matter using natural language and visual explanations. For more information, see The Insights Platform and Insight Types in Tableau Pulse.

Tableau Pulse insight summaries

Tableau Pulse looks across the metrics that you follow and leverages AI in Tableau to summarize the most important insights. Insight summaries make use of a large language model (LLM) to provide a personalized overview in plain language. AI in Tableau is built on the Einstein Trust Layer, meaning it enables trusted, ethical, and open AI-powered experiences without compromising data security and privacy. For more information, see Insight summaries highlight metrics of interest.

Tableau Pulse metrics layer

The metrics layer provides a single source of truth for your data. Create metric definitions to specify the core metadata that metrics are based on, then adjust filters and time options to create metrics for different groups of followers. For more information, see Create Metrics with Tableau Pulse.

Tableau Pulse recommended metrics for dashboards

Get a head start on creating metrics by selecting the recommended metrics displayed for Tableau dashboards. For more information, see Add metrics to dashboards and create metrics from dashboards.

Tableau Pulse deployment setting

Choose to deploy Tableau Pulse for a single group of users or for all users on your Tableau site. For more information, see Deploy Tableau Pulse for your site.

Tableau Pulse insight summaries setting

Insight summaries can be turned on or off independently of the site setting used to deploy Tableau Pulse. For more information, see AI in Tableau for Tableau Pulse.

Tableau Pulse fiscal calendar support

Tableau Pulse now reflects fiscal calendars that have been set on a data source or on specific fields in a data source. For more information, see How fiscal calendars work with metrics .

Tableau Pulse admin insights

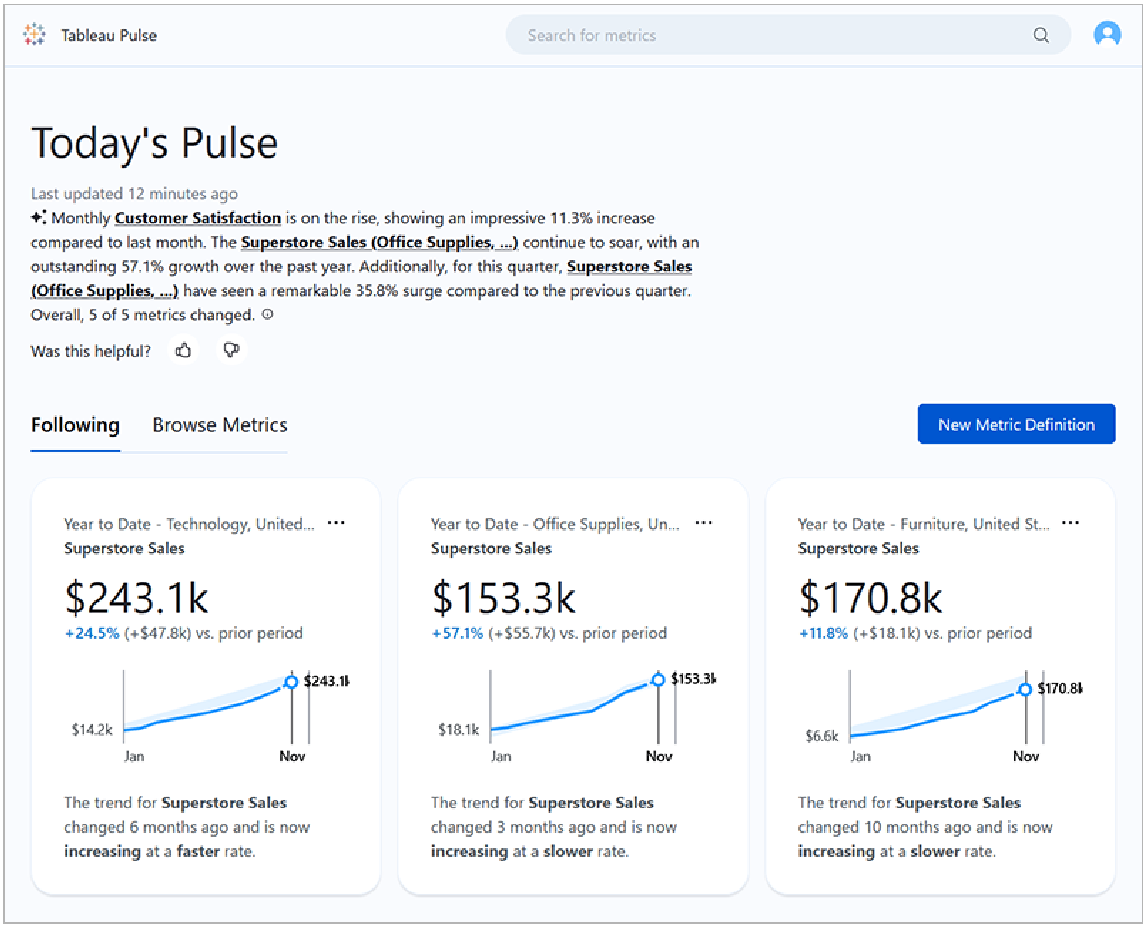
Tableau Puse metadata has been added to the Site Content, Users, and Subscriptions data sources for Admin Insights. Admins can use these data sources to learn about the definitions and metrics on a site. For more information, see Use Admin Insights to Create Custom Views.

Tableau Pulse primary time comparison

You can now set a primary time comparison as part of a metric definition, and all metrics based on the definition will use that comparison in digests and insights. For more information, see Define the metric value.

Set Up Your Site for Tableau Pulse

Tableau Pulse provides users with personalized insights about the metrics that matter to them, directly in their flow of work. Users with a Creator, Site Administrator Explorer, or Explorer (can publish) site role can add metric definitions, and all users can follow metrics to discover insights and learn about changes to the data. For information about definitions, metrics, and how to create them, see Create Metrics with Tableau Pulse. For information about how viewers interact with metrics, see Explore Metrics with Tableau Pulse.



Today's Pulse

Last updated 12 minutes ago

Monthly **Customer Satisfaction** is on the rise, showing an impressive 11.3% increase compared to last month. The **Superstore Sales (Office Supplies, ...)** continue to soar, with an outstanding 57.1% growth over the past year. Additionally, for this quarter, **Superstore Sales (Office Supplies, ...)** have seen a remarkable 35.8% surge compared to the previous quarter. Overall, 5 of 5 metrics changed.

Was this helpful?

Year to Date - Technology, United...
Superstore Sales
$243.1k
+24.5% (+$47.8k) vs. prior period

The trend for **Superstore Sales** changed 6 months ago and is now **increasing** at a **faster** rate.

Year to Date - Office Supplies, Un...
Superstore Sales
$153.3k
+57.1% (+$55.7k) vs. prior period

The trend for **Superstore Sales** changed 3 months ago and is now **increasing** at a **slower** rate.

Year to Date - Furniture, United St...
Superstore Sales
$170.8k
+11.8% (+$18.1k) vs. prior period

The trend for **Superstore Sales** changed 10 months ago and is now **increasing** at a **slower** rate.

Users who follow metrics receive regular digests with insights about their data by email or in Slack. Tableau Pulse allows users who don't regularly access Tableau to understand their data without leaving the places they normally work. If these users want to learn more, they can visit a metric on Tableau Cloud to engage in guided, self-service data analysis and see how different factors impact their data.

Deploy Tableau Pulse for your site

The site setting to deploy Tableau Pulse is off by default. When you deploy Tableau Pulse, you can choose to turn it on for a single group of users or for all users on your site. You might want to have a controlled roll out for Tableau Pulse and turn it on for a single group so that a subset of users can explore and evaluate it before you make it available to your entire organization. To learn how to create a user group for Tableau Pulse, see Create a Group and Add Users to It.

To deploy Tableau Pulse, visit the settings page for your site.

1. From the main Tableau Cloud navigation menu, select **Settings**.
2. Under Tableau Pulse > Deployment, select **Turn on Tableau Pulse**.
3. Choose whether to turn on Tableau Pulse for all users or for a specified group.
4. If you choose to limit Tableau Pulse to a group, select the group.
5. Select **Save**.

Users without access will get a message informing them if they visit a Tableau Pulse URL. Also, if you limit Tableau Pulse to a group, that group is the only one available when you search to add followers, even if those same users are part of a different group.

API availability of Tableau Pulse

Limiting Tableau Pulse to a specified group isn't supported at the external API level. If the site setting is turned off entirely, the API won’t allow users to access Tableau Pulse. If the site setting for Tableau Pulse is on, all users will be able to access it in situations where it's being called through the API, such as in embedded scenarios, regardless of whether the setting limits it to a specified group. For more information about using the API for Tableau Pulse, see Embed Tableau Pulse and Tableau Pulse REST API Methods.

Stop digests that persist for users without access

After you initially deploy Tableau Pulse, the services that query data sources and send metric digests continue to run whether the site setting is on or off. The site setting controls whether Tableau Pulse appears in the navigation menu and whether users are able to access the Tableau Pulse home page and individual metric pages.

Because the services for Tableau Pulse continue to run, any users who previously had access and followed metrics will receive digests for those metrics, even if you restrict access to a group that they aren’t in or remove those users from the group with access to Tableau Pulse. If these users attempt to open the links to metrics that are sent in digests, they'll get a notice that they don’t have access to Tableau Pulse, and they'll be unable to unfollow these metrics.

To prevent users who can’t access Tableau Pulse from receiving digests, remove those users from the metrics that they follow. Do this before you turn off Tableau Pulse or limit it to a smaller set of users, so these users don’t receive digests with links to metrics they can’t access.

Set up your site

As a Tableau administrator, you can help your users get the most from Tableau Pulse. Before your users get started, check that the data required for metrics is available and turn on optional features.

- Verify that there are published data sources on your site for users to create metrics from. For information about the specific data requirements for metrics, see Data source requirements for metric definitions. To make sure that users can access the data, see Understand governance for Tableau Pulse.
- Connect your Tableau site with Slack, if you want your users to receive Tableau Pulse digests in Slack. For more information, see Integrate Tableau with a Slack Workspace.
- Turn on AI in Tableau, if you want your users to see personalized insights summaries. For more information, see AI in Tableau for Tableau Pulse.

The legacy Metrics feature was retired on Tableau Cloud in February 2024. Any legacy metrics on your site won’t carry over to Tableau Pulse. If you had legacy metrics, note the data source, measure, and time dimension, then recreate them in Tableau Pulse. For more information about legacy metrics, see Create and Troubleshoot Metrics (Retired).

Understand governance for Tableau Pulse

A combination of settings and permissions control access to Tableau Pulse and its features.

- Site settings control the ability to access Tableau Pulse and to see features that use generative AI. See Deploy Tableau Pulse for your site and AI in Tableau for Tableau Pulse.
- Permissions for data sources and authentication to the data itself control the ability to view metrics and create metric definitions. See Permissions for viewing metrics.

- Settings on metric definitions control who can edit or delete metric definitions and goals. See Permissions for editing metrics and goals.

How site roles impact Tableau Pulse access

Users must have a site role of Creator, Site Administrator Explorer, or Explorer (can publish) to create, edit, or delete metric definitions in Tableau Pulse. There are no site role limitations for creating and viewing metrics, following and adding followers to metrics, or setting and editing goals for metrics. Users who have site roles that don’t allow an action won’t be able to take that action, regardless of the permissions they're granted.

Permissions for viewing metrics

Metrics in Tableau Pulse aren’t part of the project content hierarchy in Tableau Cloud or governed by content-based permissions, meaning you can’t deny a user the ability to see an individual metric. However, by adjusting permissions on a published data source, you can control whether users can view metrics based on that data source. Also, the data that users see when viewing a metric respects row-level security applied to the data source.

To view a metric, users must have:

- The Connect and View permission capabilities for the published data source that the metric is connected to. For more information about permissions, see Permission Capabilities and Templates.
- Access to the data in the data source that the metric is connected to.

Tableau Pulse doesn’t prompt users to sign in to the database or data connection for the data source. Instead, one of the following must be true for users to access the metric data:

- The credentials for the data source are embedded. For information about embedded credentials, see Set Credentials for Accessing Your Published Data.
- The user's credentials are passed to the data source with single sign-on.
- The user’s credentials are saved for the data source. For more information, see Manage Saved Credentials for Data Connections.
- The data source doesn't require the user to authenticate to access the data.

If users try to view a metric that they don't have the correct permissions for, they see a message that the metric doesn't exist or that they don't have permission to access it.

Permissions for creating metric definitions

Any user with a site role of Creator, Site Administrator Explorer, or Explorer (can publish) can create metric definitions. You can't deny users the ability to create definitions; however, you can limit the data sources that users can connect to when creating metric definitions.

To create a metric definition from a data source, users must have the Create Metric Definitions permission capability for the data source. They must also have the same access that is required to view a metric that is connected to that data source. For more information, see Permissions for viewing metrics.

If you want users to be able to view metrics based on a data source but don't want users to be able to create metrics based on that data source, allow the View and Connect capabilities but deny the Create Metric Definitions capability.

Permissions for creating metrics

There's no setting to limit who can create metrics in Tableau Pulse, and there are no site role limitations for creating metrics. A new metric is created any time a user filters an existing metric if one doesn't already exist with that combination of filters. As long as users can view an existing metric, they can create new metrics by adjusting the filters.

Permissions for editing metrics and goals

You can adjust settings on a metric definition to control who can edit or delete the metric definition and who can set, edit, or delete goals for the metrics based on that definition. Note that these settings won't grant users the ability to edit a definition if their site role doesn't allow it. Tableau administrators don't need to be added as editors, because their site role gives them the ability to edit all metric definitions and goals. For more information, see Restrict editing for definitions and manual goals and thresholds.

Set the digest start time

Set the time at which Tableau Pulse starts generating digests. Setting a start time is useful if your data refreshes at a specific time, so that Tableau Pulse digests include the latest data.

1. From the main Tableau Cloud navigation menu, select **Settings**.
2. Under Tableau Pulse > Digest Schedule, for the **Digest start time**, select a time.
3. Select **Save**.

> **Note:** The start time isn’t the time at which the digests are sent. It can take more than an hour to generate and send the digests.

AI in Tableau for Tableau Pulse

AI in Tableau is Tableau's generative artificial intelligence technology. Tableau Pulse uses AI in Tableau to provide these capabilities:

- Personalized summaries of insights for the metrics that you follow.
- Better semantic matches in any language for Ask Q&A.
- Enhanced Q&A (Discover) for an in-depth, conversational exploration of groups of metrics and insights.

Settings for these features are off by default, so you will need to turn on each setting individually in Tableau Cloud to use them.

> **Note**: AI in Tableau settings for Tableau Pulse are independent of the setting to deploy Tableau Pulse, meaning that turning on Tableau Pulse doesn't turn on settings for AI in Tableau.

Tableau Pulse doesn't use your site’s data to train its generative AI. When AI in Tableau processes a prompt to generate an insights summary or insights brief, the prompt and the response are forgotten. Your data isn’t stored outside of Tableau, and the only data that AI in

Tableau collects is the voluntary feedback users can submit about their insights summaries. For more information, see Einstein Generative AI for Tableau.

Turn on metric insight summaries

When you follow two or more metrics, Tableau Pulse provides an overview to help you quickly see the latest insights across your metrics of interest. When available, this insights summary appears in digests and in the Tableau Pulse home page. For more information, see Insight summaries highlight metrics of interest.

AI in Tableau settings are turned off for your site by default. Turn on this setting so your users can see their personalized insights summaries and get a quick overview of important changes to their metrics.

Note: This feature doesn't require you to log into your Salesforce org.

1. From the main Tableau Cloud navigation menu, select **Settings**, and then select the **General** tab.
2. Under AI in Tableau, select **Tableau Pulse: Summarizes key metric insights**.
3. Select **Save**.

Note: AI in Tableau settings for Tableau Pulse are independent of the setting to deploy Tableau Pulse, meaning that turning on Tableau Pulse doesn't turn on settings for AI in Tableau.

When you turn on an AI in Tableau setting for Tableau Pulse, users will see a notice informing them that generative AI can produce inaccurate or harmful responses. Users have the option to leave feedback about the quality of the insights summaries that they see by selecting a thumbs-up or thumbs-down rating.

AI in Tableau for Tableau Pulse is used to generate the language for insight summaries, but AI in Tableau isn't involved in the identification of data insights, and there are checks to ensure that no numbers change in the insights summaries. The insights that Tableau Pulse finds are grounded in the same types of statistical modeling used to analyze data in the traditional Tableau viz authoring experience.

Turn on better semantic matches for Ask Q&A in Tableau

Ask Q&A detects insights based on a single metric and suggests further questions. You can enter your own questions that adjust the time granularity and apply dimensional filters for the current metric view. For example, "Sales in California last week," "Zoom into technology," or "What about yesterday?" For more information, see Ask Questions and Discover Insights in Tableau Pulse and How Tableau Approaches NLP with Q&A to Empower Everyone.

Better semantic matches for Ask Q&A is turned off for your site by default. Turn on this setting to get the best semantic results when you use Ask Q&A to explore a single metric, in any language.

Turning on this setting enhances semantic matching for any language when you use Ask Q&A. When this setting is on, questions and insights text are sent to OpenAI as part of the calculation process for semantic matching. All calls to OpenAI go through the Einstein Trust Layer.

Note: This feature doesn't require you to log into your Salesforce org.

1. From the main Tableau Cloud navigation menu, select **Settings**, and then select the **General** tab.
2. Under AI in Tableau, select **Tableau Pulse: Gets better semantic matches on insights in any language when asking questions**.
3. Select **Save**.

Note: AI in Tableau settings for Tableau Pulse are independent of the setting to deploy Tableau Pulse, meaning that turning on Tableau Pulse doesn't turn on settings for AI in Tableau.

When you turn on an AI in Tableau setting for Tableau Pulse, users will see a notice informing them that generative AI can produce inaccurate or harmful responses. Users have the option to leave feedback about the quality of the insights surfaced as answers by selecting a thumbs-up or thumbs-down rating.

Turn on enhanced Q&A (Discover) in Tableau

Enhanced Q&A (Discover) uses AI in Tableau to take your analysis beyond individual metrics to reveal connections between groups of related metrics. In the Discover page, find summaries, comparisons, and trend analyses using a conversational interface. Dive deeper into your data by selecting relevant questions grounded in the insights detected for your metrics. For more information, see Ask Questions and Discover Insights in Tableau Pulse. Enhanced Q&A is a premium, Tableau+ feature in Tableau Pulse.

Enhanced Q&A (Discover) in Tableau is turned off for your site by default. Turn on this setting to enable a conversational question and answer experience based on groups of metrics in Tableau Pulse, including access to the Discover page.

Important: Enhanced Q&A (Discover) requires a Salesforce org to be connected to Tableau Cloud. The connection settings are listed at the beginning of the AI in Tableau section of General settings in Tableau Cloud. Also, Einstein generative AI in Salesforce must be set up for the Salesforce org that you select.

To make Discover available in Tableau Cloud, you must make configuration changes in both Salesforce and your Tableau Cloud site. Follow the instructions for the multi-step procedure described in the help topic Configure Tableau Cloud sites for AI.

1. Follow the instructions in the help topic Configure Tableau Cloud sites for AI.
2. In Tableau Cloud: From the main Tableau Cloud navigation menu, select **Settings**, and then select the **General** tab.
3. Under AI in Tableau, select **Tableau Pulse: Uses Pulse Discover for an in-depth, integrated exploration of groups of metrics and insights**.
4. Select **Save**.

> **Note**: AI in Tableau settings for Tableau Pulse are independent of the setting to deploy Tableau Pulse, meaning that turning on Tableau Pulse doesn't turn on settings for AI in Tableau.

When you turn on a AI in Tableau setting for Tableau Pulse, users will see a notice informing them that generative AI can produce inaccurate or harmful responses. Users have the option to leave feedback about the quality of the insights summaries that they see by selecting a thumbs-up or thumbs-down rating.

Turn off Personalized Insight Ranking

The Personalized Insight Ranking setting is turned on for your Tableau site by default. When this setting is turned on, users can provide thumbs-up or thumbs-down feedback on insights. That feedback is then used by the Tableau Pulse insights platform to further personalize and rank the types of insights it shows to a user. This setting is independent of the setting to deploy Tableau Pulse.

1. From the main Tableau Cloud navigation menu, select **Settings**, and then select **General**.
2. Under Personalized Insight Ranking, select **Turn on (Users can submit feedback to improve the insights they receive)**.
3. Select **Save**.

When Personalized Insight Ranking is turned off, users won't be able to submit thumbs-up or thumbs-down feedback on individual insights.

Troubleshoot metrics

If users on your site don't see data when they create a metric definition or when they view a metric, there might be an issue with your data source. Be aware that if today’s date is the beginning of the current period for the time series, such as the first day of the month, the chart will display only that point. This isn’t an issue with your data source. New points in the time series will be added as the period progresses.

If a user is creating a metric definition and there's no data in the preview: Tableau Pulse presents preview data for the current period to date. If the measure selected has no recent data, the user won't see a preview on the chart. Check the data source to verify that the data is updating.

If a user is viewing a metric that previously had data, but now there's no data: Check to see if a field used by the metric was removed or changed in the data source. Edit the metric definition to account for this change, and the change will be reflected on all metrics based on that definition. For more information, see Edit a metric definition.

Create Metrics with Tableau Pulse

Tableau Pulse provides insights about your data based on metrics that you define. After you create a metric, you can add members of your organization as followers, and they'll receive regular email or Slack digests about their data. This digest surfaces trends, outliers, and other changes, keeping followers up to date on the data relevant to their work. To learn more about the data, these users can investigate a metric on Tableau Cloud and see how different factors contribute to changes in the data. These insights give them the information they need to make data-driven decisions without requiring them to do complex analysis in Tableau.

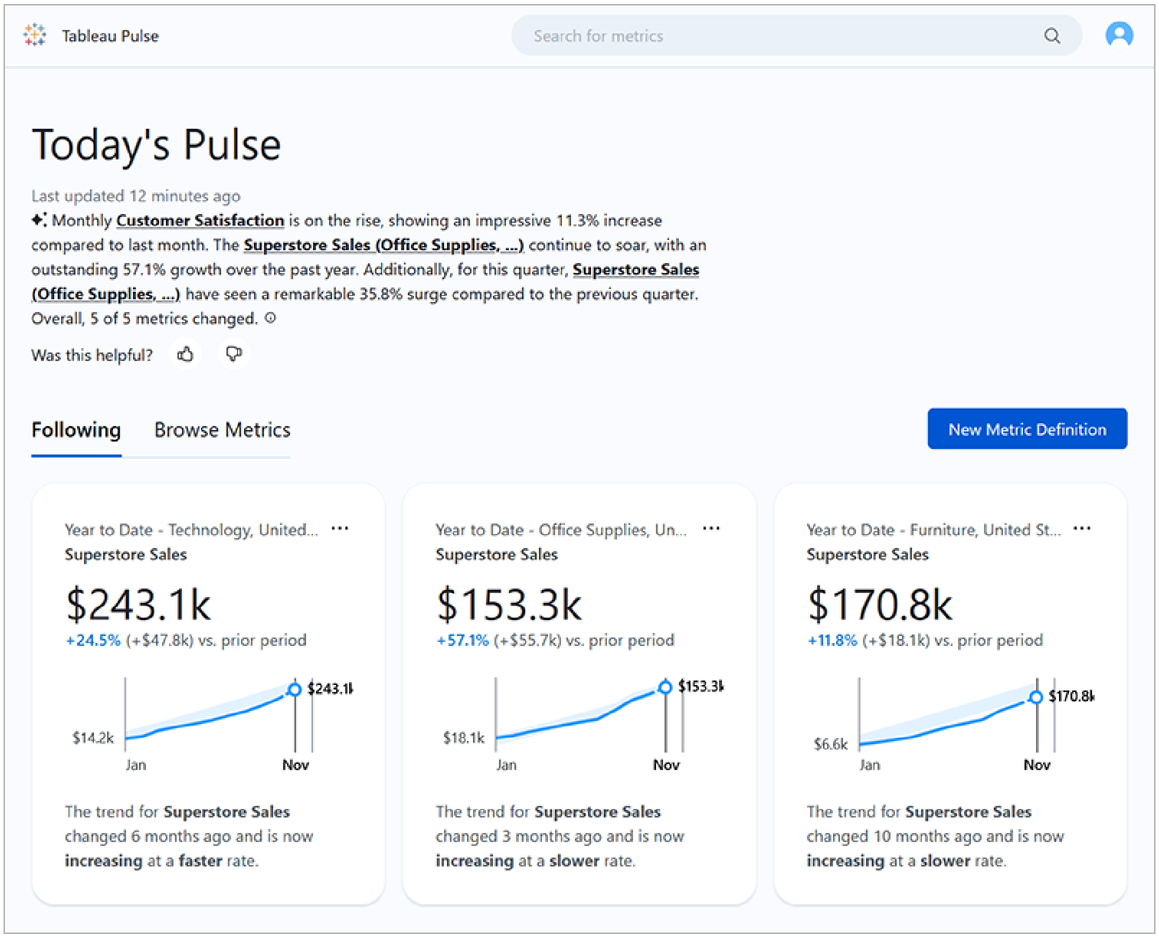


Tableau Pulse
Search for metrics

Today's Pulse

Last updated 12 minutes ago

Monthly **Customer Satisfaction** is on the rise, showing an impressive 11.3% increase compared to last month. The **Superstore Sales (Office Supplies, ...)** continue to soar, with an outstanding 57.1% growth over the past year. Additionally, for this quarter, **Superstore Sales (Office Supplies, ...)** have seen a remarkable 35.8% surge compared to the previous quarter. Overall, 5 of 5 metrics changed.

Was this helpful?

Following
Browse Metrics
New Metric Definition

Year to Date - Technology, United...
Superstore Sales
$243.1k
+24.5% (+$47.8k) vs. prior period

$243.1k
$14.2k
Jan
Nov

The trend for **Superstore Sales** changed 6 months ago and is now **increasing** at a **faster** rate.

Year to Date - Office Supplies, Un...
Superstore Sales
$153.3k
+57.1% (+$55.7k) vs. prior period

$153.3k
$18.1k
Jan
Nov

The trend for **Superstore Sales** changed 3 months ago and is now **increasing** at a **slower** rate.

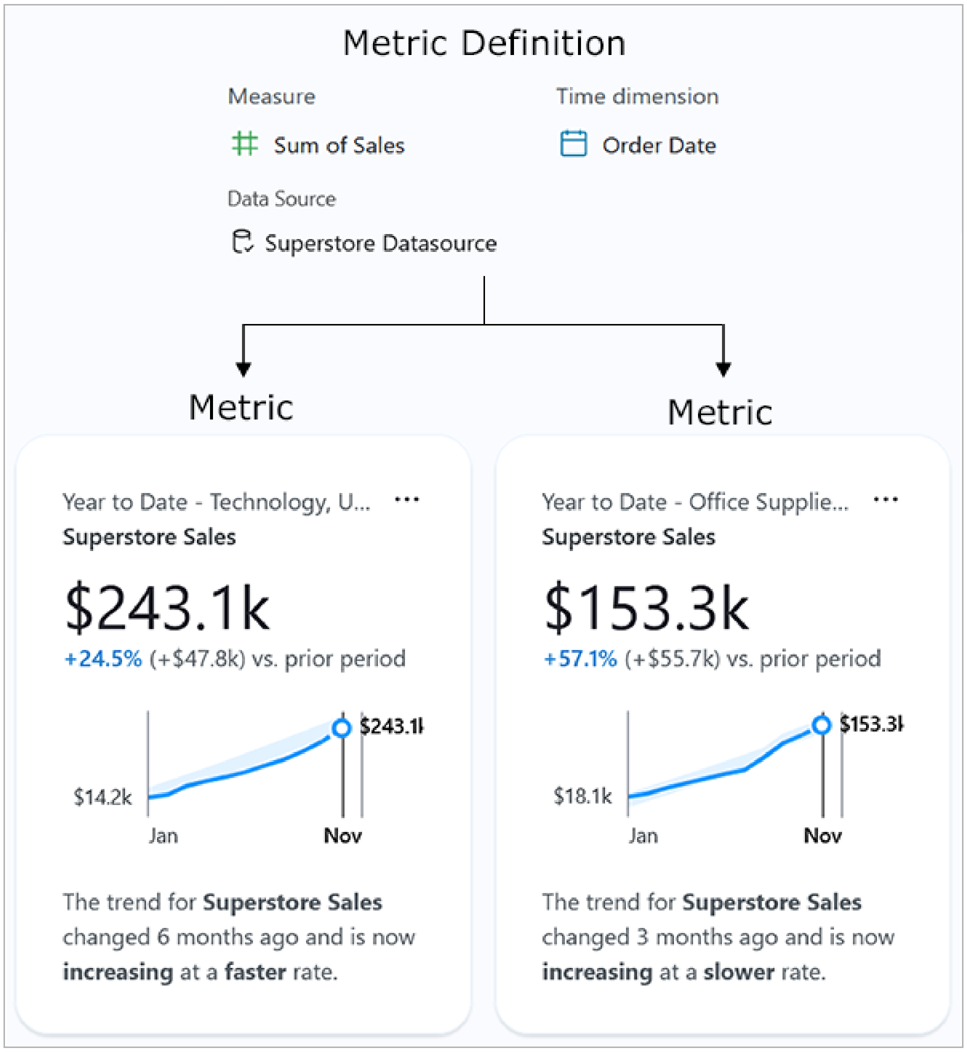
Year to Date - Furniture, United St...
Superstore Sales
$170.8k
+11.8% (+$18.1k) vs. prior period

$170.8k
$6.6k
Jan
Nov

The trend for **Superstore Sales** changed 10 months ago and is now **increasing** at a **slower** rate.

Metric definitions and metrics

Behind every metric in Tableau Pulse is a metric definition. Viewers interact with metrics. Metric definitions specify the core metadata for those metrics.


Metric Definition
Measure
Sum of Sales
Time dimension
Order Date
Data Source
Superstore Datasource
Metric
Metric
Year to Date - Technology, U...
Superstore Sales
$243.1k
+24.5% (+$47.8k) vs. prior period
$243.1k
$14.2k
Jan
Nov
The trend for Superstore Sales changed 6 months ago and is now increasing at a faster rate.
Year to Date - Office Supplie...
Superstore Sales
$153.3k
+57.1% (+$55.7k) vs. prior period
$153.3k
$18.1k
Jan
Nov
The trend for Superstore Sales changed 3 months ago and is now increasing at a slower rate.

Metric definitions are the set of metadata that functions as the single source of truth for all the metrics based on them. Defined by a user with a Creator, Site Administrator Explorer, or Explorer (can publish) site role. The following table provides an example of the metadata captured by a metric definition.

Metric definition for Superstore Sales

Definition field	Example value
Name	Superstore Sales
Measure and aggregation	Sum of Sales

Time dimension	Order Date
Compared to	Prior year
Adjustable metric filters	Region, Category
Number format	Currency
Data source goal measure	Sales Target
Granularity of goal measure	Daily
Value going up is	Favorable

Metrics are the interactive objects that sit in front of a definition. Created when users adjust filters or time options, which means that there can be many metrics based on a definition. Users follow and explore metrics to get insights. The following tables provide an example of the options configured for metrics. These options are applied on top of the core value that is specified by the metric definition.

Metric for Superstore Sales - Technology

Metric option	Example value
Time period	Quarter to date
Filters	Category: Technology
Manual goal	80K

Metric for Superstore Sales - Office Supplies

Metric option	Example value
Time period	Year to date
Filters	Category: Office Supplies
Manual goal	200K

To get started in Tableau Pulse, you create a metric definition that captures the core value that you want to track. At its most basic level, this value is an aggregate measure tracked based on a time dimension. The definition also specifies options such as the dimensions that viewers are able to filter by, the way the value is formatted, and the types of insights displayed.

When you create this definition, Tableau automatically creates an initial metric and sends you to that metric's page. The initial metric created for a definition has no filters applied, but any time you or another member of your organization adjusts the metric filters or time options in a new way, Tableau Pulse creates an additional metric.

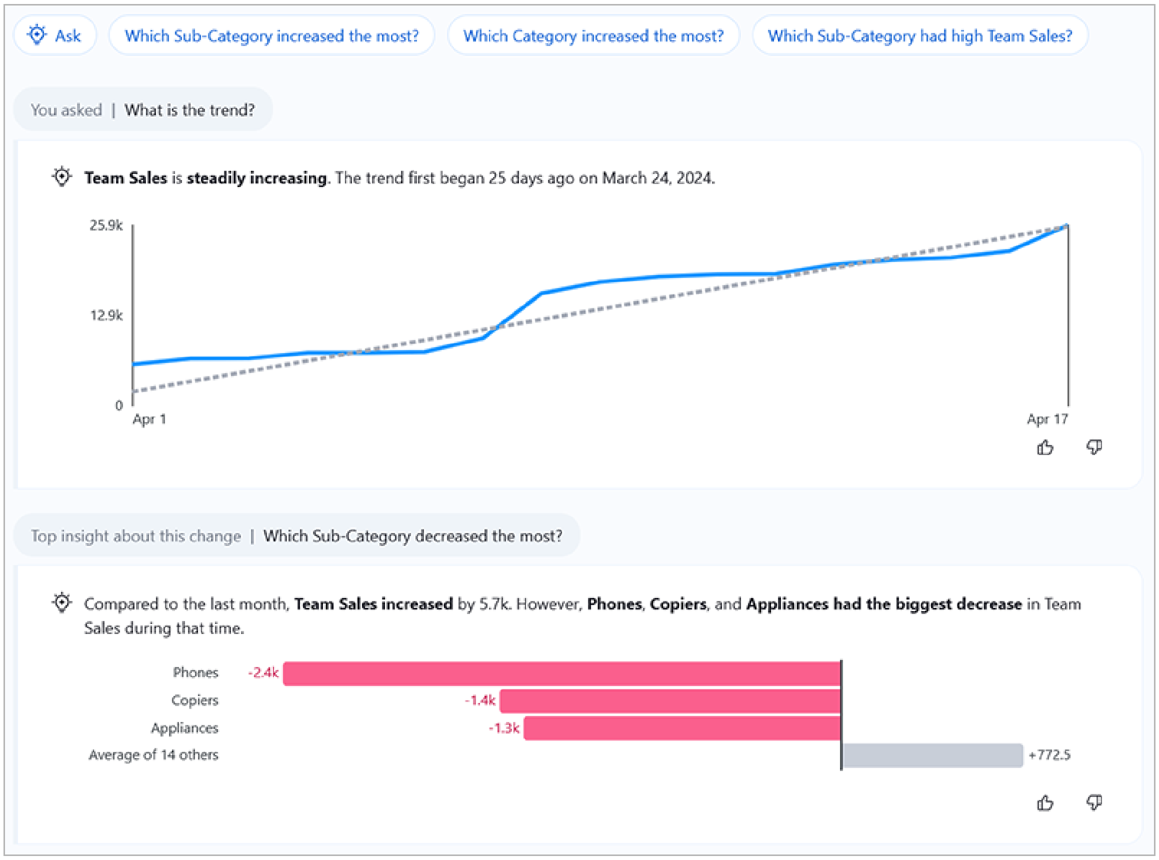
People in your organization follow metrics, not metric definitions. By following individual metrics, they get insights specific to the dimensions that matter to them. The definition exists in order to let you manage the data for metrics from a single parent object. If a field in your data source changes, you can update the definition to reflect this change, and all metrics based on that definition will also reflect the change.

Say that you're a member of a sales organization, and that organization needs to track metrics across different territories and product lines. In Tableau Pulse, you would create a metric definition that includes the core value of the sum of daily sales with adjustable metric filters for region and product line. Then, you would create metrics for each region and product line. Finally, you would add members of your organization as followers to the metrics that cover where and what they sell.

What makes Tableau Pulse different

Tableau Pulse presents a simplified way to create metric definitions, so that with only a few selections, you can make a definition that would normally require complex calculations to build in traditional Tableau viz authoring. Members of your organization use that metric definition as a jumping off point to make metrics relevant to their needs, by slicing the data based on different dimensions or time options. Because insights about these metrics are sent directly to followers, your colleagues get the data they need in their flow of work.

With Tableau Pulse, users have an easy, self-service way to take part in guided data exploration. They can ask suggested questions to see how different dimensions affect the data. This guided exploration complements the more free-form analysis that's possible with the traditional Tableau viz authoring experience and allows users unfamiliar with Tableau analysis to understand their data.


Ask
Which Sub-Category increased the most?
Which Category increased the most?
Which Sub-Category had high Team Sales?
25.9k
12.9k
0
Apr 1
Apr 17
Phones
Copiers
Appliances
Average of 14 others
-2.4k
-1.4k
-1.3k
+772.5

You asked | What is the trend?

Team Sales is **steadily increasing**. The trend first began 25 days ago on March 24, 2024.

Top insight about this change | Which Sub-Category decreased the most?

Compared to the last month, **Team Sales increased** by 5.7k. However, **Phones**, **Copiers**, and **Appliances had the biggest decrease** in Team Sales during that time.

Note that though some parts of Tableau Pulse are similar to other Tableau features, Tableau Pulse combines metrics and insights in an all-new experience. In February 2024, with the release of Tableau Pulse, Ask Data and Tableau's legacy Metrics feature were retired. Like Ask Data, Tableau Pulse lets you ask questions of your data, so you can learn the how and why behind the numbers you see. Tableau Pulse also lets you create and track metrics, like the legacy Metrics feature, but Tableau Pulse metrics don’t stand alone. These metrics are the source of insights about your data.

Data source requirements for metric definitions

You create a metric definition by connecting to a published data source. Make sure that the data source you're working with meets the following criteria.

- It’s a single published data source. You can't connect to a data source that is embedded in a workbook, and you can't connect to multiple data sources or use data blending, unless you combine the data before publishing the data source. The data source can be an extract or a live connection, and it can use a virtual connection or connect directly to the data.
- You have the Connect and View permission capabilities for the data source.
- The data source contains:
  - A measure to be aggregated as a sum, average, median, maximum, or minimum or a dimension to be aggregated as a count or count (distinct).
  - A time dimension for the metric's time series. Tableau Pulse monitors data over time, so single point-in-time values won’t produce a valid metric. The granularities supported for the time series are day, week, month, quarter, and year. Data that requires a lower level of granularity (hour or minute) isn’t a good fit for Tableau Pulse.
  - At least one dimension that can be used to filter the data and insights.

Tableau Pulse displays the dimension names and values that you add as filters on metrics and in insights text. These names and values in your data source should be easy for others to understand. To create the best experience for viewers, follow these recommendations so that the names and values fit with the conversational language of Tableau Pulse.

- Use title-style capitalization rather than all caps.
- Use spaces rather than hyphens or underscores to separate words.
- Don’t use special characters.
- Don’t use Boolean fields that appear as `true` or `false`.
- Don’t use fields that consist of IDs or other indecipherable strings.

Requirements for custom calendars

Set a custom calendar in Tableau Pulse if your organization doesn’t use a standard Gregorian calendar. For more information, see Set a custom calendar. A custom calendar must be defined in your data source, and all of the calendar fields must belong to the same table. The custom calendar doesn’t need to belong to the same table as your metric data. If the custom calendar is in a separate table, create a relationship between that table and the metric data table.

Each row of the custom calendar represents a date and contains these fields.

- Reference date
  - The standard Gregorian date that you're mapping to the custom calendar
  - Data type: date
  - Example: June 27, 2025
- Day of year
  - Data type: number
  - Example: 362
- Week of year
  - Data type: number
  - Example: 52
- Month of year
  - Data type: number
  - Example: 12
- Month name
  - Data type: string
  - Example: June
- Quarter
  - Data type: number
  - Example: 4
- Year
  - Data type: number
  - Example: 2025

The format for dates in Tableau varies based on the locale that a user has set, and some fields aren't used in all locales. For example, locales set to Japanese or Chinese show the "month of year" instead of the "month name."

Make sure that the custom calendar is complete, consistent, and doesn’t skip any dates or numbers.

- Include every day of the year, even if there's no business data for that day.
- Include dates for the previous two calendar years. Metrics with a comparison to the prior year use those dates to determine the correct comparison.
- Include dates through the end of a complete custom year. Don't end the calendar partway through the custom year. If future data goes into a new custom year, include the complete set of dates for that year.
- Start the numbering for the day, week, month, and quarter with 1. Start quarters with a new month.
- Include 7 days in a week and 4 quarters in a year. The number of days, weeks, and months in a year can vary.
- Use a consistent month name for each month number. The month name must be consistent across all years in the calendar.
- Don't add row-level security or data source filters that remove dates from the calendar table. If you add a filter to the transactions table in your data source, make sure that the filter scope is set to only that table and not that table and related tables. For information about setting the scope for data source filters, see Create a data source filter.

The first ten dates in an example custom calendar

Reference date	Day of year	Week of year	Month of year	Month name	Quarter	Year
06/30/2025	1	1	1	July	1	2026
07/01/2025	2	1	1	July	1	2026
07/02/2025	3	1	1	July	1	2026
07/03/2025	4	1	1	July	1	2026
07/04/2025	5	1	1	July	1	2026
07/05/2025	6	1	1	July	1	2026
07/06/2025	7	1	1	July	1	2026
07/07/2025	8	2	1	July	1	2026
07/08/2025	9	2	1	July	1	2026
07/09/2025	10	2	1	July	1	2026

Requirements for data source goals and thresholds

There are two ways to set goals and thresholds: manually or as part of the data source. A manual goal or threshold is simply a static number entered for an individual metric, so there are no data source requirements. A data source goal or threshold is set at the definition level. These goals or thresholds use a field from your data source to show a dynamic value on the metrics based on that definition. For more information, see Configure data source goals and thresholds and Set Manual Goals and Thresholds with Tableau Pulse.

If you want to include a data source goal or threshold as part of a metric definition, there are additional data source considerations.

- Include the field that specifies the goal or threshold values as part of the data source that the definition connects to. Metric definitions connect to only a single data source, so you can't connect to a separate data source for this data.
- If the goal or threshold data is in a separate table from the core definition data, create a relationship between the two tables. If you join the tables instead of relating them, the data source might end up with duplicate goal or threshold values. For information about relating data, see Use Relationships for Multi-table Data Analysis.
- If you want a finer-grained goal or threshold to be shown when users apply dimensional filters on metrics, include that level of granularity in your data. Otherwise, Tableau Pulse displays the total goal or threshold value for a dimension, even if the data is filtered to a subset of values.

These two tables show example data sources with goals of different granularity. If there isn't goal or threshold data for each row, for example in the case where there is only a monthly goal, include that value only once. Don't duplicate the value in each row.

Daily goals for each value in a dimension

Date	Account Executive	Sales	Sales Target (Daily)
06/01/2025	Fred Suzuki	658	600
06/01/2025	Jane Johnson	505	700
06/01/2025	Laura Rodriguez	623	650
06/02/2025	Fred Suzuki	678	600

Date	Account Executive	Sales	Sales Target (Daily)
06/02/2025	Jane Johnson	527	700
06/02/2025	Laura Rodriguez	656	650
06/03/2025	Fred Suzuki	607	600
06/03/2025	Jane Johnson	753	700
06/03/2025	Laura Rodriguez	558	650

Monthly goals for each value in a dimension

Date	Account Executive	Sales	Sales Target (Monthly)
06/01/2025	Fred Suzuki	658	15000
06/01/2025	Jane Johnson	505	17000
06/01/2025	Laura Rodriguez	623	16000
06/02/2025	Fred Suzuki	678	
06/02/2025	Jane Johnson	527	
06/02/2025	Laura Rodriguez	656	
06/03/2025	Fred Suzuki	607	
06/03/2025	Jane Johnson	753	
06/03/2025	Laura Rodriguez	558	

Configure the core definition

After making sure that your data source will work with Tableau Pulse, you're ready to start creating your definition. The definition editor is optimized for larger screens, so you should create your definition using a desktop or laptop computer rather than a mobile device.

To create metric definitions, you need a Creator, Site Administrator Explorer, or Explorer (can publish) site role on Tableau Cloud. If you have a Viewer site role, you can follow metrics and discover insights, but you can't create metric definitions.

1. From the Tableau Pulse home page, select **New Metric Definition**.
2. Select a data source to connect to, then select **Connect**.
3. For the **Name**, enter a name that isn't in use by other metric definitions.

   This name appears on all metrics based on the definition, so choose a name that's easy for others to understand.
4. For the **Description** (optional), provide brief details to help others make sense of the data.

   The description appears on the definition page. On the insights exploration page for each metric, the description shows when users select the info icon.
5. For **Links** (optional), add up to five links. These links appear on a metric’s insights exploration page.

Define the metric value

1. For the **Measure**, select the field to track.

   You can select a measure or a dimension, but dimensions must be aggregated as a count or count (distinct) so that they result in a measure that can be tracked.
2. For the **Aggregation**, select how Tableau Pulse should aggregate the field you're tracking.

   If you require a more complex aggregation, see Create an advanced definition.

For **Show sparkline values to date as**, select whether you want the points on the metric chart to display as a running total or as non-cumulative values.

3.

This setting applies to the sparkline, the overview line chart, and applicable insights. For metrics that are sums, the current value shown at the top of the metric will always be a running total for the period you're tracking.

For the **Definition filters** (optional), select values to limit the metric data.

4.

Definition filters affect the data for all metrics based on the definition and aren't adjustable by the viewer. Fields added as definition filters change the meaning of the definition. For example, a definition filter might exclude returned orders to define net sales. If you simply want to use a field to segment the data, add an adjustable metric filter, available under the Options section. For more information, see Define metric options.

5. For the **Time dimension**, select the field to define the time series. In March 2025, the advanced time settings moved to the Time step. To configure those options, see Configure time settings.

How fiscal calendars work with metrics

If your time dimension is configured to use a fiscal calendar, Tableau Pulse uses that calendar. The metrics based on a definition with a fiscal calendar show fiscal years and fiscal quarters on charts and insights. When you create a definition, the fiscal start month is listed under the time dimension field, if one is set. You can't adjust the fiscal calendar in Tableau Pulse. To change it, edit the data source used by the definition. For more information, see Fiscal Dates.

Create an advanced definition

If you prefer the flexibility of working in the traditional Tableau viz authoring environment, or if you need to create calculated fields, use the advanced analytics editor. Using the advanced analytics editor is optional.

1. On the definition panel, select **Create Advanced Definition**.
2. Add fields to the measure, time dimension, and filters shelves.

   Only the fields, including calculated fields, that you add to these shelves are saved by the editor. Number format changes, granularity adjustments, or table calculations made in the advanced editor don't carry over. Instead, use the definition settings to set a minimum time granularity or change the number format.
3. Select **Apply**.

   The fields you added in the editor replace the equivalent fields in the definition panel. To edit these fields, reopen the editor. You can't edit fields configured in the advanced analytics editor in the definition panel.

Define metric options

1. For **Adjustable metric filters**, add at least one option.

   These filter options appear on metrics and allow users to scope the data to meet their needs. Filtering creates additional metrics from a definition. The first 20 fields that you add as adjustable metric filters also determine the dimensions used to generate insights about the data. If you add more that 20 fields, those options still appear as filters, but they aren't used to generate insights or available as breakdown options.
2. For the **Number format**, you can specify custom units to show for the value, or you can set the value to display as currency or as a percentage.
3. For **Decimal places**, select the number of decimal places to show for metric values. By default, Tableau Pulse automatically determines the number of decimal places to show. As numbers get larger, Tableau Pulse shows fewer decimal places.

Configure time settings

The time settings are optional and let you adjust the time series and comparisons for metrics so that they fit your data.

Adjust the time series

1. Enter a **Date offset** to change the final point in a metric's time series to a set number of days in the past. For example, by entering an offset of 2, you adjust the final point from "Today" to "2 Days Ago." An offset is useful if the data in your data source appears at a delay. Otherwise, your metric might not show any data for the final point in the time series.
2. For the **Minimum time granularity**, select a larger granularity if smaller units like day or week don't make sense based on your data. This setting controls the time options available when users filter metrics. That way, users can't select options that have no data.

Customize the comparison

1. For **Time comparison > Primary**, select Prior period to compare to the prior day, week, month, quarter, or year, or select Prior year to compare to the same time range a year ago. The primary time comparison is displayed in digests and insights and on the metric overview card.
2. For **Time comparison > Secondary**, if you don't want metrics to show a secondary comparison, select None. The secondary comparison appears in addition to the primary comparison on a metric's insights exploration page.

Set a custom daily comparison

A custom daily comparison allows you to override the standard comparison for metrics that have a time range of "Today" or "Yesterday." A custom comparison requires two fields in your data source: the custom daily comparison and the reference date. The reference date defines which dates show a custom comparison, and the custom daily comparison supplies the alternative dates. The fields for the reference date and the custom daily comparison must belong to the same table in the data source.

Use this setting to compare events that don't fall on a consistent date each year. For example, you can compare Black Friday this year to Black Friday a year ago. Without a custom comparison, a metric showing data for November 28, 2025 shows a prior year comparison to November 28, 2024. With a custom comparison, you can specify a daily comparison of November 29, 2024 for the reference date of November 28, 2025. That way, Tableau Pulse compares sales data for the same event.

1. For **Custom daily comparison**, select a date field. This field contains the alternative dates for the daily comparison.

2. For **Reference date**, select a date field. This field determines which dates show a custom comparison. You can reuse the time dimension from the core definition as long as it belongs to the same data table as the custom daily comparison.

Set a custom calendar

The calendar must be defined in your data source, and all of the calendar fields must come from the same table. For more information, see Requirements for custom calendars.

1. Under Calendar, select **Set Calendar**.
2. Select the fields in your data source that define the custom calendar.
   - **Day of year** (data type: number)
   - **Week of year** (data type: number)
   - **Month of year** (data type: number)
   - **Month name** (data type: string)
   - **Quarter** (data type: number)
   - **Year** (data type: number)
   - **Reference date** (data type: date)
3. Select **Apply**.

Configure data source goals and thresholds

Configuring a data source goal or threshold is optional. For information about structuring your data source for goals and thresholds, see Requirements for data source goals and thresholds.

A data source goal or threshold uses a field from your data source to show dynamic goal or threshold values on metrics. For goals, Tableau Pulse shows a metric’s progress toward the goal value. For thresholds, Tableau Pulse shows how far the metric is from the threshold value.

Data source goals or thresholds appear on all metrics based on a definition. The goal or threshold value is filtered by the filters applied to a metric if data exists for that level of granularity. If data doesn’t exist for specific values or dimensions, Tableau Pulse displays the goal or threshold value for a higher level of detail that does have data. That higher-level goal or threshold value might not be relevant for the filtered metric, so make sure that your data source has data of the appropriate granularity.

1. On the Goal and Threshold step, select the **Type**. You can configure either a goal or a threshold, but not both.
2. For **Measure**, select the field from your data source to use for the goal or threshold value.
3. Data source goals and thresholds inherit the definition filters from the core definition unless those filters were set in the advanced editor. If the definition filters weren’t inherited, add any relevant filters.
4. For **Aggregation**, select how the data is aggregated for time periods that are greater than the goal granularity.
5. For **Time dimension**, select the field to use for the time series.
6. For **Minimum granularity**, select the level of detail represented by each row of the measure. Metrics with time ranges smaller than this granularity don’t show a goal or

threshold.

7. If you’re setting a threshold, for the **Unfavorable Range**, select whether above or below the threshold is unfavorable. The unfavorable range is shaded red on the metric chart. When the aggregate metric value crosses into this range, followers receive an alert. For more information, see Get Tableau Pulse Alerts.

Advanced goals and thresholds

To configure a data source goal or threshold that uses calculated fields, create an advanced goal or threshold. The advanced analytics editor lets you use the familiar Tableau viz authoring environment to create calculations that define your goal or threshold.

With the advanced editor, you can write calculations using fields from your data source, or you can write calculations that define static numeric values for goals or thresholds. These static values appear on all metrics based on the definition. If you define static values, you can use logical functions to define how the values correspond to different conditions. For example, use if statements to define the goals or thresholds that appear for specific filter values. For more information about writing logical calculations, see Logical Functions.

Manual goal and threshold overrides

A manual goal or threshold is a single number that anyone with permission can set on an individual metric. If someone sets a manual goal or threshold on a metric, that value overrides any data source goal or threshold. If the manual override is removed, the data source goal or threshold appears again. To learn about manual goals and thresholds, see Set Manual Goals and Thresholds with Tableau Pulse.

Configure insights

1. Select the **Insights** tab.

   The fields under **Insight dimensions** are the same fields that you added as adjustable metric filters. Tableau Pulse uses these dimensions when monitoring your data to surface relevant insights, as shown in the insights preview.

For **Value going up is**, select whether the change is neutral, favorable, or unfavorable.

2.

   This option controls the color for the change value: blue for neutral, green for favorable, and red for unfavorable. It also affects the language used in insights that refer to the change.

3. Under Insight types, select **Turn On** or select the **…** menu then select **Turn Off** to adjust the types of insights shown. Hover over the info icon for a description of each type. By default, the record-level outlier insight type is off. If you turn it on, it requires additional configuration.

   1. For the **Record identifier**, select a field in your data that has a unique value for every record, for example, Order ID.

   2. For the **Record identifier name** (optional), select a field in your data that has a name that corresponds to the record identifier, for example, Order Name.

   3. For **Singular** and **Plural** (optional), add names for the records as they should appear in insights text, for example Order and Orders.

4. Verify that the metric and insights previews look as expected, then select **Save Definition**.

   Tableau Pulse creates the definition along with the initial metric based on that definition, which has no adjustable metric filters applied. You can find your definition under the Browse Metrics tab on the Tableau Pulse home page.

For an overview of insight types and the insights platform, see The Insights Platform and Insight Types in Tableau Pulse.

Configure governance

The governance settings for a metric definition are optional.

Certify the definition

Metrics based on certified definitions show a badge that indicates their trusted and recommended status. Certify a metric to tell others that they can rely on that data to make business decisions.

1. Under Endorsement, turn on the **Certified definition** toggle.

To certify a metric definition, you must have the Create Metric Definitions permission capability for the data source that the definition is connected to. Certifying a metric definition is a separate action from certifying a data source, and data source certification doesn’t appear on metrics. To learn about certified data sources, see Use Certification to Help Users Find Trusted Data.

Restrict editing for definitions and manual goals and thresholds

By default, any user with the correct site role can edit or delete a metric definition. All users can set, edit, or delete manual goals or thresholds for the metrics based on that definition. You can restrict these actions to specific users and groups. Tableau administrators always have permission to edit because their site role gives them access.

Users with the site role of Creator, Site Administrator Explorer, or Explorer (can publish) can edit metric definitions. If you give a Viewer access to edit a definition, that user won’t be able to edit the definition because the site role doesn’t allow it. The ability to edit manual goals and thresholds isn't limited by site role.

1. Under Edit definition or Edit manual goals and thresholds, select **Anyone Can Edit**.
2. Select the **Restrict editing** toggle.
3. Enter the users and groups to add as editors.
4. Select **Add**.
5. Close the Manage Editors dialog.

Create metrics

After you create your definition, you'll be taken to the initial metric for that definition. This page is the insights exploration page for that metric. On it, you can see insights based on dimensions that you select, and you can create more metrics by adjusting filters.

1. On a metric for your definition, select **Filter**. The filter labels become interactive.
2. Select the buttons to change the time and filter options.
3. Select the check mark button. If a metric with that combination of filters doesn't yet exist, Tableau Pulse creates one.

To learn how viewers interact with these metrics, see Explore Metrics with Tableau Pulse.

Manage followers

Followers are specific to each metric, not to the metric definition as a whole. That way, individuals in your organization receive insights about only the metrics that matter to them. Any time you create a new metric, you need to add followers. Followers don't carry over from the previous metric that you were viewing.

Add followers

1. Open the metric that you want to add followers to.
2. Select the **Followers** button.
3. In the search box, enter the name of the user or group that you want to add.
4. Select **Add**.

If users are added to a metric as part of a group, they won't be able to remove themselves individually. If you want users to have control over the metrics they follow, add them as individuals.

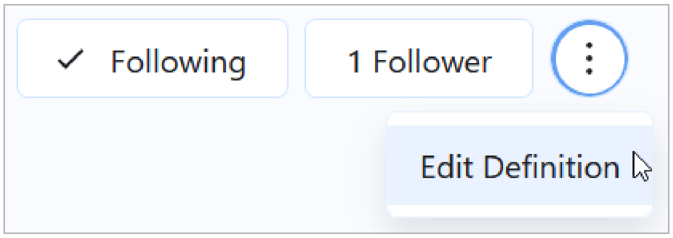
Remove followers

1. Open the metric that you want to remove followers from.
2. Select the **Followers** button.
3. Next to the follower's name, select **Remove**.

Edit a metric definition

If your data source changes, and the metrics that are based on it break, edit the metric definition to account for these changes. Any changes that you make to the definition will affect all metrics based on it.

1. Open a metric for the definition you want to edit.
2. Select the actions menu, then select **Edit Definition**.



How editing a definition affects metrics and goals

When you edit a definition, your changes might affect the metrics based on the definition and the goals based on those metrics.

Changed field	Affected feature	Impact
Definition filters, adjustable metric filters	Metrics	If you remove an adjustable metric filter or add a definition filter that excludes a value used in a metric filter, metrics using that filter aren’t deleted. Existing followers of an affected metric are able to adjust the filter and add other followers. However, users who aren't already followers can’t follow that metric on their

own.

To make it so users no longer see metrics that are based on eliminated filters, remove the followers from those metrics. Alternatively, if you want to get rid of all of the metrics for a definition, delete the definition.

Delete a metric definition

Deleting a metric definition also deletes all of the metrics based on it.

1. On the Tableau Pulse home page, select the **Browse Metrics** tab.
2. On the metric definition that you want to delete, select the actions (**...**) menu, then select **Delete**.

Add metrics to dashboards and create metrics from dashboards

For information about the Pulse metric dashboard object and recommendations for metrics based on dashboard data, see Work with Tableau Pulse Metrics and Dashboards.

Embed metrics

You can use the Embedding API to embed Tableau Pulse metrics in web pages. For more information, see Embed Tableau Pulse.

Explore Metrics with Tableau Pulse

Tableau Pulse allows you to make data-driven decisions right in your flow of work by sending you insights about metrics that you follow. For example, if you regularly report on a metric, Tableau Pulse can send you insights about important changes to your data. With Tableau Pulse, users who have Creator, Site Administrator Explorer, or Explorer (can publish) site roles can create a metric definition that provides the metadata for all related metrics. All users can follow and interact with metrics, which use the core definition plus optional filters to scope the data for different audiences and purposes. When you follow a metric, insights about your data are delivered directly where you're working–in email or Slack.

Each digest includes contextual insights about the metrics you follow, and you can explore individual metrics for further insights. To learn more about AI in Tableau, see Einstein Generative AI for Tableau.

Get started with Tableau Pulse

1. From the Tableau Cloud home page, expand the left side pane, and choose **Pulse**.
2. From Tableau Pulse, Create Metrics with Tableau Pulse, if metrics haven't been created yet.
3. Use the **Search** bar or **Browse Metrics** tab to find existing metrics, and choose **Follow** to start receiving insights about specific metrics.
4. From the **More Actions** menu (...) of a metric card, you can manage followers, see details, or view related metrics (metrics that share a core metric definition but have different filters or time contexts).

For a detailed explanation and example of how metric definitions and metrics work, see Metric definitions and metrics.

Explore metrics in detail, adjust the time range, or apply filters

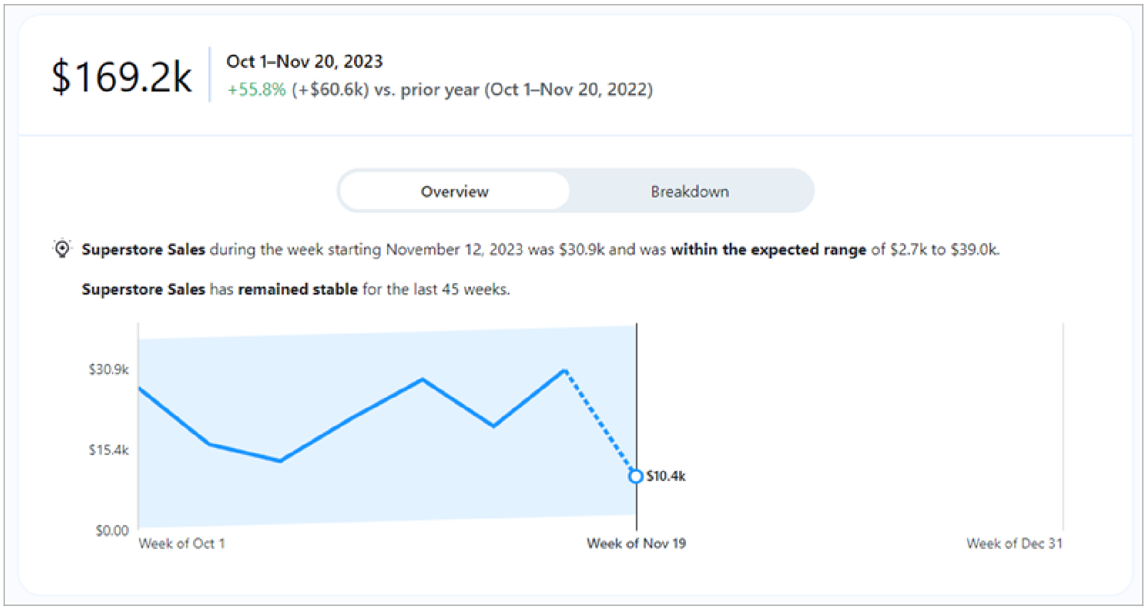
From the Insights Exploration page, you can understand the metric at a glance, including:

- The current metric value.
- The percentage change from the prior period being compared.
- Filters applied to the metric definition.
- And insights about that metric.

From the metric page, choose **Filter** to change the time period being analyzed. You can also adjust the filtered values applied to the metric.

All users can adjust filter values and follow different metrics based on the same definition. When a user follows a metric, the time period and filter selections are preserved in their home page and digests.

The **Overview** tab shows a line chart of your metric's performance, including the direction the metric is trending. Hover over different points of the line chart to see the metric's value at different points in time.



$169.2k

Oct 1–Nov 20, 2023

+55.8% (+$60.6k) vs. prior year (Oct 1–Nov 20, 2022)

Superstore Sales during the week starting November 12, 2023 was $30.9k and was **within the expected range** of $2.7k to $39.0k.

Superstore Sales has **remained stable** for the last 45 weeks.

The **Breakdown** tab shows you how different values in your metric are contributing to the total value. And you can choose the dimension by which you see your metric broken down. For example, this metric displays Region by default, but you can also break down the metric by Regional Manager or Segment.

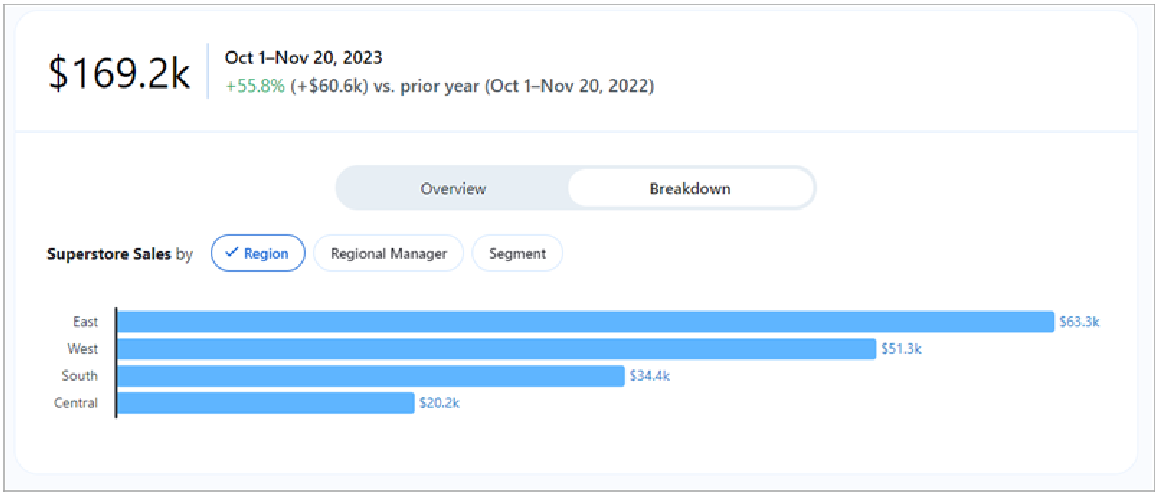
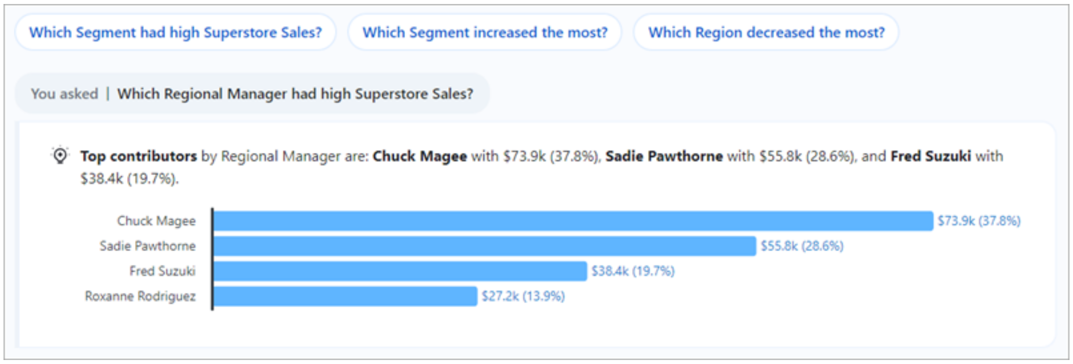

$169.2k
Oct 1–Nov 20, 2023
+55.8% (+$60.6k) vs. prior year (Oct 1–Nov 20, 2022)
Overview
Breakdown
Superstore Sales by
✓ Region
Regional Manager
Segment
East
West
South
Central
$63.3k
$51.3k
$34.4k
$20.2k

Tableau Pulse provides a path for exploring your data by surfacing questions for each insight that it detects for a metric. As you click through the suggested questions about your data, answers are revealed in easy-to-read charts with insights about the underlying data.


Which Segment had high Superstore Sales?
Which Segment increased the most?
Which Region decreased the most?
You asked | Which Regional Manager had high Superstore Sales?
Chuck Magee
Sadie Pawthorne
Fred Suzuki
Roxanne Rodriguez
$73.9k (37.8%)
$55.8k (28.6%)
$38.4k (19.7%)
$27.2k (13.9%)

Top contributors by Regional Manager are: **Chuck Magee** with $73.9k (37.8%), **Sadie Pawthorne** with $55.8k (28.6%), and **Fred Suzuki** with $38.4k (19.7%).

If you don't see an insight you are looking for, click the **Ask** button to the left of the available questions, and then enter a new question about the metric. Based on your question, Tableau Pulse will look for and rank semantic matches for insights that it detects for the same metric you're investigating. It then lists a question for each detected insight. The filter settings and data available for the metric affect the insights that Tableau Pulse can detect.

When enhanced Q&A (**Discover**) is turned on in Tableau Pulse, you can see suggested questions in the Tableau Pulse home page based on metrics grouped by data source, definition, or time range. Selecting a question takes you to the Discover page with key insights, relevant visualizations, source references, and suggested follow-up questions to help you dig deeper.

Enhanced Q&A is powered by AI in Tableau, so you can ask questions in your own words to get relevant, natural language answers about your data.

For more information, see Ask Questions and Discover Insights in Tableau Pulse.

Follow metrics

When a metric definition is created, you can follow its related metrics, i.e. versions of that core metric definition that can be created by applying adjustable filters. After you follow a metric, it appears on your Tableau Pulse homepage. You can also choose how frequently you receive Tableau Pulse digests via Slack and email. These digests include insights into important changes in your data so you can stay up to date. By default, digests are sent weekly to both Slack and email.

When you follow two or more metrics, Tableau Pulse provides an overview to help you quickly see the latest insights across your metrics of interest. When available, this insights summary appears in digests and in the Tableau Pulse home page.

> **Note:** AI in Tableau must be turned on by your Tableau admin for insight summaries to be available.

To unfollow a metric, go to the metric exploration page and click Following. You can also choose the **More Actions** menu (...) from a metric card and choose **Unfollow**. If you unfollow a metric, then it no longer appears on your Tableau Pulse home page or in your digests. If you follow a metric as part of a user group, then you can’t unfollow the metric. Your group(s) must be removed from the follower list, and then you can follow or unfollow metrics as an individual. And in Microsoft teams, you can interact with Tableau Pulse metrics in the embedded Tableau experience. For more information, see the GitHub documentation for the Tableau app for Microsoft Teams.

Customize your home page and digests

Customize your Tableau Pulse home page and digests by sorting and grouping metrics. Sort metrics by time range or how recently you followed the metric. Or group metrics that share a metric definition or a data source.

To customize your Tableau Pulse home page and digests:

1. From the Tableau Pulse home page, choose **Sort by**.
2. Select how you want your metrics to be sorted, for example, grouped by metric definition.
3. Choose **Set as Default Order** to apply this to your Tableau Pulse home page, Tableau Mobile Pulse tab, Slack digest, and email digest.

You can also mute metrics–meaning that updates about muted metrics aren’t mentioned in your insight summary–without unfollowing the metric. Muted metrics will still appear on your Tableau Pulse home page and in your email and Slack digests, but they won’t be mentioned in the summary at the top of your page or in your digests.

1. Open your Tableau Pulse home page.
2. From the metric you want to mute, select the **More actions option** (three vertical dots).
3. Select **Mute from Insights Summary**.

To unmute a metric, find the metric on your Tableau Pulse home page, and select the More actions option (three vertical dots). Then select Include in Insights Summary. Note: Your Insights Summary generates when you follow two or more metrics. If your insight summary isn’t generating, follow more metrics or unmute followed metrics.

> **Note:** Your Insights Summary generates when you follow two or more metrics. If your insight summary isn’t generating, follow more metrics or unmute followed metrics.

Manage your Tableau Pulse digest

1. From Tableau Pulse, choose the icon at the top-right corner, and choose **Preferences**.
2. Choose how you want to receive digests (Slack and email).

3. Choose how frequently you want to receive digests (daily, weekly, or monthly).
4. Choose **Save**.

Email and Slack digests are sent to the email address associated with your Tableau site. To receive Tableau Pulse digests in Slack, your administrator must first Integrate Tableau with a Slack Workspace. You receive Tableau Pulse digests in the Tableau App for Slack automatically. But to experience all that the Tableau App for Slack has to offer–such as searching for vizzes, sharing vizzes, and receiving notifications–you must connect the Tableau App for Slack to your Tableau site. For more information about the Tableau App for Slack, see Receive Notifications, Search, and Share Using the Tableau App for Slack.

After you follow a metric, you receive Tableau Pulse digests in Slack in the **Messages** tab of the Tableau App for Slack.

Troubleshoot Tableau Pulse

Tableau Pulse is available on Tableau Cloud only. If you don’t have insights generated by AI in your Tableau Pulse summaries, your administrator might not have turned on these features for your site. For more information, see Set Up Your Site for Tableau Pulse.

Confirm that your preferred channels (Slack and email) are turned on to receive your Tableau Pulse digest. Email and Slack digests are sent to the email address associated with your Tableau account. If you’re not receiving your digest, check the email address associated with your account. Tableau Pulse email digests might not be formatted properly if you're using certain email clients, such as Thunderbird or older versions of Outlook.

You can also check your Tableau Pulse preferences to confirm that your digest is being sent at the desired frequency (daily, weekly, or monthly) via Slack and email. If your Tableau Pulse digest wasn’t ready in time, then you can view your metrics on the Tableau Pulse homepage.

If a metric you followed is no longer in your digest or on your Tableau Pulse home page, then the metric was deleted.

Set Manual Goals and Thresholds with Tableau Pulse

Tableau Pulse lets you track important metrics and receive updates right where you're working–in email or Slack. If you set a goal or threshold in Tableau Pulse, you can track a metric's performance relative to that value. For a goal, Tableau Pulse shows a metric's progress toward the goal value. For a threshold, Tableau Pulse shows how far the metric is from the threshold value.

There are two ways to define goals and thresholds in Tableau Pulse: as part of the data source or manually. Data source goals and thresholds are set on a metric definition. These goals and thresholds rely on a field from your data source to show a dynamic value that can be filtered. To learn about data source goals and thresholds, see Configure data source goals and thresholds.

A manual goal or threshold is set on an individual metric and is a single static number. If you set a manual goal or threshold on a metric that has a data source goal or threshold, the manual value overrides the data source value. The manual goal or threshold you create is visible to anyone who views the metric.

Create a manual goal or threshold

When you create a manual goal or threshold, it's based on the filters that are applied to the current metric. For example, a month-to-date metric has a monthly goal value.

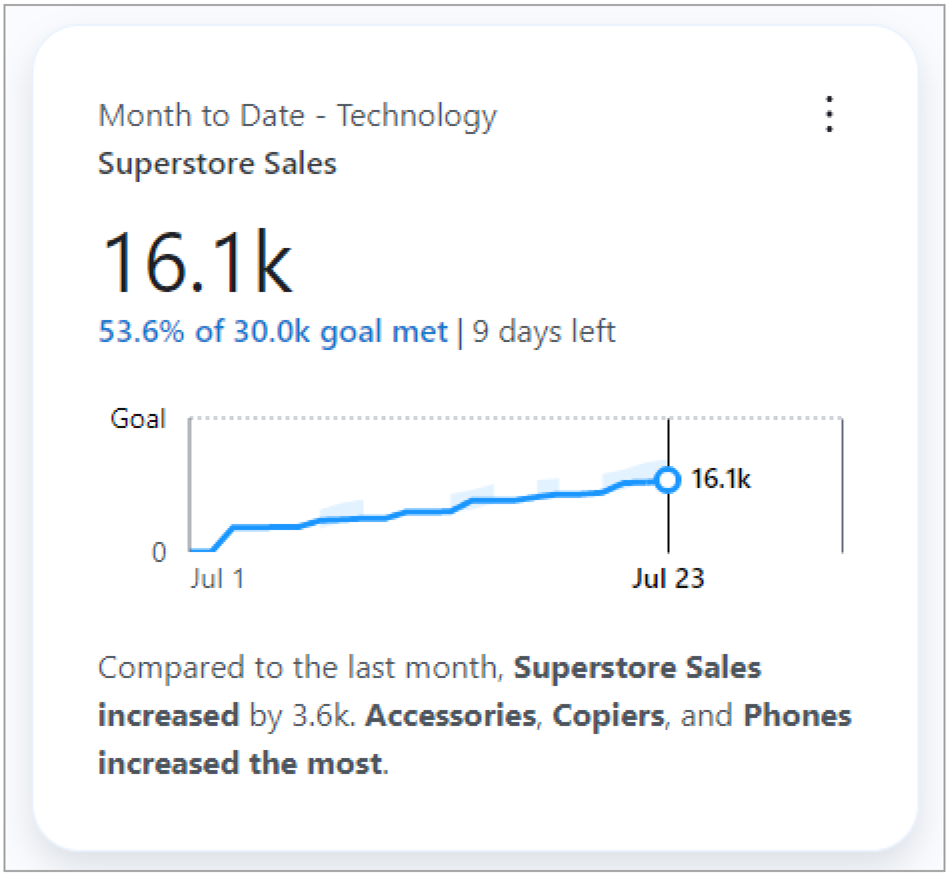
1. Open a metric from your email or Slack digest or from the Tableau Pulse home page.
2. From the upper-right corner, select the Actions menu (**...**).
3. Select **Set Goal or Threshold**. If a data source goal or threshold exists, the option is **Override Goal or Threshold**.
4. For **Type**, choose whether to set a goal or threshold.

5. Enter the value. You can enter positive numbers, negative numbers, or 0.

6. If you're setting a threshold, for the **Unfavorable Range**, select whether above or below the threshold is unfavorable. The unfavorable range is shaded red on the metric chart. When the aggregate metric value crosses into this range, followers receive an alert. For more information, see Get Tableau Pulse Alerts.

7. Select **Save**.

After a manual goal or threshold is created, you see it in your Tableau Pulse digests and on your Tableau Pulse home page.



Month to Date - Technology

Superstore Sales

16.1k

53.6% of 30.0k goal met | 9 days left

Compared to the last month, **Superstore Sales increased** by 3.6k. **Accessories**, **Copiers**, and **Phones increased the most**.

To change the value, return to the Insights Exploration page, select the Actions menu (**...**), then select **Edit Goal or Threshold**. You can also select **Delete** from the Set Manual Goal or

Threshold dialog. Editing or deleting changes the goal or threshold for all users who follow that metric.

Manage who can create, edit, or delete a manual goal or threshold

By default, all users can create, edit, and delete manual goals and thresholds. If you have access to edit the metric definition, you can restrict who can modify manual goals and thresholds. For information about the permission settings for metric definitions, see Restrict editing for definitions and manual goals and thresholds.

Understand limitations

You can’t set manual goals or thresholds for metrics filtered to the last complete period. This includes metrics with a date range of yesterday, last week, last month, last quarter, and last year.

If a metric definition is edited, all the metrics based on that definition are also updated. For example, if a definition is edited to use a different measure or time dimension, the existing manual goals and thresholds remain, even though the metric data might have changed. Review any pre-existing manual goals or thresholds to confirm that they still make sense with the updated metric data.

Ask Questions and Discover Insights in Tableau Pulse

Tableau Pulse helps you explore your data by surfacing insights and suggesting questions for further exploration. As you click through the questions about your data, answers are revealed in easy-to-read charts with insights about the underlying data.

For a rich experience that is powered by AI in Tableau, you can explore groups of metrics using Enhanced Q&A (Discover). It uses statistical algorithms to examine grouped metrics and surface insights that are relevant, interesting, and worth investigating. Ask questions in your own words to explore different regions, segments, or time periods across different metrics. Enhanced Q&A (Discover) is Tableau+ feature in Tableau Pulse that must be turned on in Tableau Cloud site settings.

Ask questions about a single metric with Ask Q&A suggests questions for pre-detected insights for a single metric. You can also ask questions to search for more questions and insights. Ask Q&A is always available and doesn't use AI in Tableau or an LLM.

Explore groups of metrics with Enhanced Q&A (Discover)

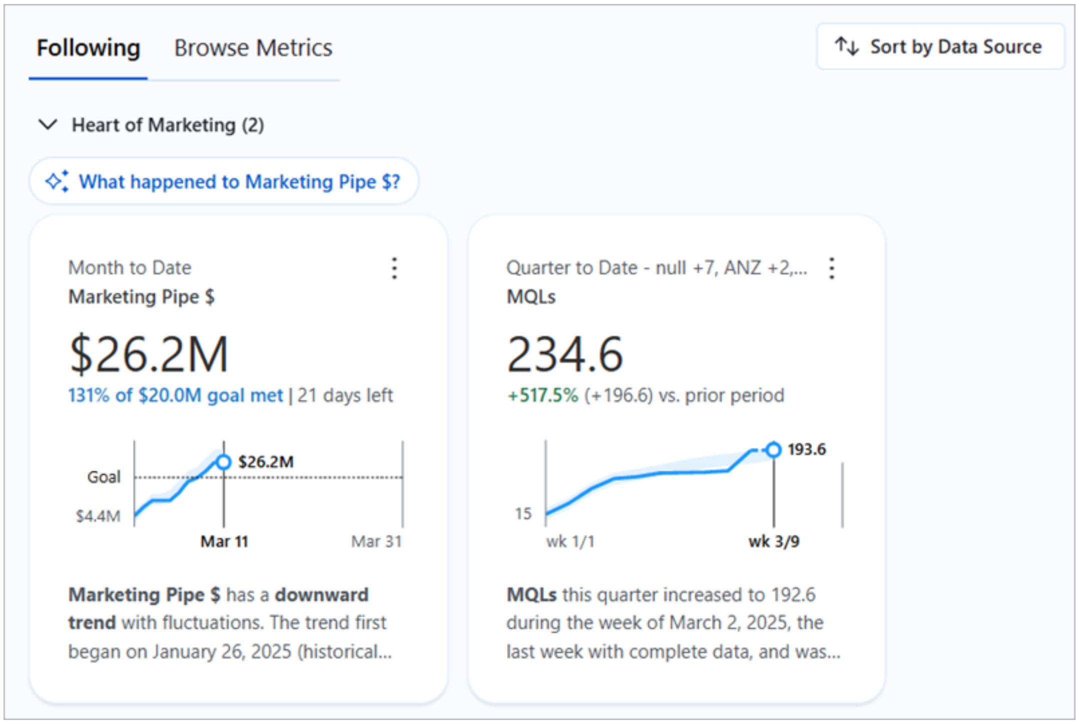
Enhanced Q&A (Discover), powered by AI in Tableau, makes it easier for you to explore insights across groups of business-critical metrics, and then dig deeper on the Discover page. Enhanced Q&A (Discover) highlights shared contributors, detect when trends move together or in opposite directions, flag entities that are outliers across multiple metrics, and identify metrics that are jointly above or below expected ranges, all in a single, natural-language response.

When Enhanced Q&A is turned on, it is surfaced in the Tableau Pulse home page for metrics grouped by data source, definition, or time range. Selecting a question takes you to the Discover page with key insights, relevant visualizations, source references, and suggested follow-up questions. Because it is powered by AI in Tableau, you can ask questions in your own words to get relevant, natural language answers about your data.

Important: Enhanced Q&A (Discover) is a premium, Tableau+ feature in Tableau Pulse that must be turned on in Tableau Cloud site settings. It requires a connection to a Salesforce org that has Einstein generative AI set up for the selected Salesforce org. For more information, see Turn on enhanced Q&A (Discover) in Tableau.

Explore grouped metrics with enhanced Q&A

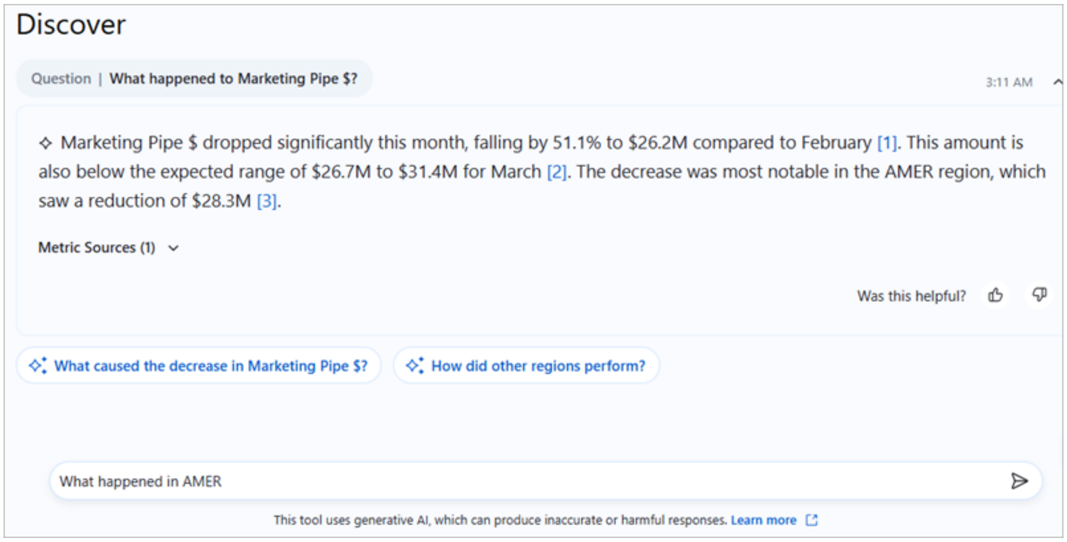
1. In the Tableau Pulse home page, under a section of grouped metrics, click a suggested question.


Following
Browse Metrics
Sort by Data Source
Heart of Marketing (2)
What happened to Marketing Pipe $?
Month to Date
Marketing Pipe $
$26.2M
131% of $20.0M goal met | 21 days left
Goal
$4.4M
$26.2M
Mar 11
Mar 31
Quarter to Date - null +7, ANZ +2,...
MQLs
234.6
+517.5% (+196.6) vs. prior period
193.6
15
wk 1/1
wk 3/9

Marketing Pipe $ has a **downward trend** with fluctuations. The trend first began on January 26, 2025 (historical...

MQLs this quarter increased to 192.6 during the week of March 2, 2025, the last week with complete data, and was...

2. In the Discover page, an insight brief answers the question. Click a link at the end of an insight to see its source. Click **Metric Sources** to see metrics that were considered as part of the analysis when the response is generated.



Discover

Question | What happened to Marketing Pipe $?

3:11 AM

Marketing Pipe $ dropped significantly this month, falling by 51.1% to $26.2M compared to February [1]. This amount is also below the expected range of $26.7M to $31.4M for March [2]. The decrease was most notable in the AMER region, which saw a reduction of $28.3M [3].

Metric Sources (1)
Was this helpful?
What caused the decrease in Marketing Pipe $?
How did other regions perform?

What happened in AMER

This tool uses generative AI, which can produce inaccurate or harmful responses. Learn more

3. Click other questions to explore more insights, or enter a question in your own words in the text box located near the bottom of the Discover page. Ask questions in natural language to explore different regions, segments, or time periods.

   For example, ask questions like "How are our campaign metrics performing?", "Tell me more about ACV trends in EMEA.", or "Which customers are driving the most sales growth?"

   You can ask time-based scoping questions such as "What happened last month compared to this month?" and questions that filter metrics based on dimension values such as "Show sales for California" or "Compare APAC vs. EMEA".

How to set up Enhanced Q&A (Discover)

Enhanced Q&A (Discover) requires a Salesforce org to be connected to Tableau Cloud. The connection settings are listed at the beginning of the AI in Tableau section of General settings in Tableau Cloud. Also, Einstein generative AI in Salesforce must be set up for the selected Salesforce org.

To make Discover available in Tableau Cloud, your Tableau Cloud admin must make configuration changes in both Salesforce and your Tableau Cloud site. The complete instructions are described in the help topic Configure Tableau Cloud sites for AI.

Ideal (and less ideal) data scenarios for Discover in Tableau Pulse

To get the best experience when using Discover in Tableau Pulse, use data that is clean, structured, and validated. Connecting to data that is consistently formatted and accurate produces better metrics and more reliable, actionable insights.

Data with the following characteristics provides the best experience with Discover:

- Time-series data: Data that evolves over time (for example, sales, traffic, financial metrics).
- Aggregated metrics: Key business numbers that can be summarized as metrics (for example, total sales, average satisfaction, loan approval counts).
- Clear dimensions: Data sets with well-defined categories such as region, product, or customer segment.

Data scenarios that provide a less ideal experience include:

- Highly granular data: Data at the highest level of detail with very fine granularity such as minute-by-minute logs.
- Single, point-in-time data: Static data sets such as one-time survey results.
- Unstructured data: Free-form text or multimedia that lacks structure.

Time-based filtering

Discover can handle time-based scope adjustments. For example, you can refine your question to compare data from different time periods, such as asking, "What happened last month compared to this month?" Use questions to adjust the granularity or breadth of the insights you're exploring.

Dimension-based filtering

Discover can handle questions that filter metrics based on dimension values (region, product, segment) or compare dimension members (West versus East) to uncover meaningful patterns.

Discover supports filtering and compare metrics by dimension members. For example, you could ask "Show sales for California" or "Compare APAC vs. EMEA" to automatically expand your exploration to the full set of compatible metrics.

> **Note**: Questions you ask in the Discover page can only filter or compare metrics that share key traits, like the same time granularity or the same set of dimensions. If a metric doesn’t match, it won’t be included in the answer.

Cross-check insight sources for transparency

When using Discover, you can cross-check the insights it generates by clicking the link at the end of each insight. These links cite the metric source and display the insight chart when available. You can use this information to verify that the insights Discover provides are grounded using the correct data.

Multilingual support for questions and responses in Discover

Enhanced Q&A (Discover) supports multilingual questions and responses, aligned with Tableau Cloud supported languages. Suggested questions, follow-up questions, and insight briefs adapt to the site’s language setting. Metric names and filters always remain in their original, authored language for clarity and consistency.

Discover can fluently adapt to the language that you enter as a query. It detects the input language as you ask questions and returns LLM responses in that language—even if it differs from the site or data language.

Note: Einstein Trust Layer masking supports 6 core languages; others may reduce response quality. Metric names stay in original language. Input language detection may vary in unsupported locales.

When the LLM attempts to negotiate differences between language input, it can get confused with certain languages and sometimes blend those languages in its response. With current LLM capabilities, for certain languages such as Chinese, the results may be inconsistent. Specifically, entering questions in traditional Chinese can result in responses that contain simplified Chinese, which can make the response difficult to read.

Limitations of Discover in Tableau Pulse

Enhanced Q&A (Discover) is limited to working with insights from Pulse metrics, so it can't generate insights from data outside the Pulse framework. It can't answer questions about columns that aren't used in the metrics or metadata about the data source such as "Is this data certified?"

It can filter or compare metrics that share key traits, like the same time granularity or the same set of dimensions. If a metric doesn’t match, it won’t be included in the answer.

While Discover strives to provide accurate and actionable insights, occasional hallucinations (inaccurate or off-topic answers) may occur, especially when you ask questions that create more complex queries. LLMs can hallucinate because they generate responses based on patterns in data and probabilities, not direct access to real-world facts. As a result, generative AI can be prone to creating output that sounds plausible but contains incorrect or irrelevant information.

For more information, see AI in Tableau and Trust and Reviewing generative AI outputs.

Einstein Trust Layer masking for Discover

The Einstein Trust Layer uses advanced pattern matching and machine learning techniques to detect sensitive data in prompts. Personally Identifiable Information (PII) such as names and email addresses are automatically masked using machine learning. For best results, consider structuring your data with clear entity identifiers and consistent field labels to minimize ambiguity and ensure accurate results when masking is applied.

Ask questions about a single metric with Ask Q&A

Ask Q&A is available for single metric exploration.

If you don't see an insight you are looking for, click the **Ask** button to the left of the available questions, and then enter a new question about the metric. Based on your question, Tableau Pulse will look for and rank semantic matches for insights that it detects for the same metric you're investigating. It then lists a question for each detected insight. The filter settings and data available for the metric affect the insights that Tableau Pulse can detect. For more information, see How Tableau Approaches NLP with Q&A to Empower Everyone.

Ask Q&A can be enhanced by turning on the AI in Tableau setting for better semantic matches in Tableau Cloud site settings. For more information, see Turn on better semantic matches for Ask Q&A in Tableau.

Explore a single metric with Ask

1. In the Tableau Pulse home page, click a metric of interest.
2. In the Insight Exploration page, under Discover Top Insights (following the chart visualization), click a suggested question.
3. To ask your own question, click the **Ask** button.
4. Enter your question about the metric.

   Try asking questions about trends, changes, outliers, or categories that may be contributing to the metric. You can also ask questions that adjust the time granularity and apply dimensional filters for the current metric view. For example, you could enter "Sales in California last week," "Zoom into technology," or "What about yesterday?"

5. Based on semantic matching and ranking, Pulse lists questions lists a question for each detected insight. Click a question to see the insight.

   If Pulse can't find a match, it might suggest other questions of interest.

The Insights Platform and Insight Types in Tableau Pulse

When you create a metric in Tableau Pulse, you also automatically get the insights that Tableau Pulse detects for each metric.

The Insights platform in Tableau Pulse detects drivers, trends, contributors, and outliers for metrics. It proactively flags and describes insights that matter using natural language and visual explanations. The top insight for each metric is displayed with the metric.

Tableau Pulse also provides a path to further explore data by surfacing questions for the insights that it detects for a metric. This guided question-and-answer experience progressively reveals insights in the context of the metric. As you and others click through the suggested questions about the data, answers are revealed in easy-to-read charts with insights about the underlying data.

For more information, see Tableau Pulse: Proactive Answers to Your Common Business Questions with Automated Insights and How Tableau Pulse approaches NLP with Q&A to empower everyone.

Types of insights detected by Tableau Pulse

The questions users typically ask about metrics can be grouped into well-known patterns of analysis: descriptive, diagnostic, predictive, and prescriptive.

- Descriptive questions: What happened to my Metric?
- Diagnostic questions: Why did it happen?

- Predictive questions: What is likely to happen next?
- Prescriptive questions: What actions should I take?

The Insights platform in Tableau Pulse focuses on helping users answer basic descriptive questions they have about their metrics, such as:

- How much has a metric value changed since the last period or the same period last year?
- How is a metric trending over time?
- Which members of a dimension contribute most to a metric value?
- What other dimensions are driving a metric value in a favorable direction?

Insights in Tableau Pulse can alert users to hidden changes or anomalies in Tableau Pulse Metrics so they can better diagnose issues. For example:

- Is the metric value higher or lower than normal?
- Is the metric value unusually concentrated in a few entities of a dimension?
- Has the trend of the metric changed recently?
- Are there any unusually large records or outliers that are impacting the metric value?

Insight types in Tableau Pulse

The following insight types are used in Tableau Pulse:

Insight Type	Description	Configurable?
Record-level Outliers	Shows extremely high or low values for a metric, in the context of row-level values of the metric across a period of time.	Can be turned on or off in the Insights tab in metric definition settings. Requires selection of a record identifier field.

Period Over Period Change	Shows how a metric has changed between two periods. This insight is displayed as part of every metric.	Always on by default Tableau Pulse considers the Period over Period Change insight for insight summaries.
Top Contributors	Shows the highest values in a dimension for a metric within a given time range. A top contributor is a dimension member that ranks in the top N in contribution to the scoped metric’s value, aggregated on a specified time range.	Always on by default Tableau Pulse uses the Top Contributors insight in metrics for breakdowns.
Bottom Contributors	Shows the lowest values in a dimension for a metric within a given time range. A bottom contributor is a dimension member that ranks in the bottom N in contribution to the scoped metric’s value, aggregated on a specified time range.	Can be turned on or off in the Insights tab in metric definition settings.
Concentrated Contribution Alert (Risky Monopoly)	Shows when a small number of dimension members make up a majority (50% or more) of the contribution to a metric.	Can be turned on or off in the Insights tab in metric definition settings.
Top Drivers	Shows values for dimension members that changed the most in the same direction as the observed	Can be turned on or off in the Insights tab in metric definition settings.

	change in the metric.	
Top Detractors	Shows values for dimension members that changed the most in the opposite direction to the observed change in the metric.	Can be turned on or off in the Insights tab in metric definition settings.
Unexpected Values	Shows when the value of a metric for a given time range is higher or lower than the expected range based on historic observations of the metric.	Can be turned on or off in the Insights tab in metric definition settings. Turn this insight off to hide the text description and the expected range (blue shaded band in chart) for the Unexpected Values insight. Tableau Pulse considers the Unexpected Values insight for insight summaries.
Current Trend	Shows current trends to communicate the rate of change, direction, and fluctuations for the metric value.	Can be turned on or off in the Insights tab in metric definition settings.
Trend Change Alert	Shows new trends that vary significantly from the current trend. This insight communicates the rate of change, direction, and fluctuations for the metric value.	Can be turned on or off in the Insights tab in metric definition settings.

How Tableau Pulse generates and maintains trusted insights

Here are a few ways the Insights platform generates automated business insights users can trust:

- Tableau Pulse Insights Service starts by using standardized, deterministic statistical models to detect facts about metrics that are guaranteed to be accurate. These facts act as the ground truth when generating insights.
- Every insight that is generated is restricted to the data security context (such as RLS settings) of the user who made the request. This approach ensures users can only see the data they're authorized to see.
- Analysts can enable or disable different insights being detected for a metric so they can control what is delivered to their users.

Here’s how Tableau Pulse brings it all together: the Insight platform statistical service uses the analytical context of the metric being followed or viewed to run automatic statistical analysis that generates facts about the metric. These facts answer the different questions using the user's data security context.

Insight summaries are generated using natural language grounded in statistical truths. The most relevant facts are processed by AI in Tableau. These facts are used as ground truths to contextualize language generation. The resulting facts generated are bundled together and surfaced in several features throughout Tableau Pulse as insight summaries when AI in Tableau is turned on for a site.

How the Insights platform determines relevance

To reduce noise, Tableau Pulse only surfaces the most relevant, useful insights—and avoids displaying noisy or spurious findings. The Insight platform considers the following factors to ensure the insights users see are relevant and useful:

- **The analytic context for insights is based on the Tableau Pulse metric definition**. Unlike other solutions that look for insights across all columns in the data, the Insights platform restricts its analysis to the measures and dimensions referenced by the metric definition, as curated by analysts. In addition, only the filtered context of the metric user is viewing or following is considered when generating insights.
- **Insights are ranked based on impact to the metric**. Each fact detected by the Insights platform is scored based on the impact it has on the metric value. Only the facts determined to be most statistically impactful to the metric value are returned first.
- **Feedback further personalizes insights**. Users can provide thumbs-up or thumbs-down feedback on the insights they see to indicate whether the insights are useful. The Insights platform learns from this to further personalize the types of insights it shows to a user.

  Note: When the Personalized Insight Ranking site setting is turned on for your Tableau site, users can provide thumbs-up or thumbs-down feedback on insights. This setting is on by default. For more information, see Turn off Personalized Insight Ranking.

When applied in combination, these factors ensure that of all insights detected for a metric, only those found to be most useful are surfaced to users in Tableau Pulse.

How AI in Tableau highlights insights in Tableau Pulse

When the required AI in Tableau site settings are turned on, several features in Tableau Pulse present insights in natural language summaries and a conversational data exploration experience.

Insight summaries highlight metrics of interest

When AI in Tableau is turned on and you or others follow two or more metrics, Tableau Pulse provides an overview to help you quickly see the latest insights across your metrics of interest. This insights summary appears at the top of digests and in the Tableau Pulse home page. For information on turning on insight summaries, see Turn on metric insight summaries.

Tableau Pulse looks across the metrics that you follow and leverages AI in Tableau to summarize the most significant changes. Period Over Period Change and Unexpected Values are the insight types considered for insight summaries.

Insight summaries use a large language model (LLM) to provide a personalized overview in plain language. AI in Tableau is built on the Einstein Trust Layer, meaning it enables trusted, ethical, and open AI-powered experiences without compromising data security and privacy. For more information, see AI in Tableau for Tableau Pulse and Einstein Generative AI for Tableau.

Enhanced Q&A (Discover) presents relevant insights for groups of metrics

When Enhanced Q&A (Discover) is turned on, it is surfaced in the Tableau Pulse home page for metrics grouped by data source, definition, or time range. Selecting a question takes you to the Discover page with key insights, relevant visualizations, source references, and suggested follow-up questions. Because it is powered by AI in Tableau, you can ask questions in your own words to get relevant, natural language answers about your data.

Enhanced Q&A (Discover) is available as a Tableau+ premium feature in Tableau Pulse on both web and mobile, in English language only at this time. Enhanced Q&A (Discover) must be turned on in Tableau Cloud site settings, and requires a connection to a Salesforce org that has Einstein generative AI set up for the selected Salesforce org. For more information, Ask Questions and Discover Insights in Tableau Pulse and Turn on enhanced Q&A (Discover) in Tableau.

Get Tableau Pulse Alerts

Tableau Pulse alerts you when a metric you follow crosses into an unfavorable threshold range or has a new unfavorable trend. These alerts appear in your email and Slack digests and are sent as mobile notifications so that you don’t miss important changes to your data. If you have your digest frequency set to weekly or monthly, Tableau Pulse sends an email notification with any alerts found on days that you don’t receive a digest.

How Tableau Pulse identifies alerts

Once every 24 hours, Tableau Pulse checks for alerts. This check occurs at the same time that Tableau Pulse generates email and Slack digests. If a threshold or trend alert is found, the alert is included in that day's digest. If you aren't scheduled to receive a digest that day, an alert email is sent. Alert emails are sent at the same time of day when digests are normally sent. An alert badge also appears for the next 24 hours on the impacted metric card and on that metric's Insights Exploration page, until the next time that Tableau Pulse checks for alerts.

Threshold crossed alerts

For metrics with an unfavorable threshold range defined, Tableau Pulse alerts you when the aggregate metric value crosses into the unfavorable range. The aggregate metric value is the value for the entire time range that the metric is scoped to, such as the sum of a measure for the month. This aggregate value appears at the top of the metric card and the Insights Exploration page. Some metrics have charts that show non-cumulative values. If one of the non-cumulative values crosses into the unfavorable threshold range, it doesn't trigger an alert unless that change causes the aggregate value to enter the unfavorable range.

Tableau Pulse notifies you only when the metric initially crosses into the unfavorable range. You don't continue to receive notifications while the value stays in the unfavorable range. However, if the aggregate value goes back into a favorable range and then again crosses into an unfavorable threshold range, you receive another alert.

Trend change alerts

The Trend Change Alert insight type is part of the Tableau Pulse insights platform. The insights platform determines if there's a new unfavorable trend for a metric. For more information about Tableau Pulse insights, see The Insights Platform and Insight Types in Tableau Pulse.

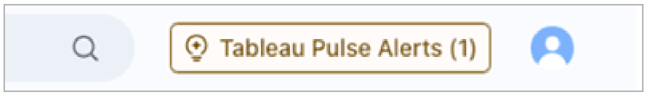
To qualify as new, a trend must vary significantly from the current trend. A single-day change from a favorable to an unfavorable direction doesn't constitute a trend or trigger an alert.

Because the insights platform takes patterns in your data into account when identifying trends, you don't get alerts for expected seasonal changes.

Tableau Pulse sends an alert only on the initial identification of the unfavorable trend. A new unfavorable trend could be the steepening of an existing slower trend or a completely new trend. Tableau Pulse doesn't alert you while the same trend continues.

See new alerts

Alerts appear in email and Slack, on the metrics that you follow, and as mobile notifications.

Location	Alert description
Email and Slack digests	Alerts are listed at the top of your digest. The alerts shown in a digest are those that were found at the time that the digest was generated. Alerts aren't aggregated in weekly or monthly digests.
Email	If Tableau Pulse finds alerts on a day that you aren't scheduled to receive a digest, you receive an email notification with those alerts.
Tableau homepage	Alerts appear in the Tableau Pulse Alerts center at the top of the homepage. Alerts appear for 24 hours, until the next time that Tableau Pulse checks for new unfavorable trends.  Alert badges also appear on the metrics that you follow. You don't see alerts as you browse or search for metrics that you aren't following.
Tableau Mobile	You receive a mobile notification for an alert if Tableau Mobile is running on your device. If you fully quit the Tableau Mobile app, you don't get a notification. To turn off the notification on your mobile device, adjust your device's notification settings for Tableau Mobile.

Control whether Tableau Pulse checks for threshold and trend changes

There's no separate set up for alerts in Tableau Pulse. If a metric has an unfavorable threshold range defined, Tableau Pulse alerts when that metric crosses into the unfavorable range.

The Trend Change Alert insight setting controls whether Tableau Pulse generates insights for new trends and whether new unfavorable trends are shown as alerts to followers. To learn how to turn off insight types, see Configure insights.

If you turn off this insight type on a metric definition, the changes apply to all metrics based on that definition. The setting also turns off trend insights on a metric’s Insights Exploration page. There isn’t a way to turn off the alert without turning off the insight.

Turning off the insight type doesn’t immediately remove the alert from impacted metrics. The alerts are removed the next time that Tableau Pulse checks for alerts and generates digests, which can take up to 24 hours.

Work with Tableau Pulse Metrics and Dashboards

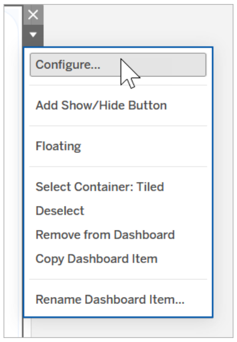
Bring Tableau Pulse metrics into dashboards with the Pulse dashboard object, and create recommended metrics based on the data used in a dashboard.

Add metrics to a dashboard

To show metrics alongside other content in a dashboard, add the Pulse Metric object. The metrics that are available to add to a dashboard are those that connect to the same published data sources that are used by the workbook. For more information about dashboard objects, see Add dashboard objects and set their options.

1. On a dashboard, from the Objects section, drag the **Pulse Metric** object to the dashboard.
2. Select a metric definition to see the list of metrics based on that definition. If there are no metric definitions shown, create one in Tableau Pulse.
3. Select a metric.
4. For the metric display, choose whether to display the full card or a compact card.
5. To style the metric like the cards on the Tableau Pulse homepage, toggle on **Tableau Pulse Style**. Tableau Pulse style adds rounded corners and an elevated border. Without this style option, the metrics on a dashboard resemble other borderless dashboard objects.
6. To link the metric card to the Tableau Pulse insights exploration page, toggle on **Link to Tableau Pulse**. This link opens in a new tab.
7. Select **Add to Dashboard**.

After you've added a Pulse Metric object, you can change the metric or adjust the settings by selecting **Configure** from the object's context menu.



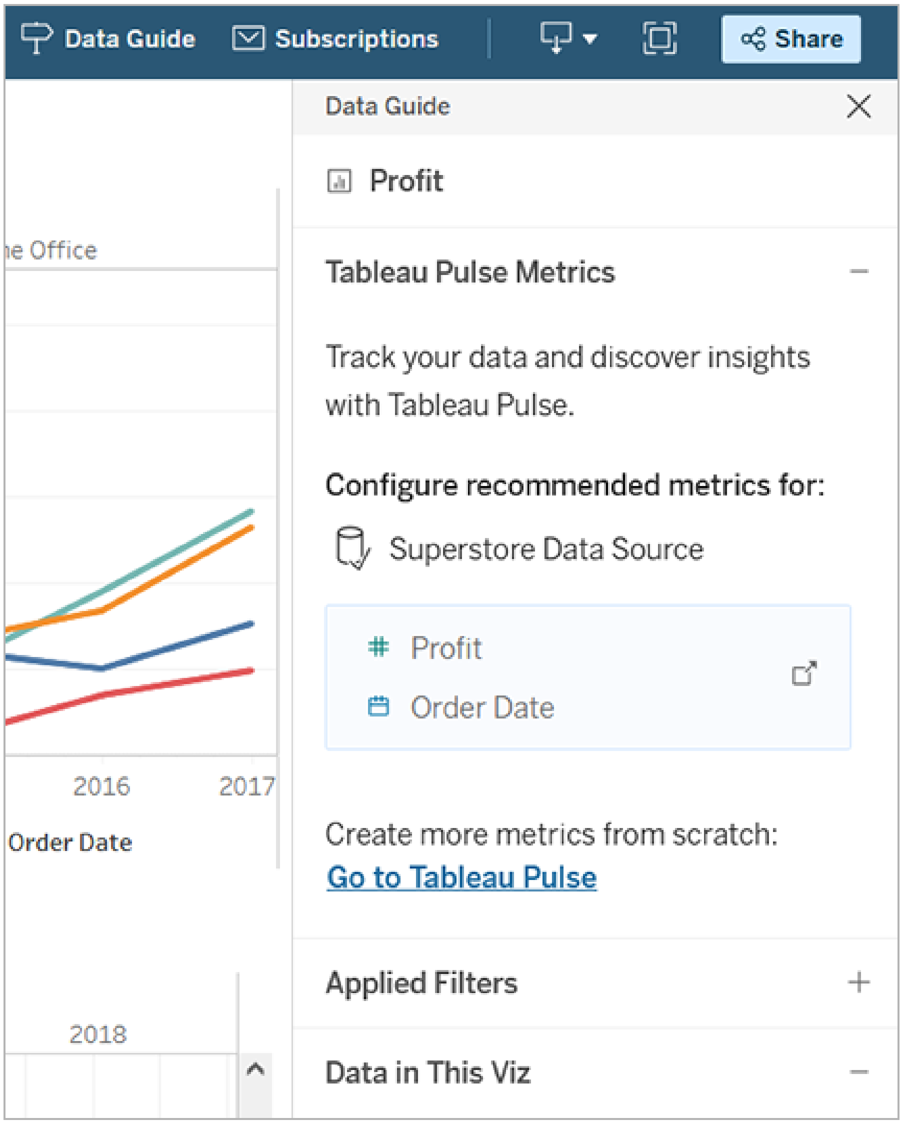
See recommended metrics for a dashboard

To get a head start when creating a metric definition, you can create one from the list of recommended metrics shown for dashboards.

1. While viewing the dashboard that you want to create a metric definition from, select the **Data Guide** button in the toolbar.

2. On the dashboard, select the viz with the data you want to use.

Data guide shows recommended metrics for this viz. Depending on how well the data in the viz fits the requirements for a metric, you might not see recommended metrics. If data guide can't recommend a complete metric, it might show recommended measures or dimensions or the primary data source used for you to connect to.


Data Guide
Subscriptions
Share
Data Guide
Profit
Tableau Pulse Metrics
ne Office
2016
2017
Order Date
2018
Applied Filters
Data in This Viz

Track your data and discover insights with Tableau Pulse.

Configure recommended metrics for:

Superstore Data Source

Profit

Order Date

Create more metrics from scratch:

Go to Tableau Pulse

3. Select a recommendation to configure it in Tableau Pulse.

4. The recommendation is pre-populated in the Tableau Pulse definition editor. To finish setting up your definition, see Configure the core definition.

Set Up the Pulse for Salesforce App

The Pulse for Salesforce app integrates Tableau Pulse with your Salesforce data. With the app, your users can explore metrics about their data and get insights directly in Salesforce. For general information about Tableau Pulse metrics and insights, see About Tableau Pulse.

The app automates the process of connecting Tableau with Salesforce. To set up the app, you must complete steps in both your Salesforce org and on your Tableau site. After a connection is established between Salesforce and Tableau, the app prepares your data then creates metrics for sales, opportunities, and more. Users assigned to the correct permission set can access these metrics embedded in Salesforce.

Complete Tableau Cloud prerequisites

Set up your Tableau Cloud site

1. Follow the instructions in the Tableau Cloud activation email to create a site.
2. Copy your **Site Name** and **URL**, and paste them in a safe location. You’ll need these to set up the Pulse for Salesforce app.

Set the authentication type to Salesforce

1. From the navigation panel on your Tableau site, select **Settings**.
2. Select the **Authentication** tab.
3. Under Authentication types, select **Enable an additional authentication method**.
4. For Authentication, select **Salesforce**.
5. Under Default authentication type for embedded views, select **Salesforce**.

You can use the Salesforce Authenticator app for multi-factor authentication. For more information, see Multi-Factor Authentication and Tableau Cloud.

Turn on Tableau Pulse and AI in Tableau

Make sure that the site settings for Tableau Pulse and AI in Tableau are turned on for your Tableau site.

1. Turn on Tableau Pulse. See Deploy Tableau Pulse for your site.
2. Turn on AI in Tableau. See AI in Tableau for Tableau Pulse.

Create a personal access token

1. To turn on the personal access token setting for your Tableau site, go to site settings and follow the instructions on Site settings for personal access tokens.
2. To create a token, go to your account settings and follow the instructions on Create a personal access token.
3. Copy the **Token Name** and **Secret**, and paste them in a safe location. You'll need these to set up the Pulse for Salesforce app.

Create a connected app

A connected app allows for seamless embedding of Tableau Pulse metrics in Salesforce. For more information about connected apps, see Configure Connected Apps with Direct Trust.

1. From the navigation panel, select **Settings**.
2. Select the **Connected Apps** tab.
3. Select **New Connected App** > **Direct Trust**.
4. For Connected app name, enter a descriptive name.
5. For Access level, select **All projects**.
6. For Domain allowlist, select **All domains**.
7. Select **Create**.
8. Select **Generate New Secret**.
9. Copy the **Secret ID**, **Secret Value** (select the eye icon to reveal the value), and **Client ID**, and paste them in a safe location. You'll need these to set up the Pulse for Salesforce app.

Install the app package in Salesforce

The Pulse for Salesforce app is a managed package that you install in your Salesforce org.

1. While signed in to your Salesforce org as a Salesforce admin, open the Pulse for Salesforce package. The link to this package was sent to you when you purchased the Pulse for Salesforce app.
2. Select **Install for Admins Only**.
3. Select **Install**.
4. On the Approve Third-Party Access dialog, select **Yes, grant access to these third party web sites**.
5. Select **Continue**. The Pulse Installation Wizard is installed in your org.

Important: If the language setting for your Salesforce admin account is set to a language other than English, you must temporarily change your personal language setting to English to install the app. To learn how, see Change Language in Salesforce. After you set up the app, change the language setting back to your preferred language.

Complete Salesforce prerequisites

Assign users to the permission set

Tip: While you set up the app, consider limiting the permission set to a small number of users. After you've finished customizing the app, give access to the rest of your users, then re-sync the app. For more information, see Sync access to the Tableau Pulse app.

If you need to implement row-level security to protect your data, add only admins to the permission set during setup. Salesforce access control doesn't carry over to Tableau Cloud, so the users you add have access to all the data in the metrics until you implement additional security measures.

The Pulse app creates a permission set called “Pulse for Sales Cloud” in Salesforce. Assign the permission set to the users who should have access to the app. To learn how, see Manage Permission Set Assignments.

The users you add to this permission set have access to the Tableau Pulse app when you sync the app. At a minimum, add yourself to the permission set.

Add Tableau as a remote site URL

1. Visit your Tableau site to identify the correct URL. Your URL should look like `https://us-west-2a.online.tableau.com/#/site/my-site/home`. You’ll add the part of the URL that begins with https, and ends with .com, for example: `https://us-west-2a.online.tableau.com`
2. Navigate to your Salesforce Setup page.
3. In the Quick Find box, enter `Remote Site Settings`, and then select **Remote Site Settings**. For more information, see Configure Remote Site Settings.
4. For **Remote Site Name**, enter a descriptive name.
5. For **Remote Site URL**, enter the URL that you identified in step 1.
6. For **Disable Protocol Security**, don’t select the checkbox.
7. For **Active**, leave the checkbox selected.
8. Select **Save**.

Add Tableau as a trusted URL for redirects

1. Navigate to your Salesforce Setup page.
2. In the Quick Find box, enter `Trusted URLs for Redirects`, and then select **Trusted URLs for Redirects**. For more information, see Manage Redirections to External URLs.
3. Select **New**.
4. Enter the same URL that you added as a remote site.
5. Select **Save**.

Set up the Pulse for Salesforce app

Before you set up the app, you must install the managed package for the app in your Salesforce org. If you haven't yet installed the package, see Install the app package in Salesforce.

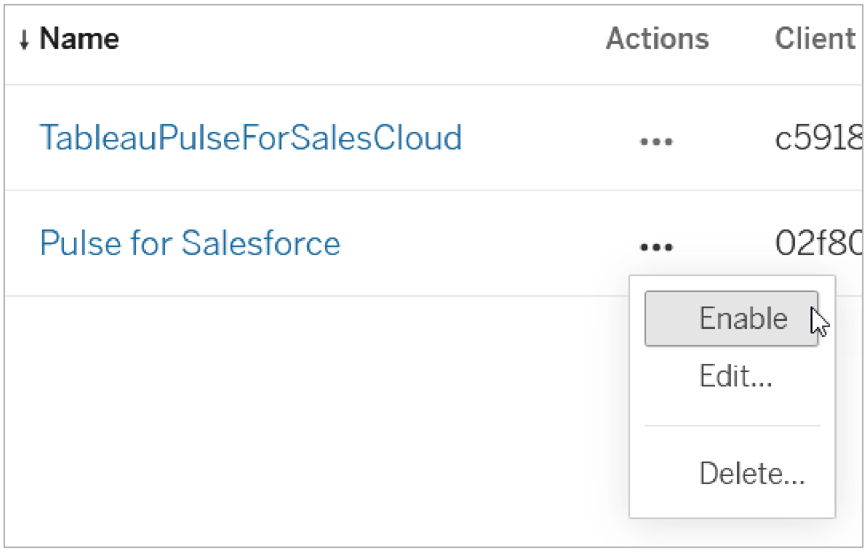
Note: The Pulse installation wizard is available in the languages that Tableau supports. For the current list of languages, see Tech Specs for Tableau Cloud. For languages that are supported by Salesforce but aren't supported by Tableau, the wizard falls back to English.

1. In the Salesforce App Launcher, search for the **Pulse Installation Wizard** and open it.
2. Select **Get Started**.
3. Enter your Tableau site information. If you don't have this information, see Complete Tableau Cloud prerequisites.
    1. For **Tableau Site Name**, enter the name displayed after /site/ in your Tableau Cloud URL. For the example URL `https://us-west-2a.online.tableau.com/#/site/my-site/home`, you would enter `my-site`.
    2. For **Tableau Site URL**, enter the part of the URL that begins with https and ends with .com, for example: `https://us-west-2a.online.tableau.com`
    3. For **Personal Access Token (PAT) Name**, enter the name of the token that you saved when you created the PAT. See Create a personal access token.
    4. For **Personal Access Token (PAT) Secret**, enter the secret that you saved when you created the PAT.
    5. For **Data Source Refresh Time**, select the time each day when your data should refresh on Tableau Cloud. This time setting uses the time zone set on your Tableau site.
    6. For **Select Cloud**, choose the cloud that the Pulse app connects to for the metric data.
4. Select **Test Connection**. The Pulse app validates the site information you added.
5. For Sync Users, acknowledge the message about syncing users, then select **Sync Users**. The users in the "Pulse for Sales Cloud" permission set are added to your Tableau site.
6. For Create Pulse Metrics, select **Publish**. The Pulse for Salesforce app creates the data sources, flow, and metrics based on your data.
7. For Embed Your Pulse Metrics, enter the **Client ID**, **Secret ID**, and **Secret Value** that you noted when you created the connected app in Tableau. See Create a connected app.
8. For **Update Tableau Cloud Credentials**, follow the instructions under Embed credentials for your data in Tableau. Then select **Next**.
9. Select **Finish**.

Enable connected apps in Tableau

The Pulse for Salesforce app creates a connected app, in addition to the connected app that you created under the step Create a connected app. Enable these apps so that Tableau Pulse can be embedded in Salesforce.

1. From the Tableau Cloud navigation panel, **select Settings**.
2. Select the **Connected Apps** tab.
3. For the app that you created, from the Actions (**...**) menu, select **Enable**.


↓ Name
Actions
Client
TableauPulseForSalesCloud
•••
c5918
Pulse for Salesforce
•••
02f80
Enable
Edit...
Delete...

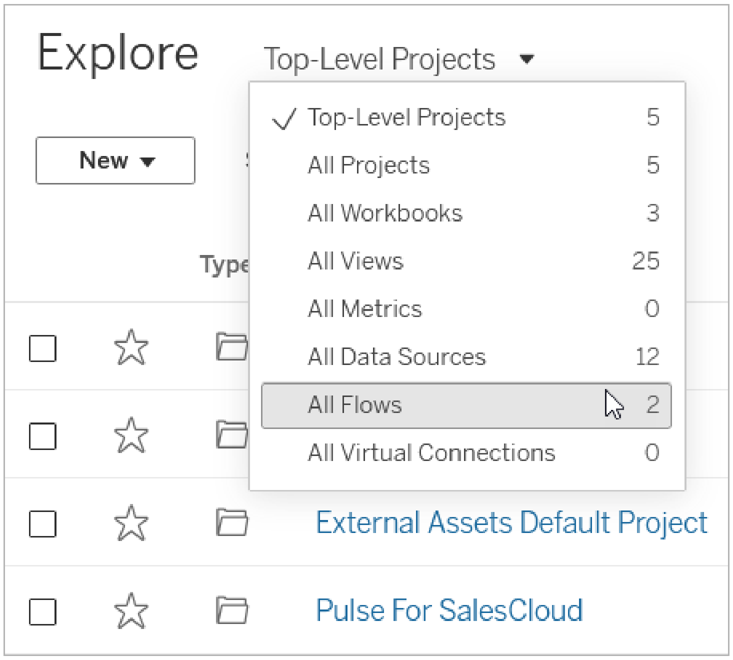
4. Also enable the connected app called “TableauPulseForSalesCloud.” This is the app that the Pulse for Salesforce app created.

Embed credentials for your data in Tableau

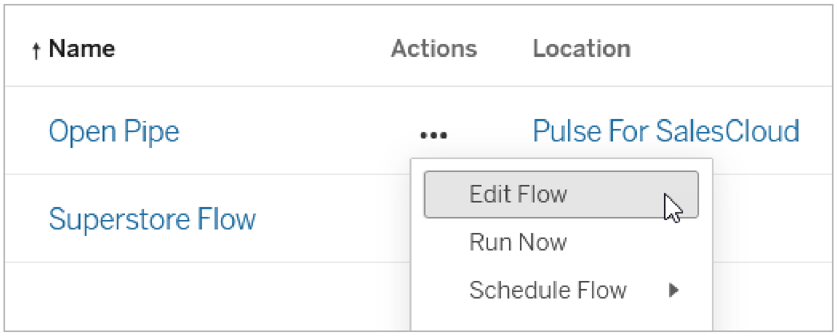
The app automatically creates Tableau data sources and a flow to get your data ready for Tableau Pulse. Embed your credentials so that Tableau can connect to your data.

Embed credentials for the flow

1. From the Tableau Cloud navigation panel, select **Explore**.
2. In the content type menu, select **All Flows**.


Explore
Top-Level Projects
New
Type
Top-Level Projects 5
All Projects 5
All Workbooks 3
All Views 25
All Metrics 0
All Data Sources 12
All Flows 2
All Virtual Connections 0
External Assets Default Project
Pulse For SalesCloud

3. From the Actions (**...**) menu for the flow called “Open Pipe,” select **Edit Flow**.

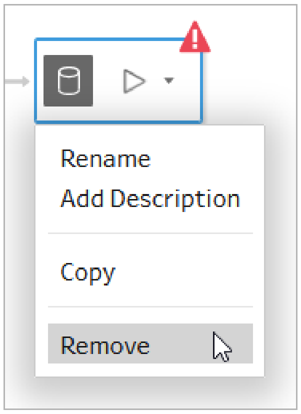

Name
Actions
Location
Open Pipe
•••
Pulse For SalesCloud
Superstore Flow
Edit Flow
Run Now
Schedule Flow

4. Under Connections, select the Salesforce connection.
5. Enter the credentials for the connection, then accept the prompt to allow access.
6. Wait as Tableau connects to your org and resolves any errors in your flow. This should take less than a minute.

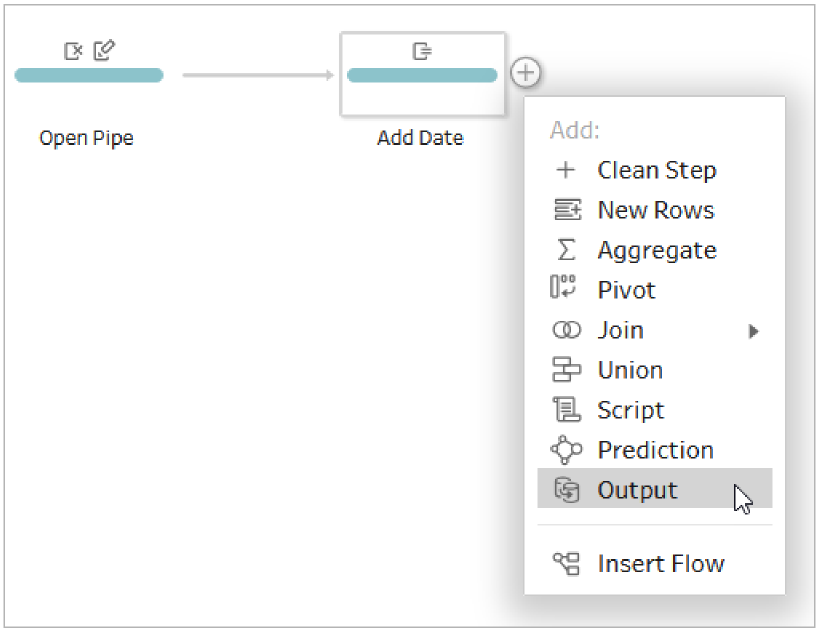
Edit and run the flow

Edit the final step of the flow so that the output goes to the correct location for the Pulse for Salesforce app. For more information about working with flows, see Build and Organize your Flow.

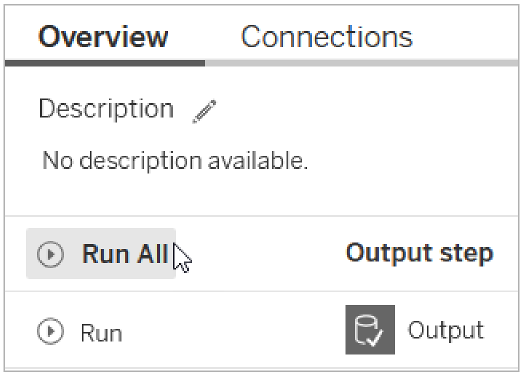
1. Right click on the Output step for the flow, then select **Remove**.


Rename
Add Description
Copy
Remove

2. Select the **+** after the final step, then select **Output**.


Open Pipe
Add Date
Add:
Clean Step
New Rows
Aggregate
Pivot
Join
Union
Script
Prediction
Output
Insert Flow

3. For the Output step:
    1. For the Project, select **Pulse for SalesCloud**.
    2. For the Name, enter **Open Pipe Datasource**. The name of the output must be exactly that, or the metrics won’t get the data they need.
    3. Under Full Refresh, select **Append to table**.
4. In the upper-right corner of the screen, select **Publish**.
5. When asked to embed credentials for every connection, check the **Embed credentials** box.
6. On the notification message, select **View Flow**.
7. On the flow page, select **Run All**.



Embed credentials for the data source

1. From the Tableau Cloud navigation panel, select **Explore**.
2. In the content type menu, select **All Data Sources**.
3. From the Actions (...) menu for the data source called “Sales Cloud Metrics Datasource,” select **Edit Connection**.
4. Select **Embed Salesforce credentials in the connection**, then select your Salesforce account.
5. Select **Save**.

Refresh the data source extract

1. From the Actions (**...**) menu for the data source called “Sales Cloud Metrics Datasource,” select **Refresh Extracts Now**.
2. Select **Full Refresh**.

Check the app in Salesforce

The Pulse for Salesforce app automatically creates a set of metrics based on your Salesforce data.

Metric	Description
Average Days to Close - Won	Average time it takes to win an opportunity
Closed Opportunities (Running Total)	Number of opportunities that are closed
Conversion Rate	Share of the amount of opportunities won in relation to the amount of all closed opportunities (expressed as a percentage)
Created Opportunities (Running Total)	Total number of opportunities
Open Pipe (Daily)	Sum of opportunity amount for open opportunities for today
Open Pipe (Weekly)	Sum of opportunity amount for open opportunities for this week
Pipe Gen (Running Total)	Sum of opportunity amount for open opportunities (IsClosed = false) by time dimension of Created Date
Total Sales	Sum of opportunity amount for won opportunities by time dimension of Close Date
Win Rate	Share of the number of won opportunities in relation to the number of all closed opportunities (expressed as a percentage)

1. To make sure that the app is working as expected, in the Salesforce App Launcher, search for **Pulse**. Users who are assigned to the Pulse for Salesforce permission set can view this app in Salesforce.
2. Open the Pulse app.
3. Select a metric to open its insights exploration page.

4. Make sure that your data appears as expected. The chart might be empty if it’s the first day of the time period displayed.
5. If you initially limited the users who can access the Pulse app, after you’ve checked the metrics, add additional users to the permission set, then re-sync the app. For more information, see Control access.

Customize the metrics

You can customize the metrics that the Pulse for Salesforce app creates by editing the metric definitions that they’re based on, and you can create additional metrics by adjusting the filters. Edits must be made on your Tableau Cloud site. You can’t edit the metric definitions through the Pulse for Salesforce app.

Tip: If you want to create metrics from scratch using different data, see Create Metrics with Tableau Pulse.

Access metrics in Tableau Pulse

1. From the Tableau Cloud navigation panel, select **Tableau Pulse**.
2. Select **Browse Metrics** to see all metric definitions.
3. Select a definition to see the metrics based on that definition.

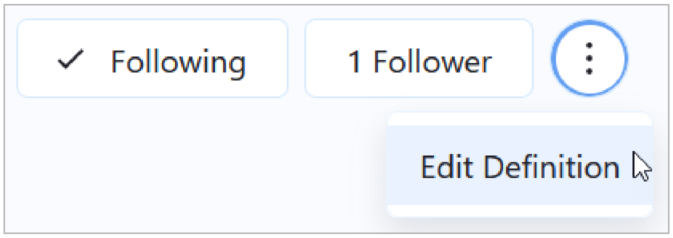
Metric definitions contain the core metadata for metrics. Edits made to a metric definition affect all metrics that are based on that definition. For more information about the relationship between metric definitions and metrics, see Metric definitions and metrics.

Change the measure, time dimension, or definition filters

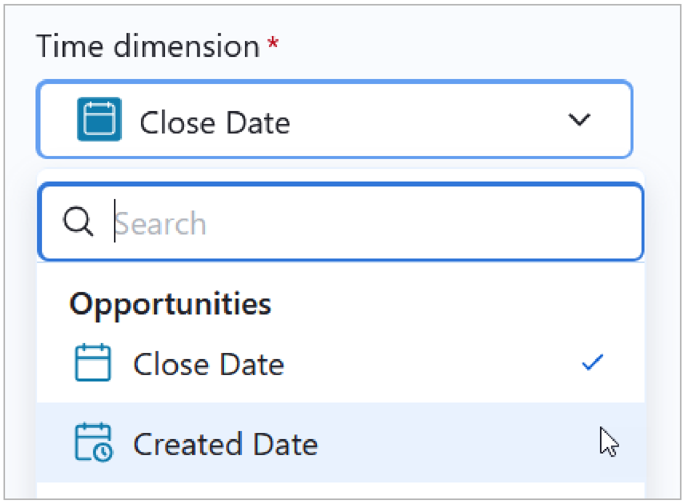
The measure and time dimension are the key components of a metric definition’s value, and definition filters are optional limits to that value. Edit the metric definition to change these fields. For more information about the key components of a metric definition, see Define the metric value.

Note that if you want to adjust the time range for a metric without changing the field used as the time dimension, you can simply filter an existing metric. For more information, see Create additional metrics.

1. In Tableau Pulse, open the metric that you want to change.
2. Select the actions (**...**) menu, then select **Edit Definition**.


✓ Following
1 Follower
Edit Definition

3. For **Measure**, **Time dimension**, or **Definition filters**, select a different field from the data source. If you don't see the field you want to add, see Include more fields from your Salesforce data.


Time dimension *
Close Date
Search
Opportunities
Close Date ✓
Created Date

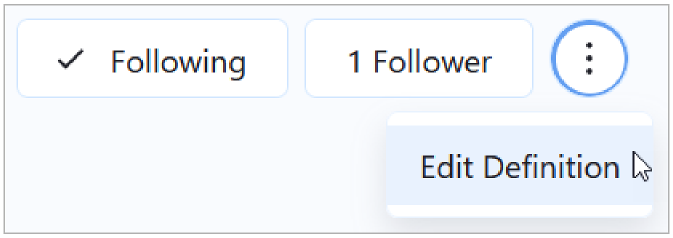
4. Select **Save Definition**.

Tip: If you need to combine data from multiple fields, see Create an advanced definition. The advanced editor lets you create calculated fields. For more information about calculated fields, see Get Started with Calculations in Tableau.

Change metric names

The name shown on a metric is the name of its definition. You can change this name by editing the definition.

1. In Tableau Pulse, open the metric that you want to rename.
2. Select the actions (**...**) menu, then select **Edit Definition**.

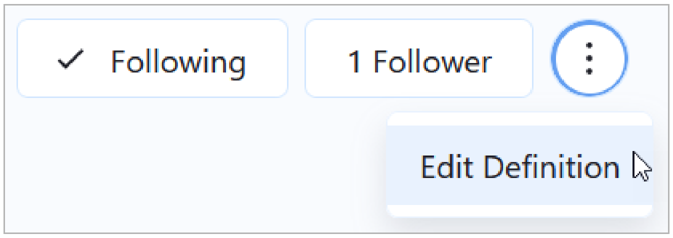


3. For **Name**, enter a new name.
4. Select **Save Definition**.

Change insight dimensions

Insight dimensions are the fields that Tableau Pulse uses to generate insights about your data. The Pulse for Salesforce app automatically adds a set of insight dimensions to your metrics, and you can add more to look at other dimensions in your data. In addition to being used in insights, these dimensions are available as filters and in the question-and-answer experience on a metric's insights exploration page.

1. In Tableau Pulse, open the metric that you want to change.
2. Select the actions (**...**) menu, then select **Edit Definition**.

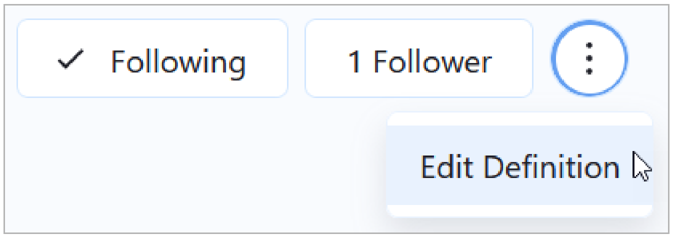


3. Under Adjustable metric filters, select **Add Filter Option**. The adjustable metric filters are used as insight dimensions.
4. Select the fields that you want to add.
5. Select **Save Definition**.

Change currency format

By default, metrics show currency in the format of US Dollars. Adjust the currency setting to change the number format and currency symbol.

1. In Tableau Pulse, open the metric that you want to change.
2. Select the actions (**...**) menu, then select **Edit Definition**.



3. Under Number format, make sure that **Currency** is selected.
4. Under Currency, select a currency code.

Include more fields from your Salesforce data

Each metric definition is connected to a data source, which is the link between your data and Tableau. The Pulse for Salesforce app automatically creates data sources based on your Salesforce data and uses these when creating metric definitions. If the field that you want to add as a measure or dimension isn't available when you go to edit a metric definition, edit the data source or flow to add it. After you edit the data source or flow, edit the relevant metric definitions and replace the pre-existing fields with the newly added fields.

The data source called "Sales Cloud Metrics Datasource" supplies the data for the following metrics:

- Average Days to Close - Won
- Closed Opportunities (Running Total)
- Conversion Rate
- Created Opportunities (Running Total)
- Pipe Gen (Running Total)
- Total Sales
- Win Rate

The flow called “Open Pipe” and the data source called “Open Pipe Data source” provide the data for the following metrics:

- Open Pipe (Daily)
- Open Pipe (Weekly)

The Pulse for Salesforce app brings in data from the User, Account, and Opportunity Salesforce objects. If you need data from different objects, make sure that they include equivalents for the fields in the following table.

Salesforce object	Fields
User	Id, Name
Account	Id, Name, BillingState, BillingCountry, Industry
Opportunity	Id, AccountId, Amount, OwnerId, CreatedById

Tip: If you need entirely different data from what is included in the prebuilt data source, use the Salesforce connector to create a new published data source. For more information about connecting to Salesforce data, see Salesforce CRM.

If your organization uses a platform like Snowflake to store your data, connect directly to that data platform. For more information, see Use Supported Connectors. Then create new metric definitions and metrics using that data instead.

Edit the Tableau data source to add a new Salesforce data object

If the data that you want to add is in an object that hasn’t yet been added to the data source, add it to the data canvas.

1. From the Tableau Cloud navigation panel, select **Explore**.
2. In the content type menu, select **All Data Sources**.
3. Open the data source called “Sales Cloud Metrics Datasource.”
4. Select **Edit Data Source**. For more information about editing a data source, see Edit a Published Data Source.
5. Drag the data that you want to add onto the canvas.
6. Relate or join the new object to the existing data. See Relate Your Data and Join Your

Data.

7. Select **Publish**.

Now, if you edit the metric definition, the added data appears when you go to select a field.

Edit the flow to change the filtered data

Metrics require a time dimension. For point in time data, it’s necessary to use a flow to snapshot the data and create the time series. If you edit the flow to use different fields, the snapshot of that data starts when you first run the updated flow. For more information about flows, see Build and Organize your Flow.

1. From the navigation panel, select **Explore**.
2. In the content type menu, select **All Flows**.
3. Open the flow called “Open Pipe.”
4. Adjust the fields filtered by the flow. For more information, see Filter Your Data.
5. Select **Publish**.
6. On the notification message, select **View Flow**.
7. On the flow page, select **Run All**.

Create additional metrics

From a single metric definition, you can create as many metrics as there are combinations of filter options for that definition. Consider creating metrics that are specific to a particular role and adding only the relevant users or groups as followers. To learn how, see Create metrics.

You can create metrics only from fields that are included in the metric definition. To use different fields, either edit the metric definition or create a new definition.

Add followers

You can add individual users or user groups as followers to metrics. To learn how to add followers on Tableau Cloud, see Manage followers. You can also add followers using the REST API with the Batch create subscriptions method.

Followers receive an email digest that shows how their metrics are doing. If they follow two or more metrics, they also see an insights summary highlighting notable changes to the data.

Users who are following metrics as part of a group can’t individually unfollow those metrics. These users can, however, choose not to receive a digest of the metrics they follow. For more information, see Help users manage digests.

Manage user groups

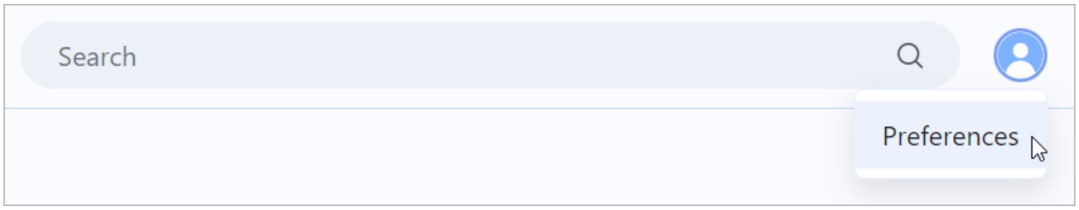
The Pulse for Salesforce app creates a Tableau user group called “Pulse for Sales Cloud.” This group contains all the users that were part of the Salesforce permission set that you synced while setting up the app.

You can create a new group and add specific users to it. To learn how, see Create a Group and Add Users to It. You can also change the users in an existing group. To learn how, see Add users to a group (Groups page). Groups are useful for adding users with the same job role as followers to metrics. Groups can also be used to limit access to the data in metrics. For more information, see Control access.

Help users manage digests

As a Tableau administrator, you can’t change the digest settings for users. Users can individually opt out of receiving digests for the metrics they follow.

1. Open the Pulse app in Salesforce.
2. On a metric page, select the avatar icon at the upper-right corner, then select **Preferences**.



3. Choose whether to receive digests.
4. Choose how frequently to receive digests.
5. Select **Save**.

Control access

Access controls to the data that have been configured in Salesforce don’t carry over into Tableau Cloud. Unless you limit access to the data in Tableau Cloud, you should consider the data in the Pulse for Salesforce app accessible by all users.

Sync access to the Tableau Pulse app

The users who you add to the Pulse for Salesforce permission set can access the app in Salesforce. Add or remove users from this permission set to limit access to the app. To learn how, see Manage Permission Set Assignments.

After you update the permissions set, open the wizard to re-sync the users with Tableau.

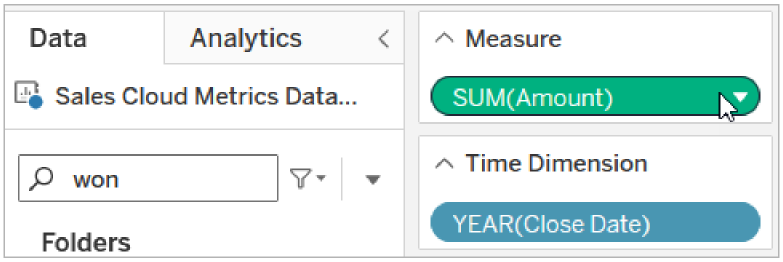
1. In the Salesforce App Launcher, search for the **Pulse Installation Wizard** and open it.
2. Select the **Sync New Users** tab.
3. Enter the same site information that you entered when setting up the app. See Set up the Pulse for Salesforce app.
4. Select **Test Connection**.
5. Acknowledge the message about syncing users, then select **Sync Users**. The users in the “Pulse for Sales Cloud” permission set are synced with the “Pulse for Sales Cloud” user group in Tableau.

Limit access to individual metrics

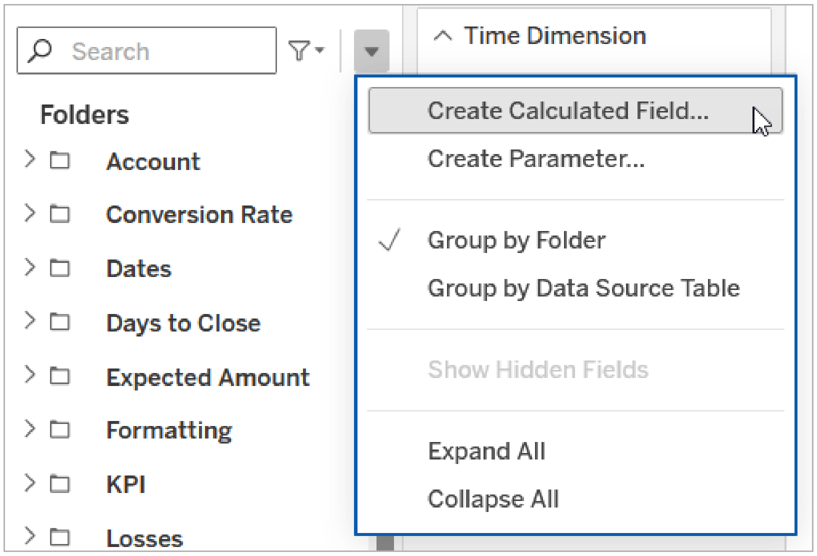
You can edit a metric definition to limit access to the data to a specific Tableau group. Before you edit the definition, create the user group that you plan to use to limit access. To learn how, see Create a Group and Add Users to It.

1. In Tableau Pulse, select the metric you want to limit access to.
2. Select the actions (**...**) menu, then select **Edit Definition**. Note the measure, aggregation, time dimension, and any definition filters.
3. Select **Create Advanced Definition**.
4. Drag the fields that you noted in step 2 to the **Measure**, **Time Dimension**, and **Filters** shelves.

5. On the measure name, select the arrow, then select the aggregation type.


Data
Analytics
Sales Cloud Metrics Data...
won
Folders
Measure
SUM(Amount)
Time Dimension
YEAR(Close Date)

6. Next to the field search box, select the arrow, then select **Create Calculated Field**.


Search
Folders
Account
Conversion Rate
Dates
Days to Close
Expected Amount
Formatting
KPI
Losses
Time Dimension
Create Calculated Field...
Create Parameter...
Group by Folder
Group by Data Source Table
Show Hidden Fields
Expand All
Collapse All

7. In the calculation editor, enter the calculation that includes the group that you want to limit access to, replacing `GroupName` with your group’s name.

```
ISMEMBEROF('GroupName')
```

8. Drag the calculated field to the **Filters** shelf.
9. For the filter, under List, select **Custom value list**.
10. Enter **True**, then select **Add**.
11. Uncheck **Include all values when empty**.
12. Select **OK** to apply the filter.
13. On the Advanced Analytics Editor, select **Apply**.
14. Select **Save Definition**.

Implement row-level security

If you want your users to see data that's specific to them, for example, based on the organization they belong to or the region they sell in, you must implement row-level security for the data. There are a number of ways to implement row-level security for Tableau Cloud, depending on your goals and your data. For more information, see Overview of Row-Level Security Options in Tableau and Best Practices for Row Level Security with Entitlements Tables.

About Data Management

Important: As of September 16, 2024, Data Management is no longer available as an independent add-on option. Data Management capabilities are only available if you previously purchased Data Management, or if you purchase certain license editions - either Tableau Enterprise (for Tableau Server or Tableau Cloud) or Tableau+ (for Tableau Cloud).

Data Management is a collection of features and capabilities that helps customers manage Tableau content and data assets in their Tableau Server or Tableau Cloud environment.

Starting in Tableau Server 2019.1, Tableau Prep Conductor is available for on-premise Tableau Server deployments, and in version 2019.3, Tableau Prep Conductor is available for Tableau Cloud deployments. You can use Tableau Prep Conductor to schedule and monitor flows.

Starting in Tableau 2019.3, Tableau Catalog is included in Data Management, making a variety of additional features available to you in the data management space. You can use Tableau Catalog to discover data, curate data assets, communicate data quality, perform impact analysis, and trace the lineage of data used in Tableau content.

Starting in Tableau 2021.4, more governance and security features are added to Data Management: virtual connections and data policies. Using the virtual connection editor, you can create:

- Virtual connections that provide a sharable central access point to data.
- Data policies to apply row-level security at the connection level.

Data Management Features

The following table lists the features for Data Management, which include:

- Tableau Catalog
- Tableau Prep Conductor
- Virtual connections
- Data policies

Tableau Catalog

Feature	**Description**
Permissions on metadata	Tableau Catalog enables you to control who can see and manage external assets and what metadata is shown through lineage by setting permissions.
Expanded connect experience - data discovery	Whether you author in the web or in Tableau Desktop, you can now search for and connect to the specific databases and tables used by published data sources and workbooks on your Tableau Server or Tableau Cloud site.
Expanded search	Tableau Catalog expands search to include results based on columns, databases, and tables.
Tag external assets	You can categorize items on Tableau Server and Tableau Cloud with tags, helping users to filter external assets (databases, files, tables, and columns).
Certify databases and tables	Help users find trusted data that meets the standards you set by certifying databases and tables.
Set data quality warnings	You can set warnings to alert users to data quality issues, such as stale or deprecated data.
Lineage and impact analysis	The Lineage tool traces the source of your data. You can use it to analyze the impact of changes to your data, identify which users might be impacted, and email owners of a workbook, data source, or flow, or contacts for a database or table, about data-related updates.
Data Details	Enable users to better understand a published visualization by seeing information about the data used.

Feature	Description	
Add descriptions to assets	Help users find the data they're looking for by adding descriptions to databases, tables, and columns.	
Developer resources	Tableau REST API - metadata methods	Programmatically add, update, and remove external assets; and add additional metadata to Tableau content and external assets like descriptions.
	Tableau Metadata API	Programmatically query metadata from the content published to Tableau Server or Tableau Cloud. Programmatically update certain metadata using the metadata methods in the Tableau Server REST API. **Note:** The Metadata API does not require Data Management.
	GraphiQL	Explore and test queries against the Metadata API schema using an interactive in-browser tool called GraphiQL. **Note:** GraphiQL does not require Data Management.

Tableau Prep Conductor

Feature	Description
Schedule Flow Tasks in the Tableau Cloud or Tableau Server help.	You can create scheduled flow tasks to run a flow at a specific time or on a recurring basis.
Monitor Flow Health and Performance	Set up email notifications at the site or server level when flows fail, view and resume suspended flow tasks, and view errors and alerts.
Administrative Views for Flows	Use Administrative Views to monitor the activities related to flows, performance history, and the disk space used at the

Feature	Description
	server or site level.
Tableau REST API - flow methods	Programmatically schedule flows.

Virtual connections and data policies

Feature	Description
Create a Virtual Connection	A Tableau content type that enables you to create a shareable re-usable connection to curated data.
Create a Data Policy for Row-Level Security	Use the virtual connection editor to create data policies with policy conditions that apply row-level security to the data at the connection level.
Test Row-Level Security with Preview as User	Test the data policy with Preview as user to ensure that users can see only their data.
Schedule Extract Refreshes for a Virtual Connection	Create an extract refresh schedule for the tables in your connection, ensuring that the data is fresh for any content that uses that virtual connection.

License Data Management

Important: As of September 16, 2024, Data Management is no longer available as an independent add-on option. Data Management capabilities are only available if you previously purchased Data Management, or if you purchase certain license editions - either

Tableau Enterprise (for Tableau Server or Tableau Cloud) or Tableau+ (for Tableau Cloud).

Data Management includes Tableau Catalog, Tableau Prep Conductor, virtual connections, and data policies and is available when you purchase Tableau Enterprise or Tableau+. Contact your account manager (or go to the Tableau pricing page) for more information.

Tableau Prep Conductor

When you purchase Tableau Enterprise or Tableau+ licenses, Prep Conductor is automatically enabled on your Tableau Cloud site. For more information, see Enable Tableau Prep Conductor on your Tableau Cloud Site.

- At least one resource block is required to use Tableau Prep Conductor in Tableau Cloud. To learn more about resource blocks, see Resource Blocks.
- When Data Management is active and enabled, you can schedule flows in Tableau Server or Tableau Cloud and monitor flows.
- When Data Management is removed or deactivated, or if the Data Management license expires, then the ability to schedule flows is disabled.
- If your Tableau Server or Tableau Cloud license is still active and valid, you can download the flows using the Tableau Server REST API. For more information, see Flow Methods.

Tableau Catalog

When you purchase Tableau Enterprise or Tableau+ licenses, Catalog is automatically enabled.

- When Data Management is active and enabled, you can use Tableau Catalog to discover data, curate data assets, perform impact analysis, and trace the lineage of data used in Tableau content.
- When Data Management is removed, deactivated, or the license expires, the information remains on the server. The Tableau Catalog-specific information is then only accessible using the Tableau Metadata API; it no longer appears in the product. For more information, see the Metadata API.

- When Data Management is removed, deactivated, or the license expires, the write APIs for all new Tableau Catalog information (for example, table descriptions, data quality warnings, column descriptions) are disabled. You can still read information using the Metadata API, however permissions on tables and databases can’t be explicitly managed in the product.

Virtual connections and data policies

When you purchase Tableau Enterprise or Tableau+ licenses, virtual connections and data policies are automatically enabled on your Tableau Cloud site.

After you purchase and license Data Management for Tableau, virtual connections and data policies are automatically enabled.

- When Data Management is active and enabled, you can use virtual connections to create sharable resources that provide a central access point to data. You can also create data policies that enable you to filter data for users using centralized row-level security.
- When Data Management is removed, deactivated, or the license expires, the information remains on the server but is not accessible.
- When Data Management is reactivated, the information is restored on the server and becomes accessible.

Resource Blocks

Resource Blocks are units of compute capacity in Tableau Cloud. Resource Blocks run Tableau Prep Conductor flows. Each Resource Block can run one flow at a time so the number of flows you can run concurrently is equal to the number of Resource Blocks that you have.

When you license Data Management for Tableau Cloud, you must purchase at least one Resource Block. To purchase more Resource Blocks, contact your account manager (or go to the Tableau pricing page for more information).

Tableau Prep Conductor

Tableau Prep Conductor enables you to leverage the scheduling and tracking functionality available in Tableau Cloud to run your flows automatically to update the flow output. Tableau Prep Conductor is part of Data Management and must be enabled to schedule your flows to run.

> **Note**: The Data Management is only required if you plan to run flows on a schedule or set up email notifications. You do not need the Data Management license to publish flows and manually run them on the web. As a Creator, you can also create and edit flows directly on your server. For more information authoring flows on the web, see Tableau Prep on the Web.

Flows created in Tableau Prep Builder must be published to Tableau Cloud before they can be scheduled to run. Publishing flows is similar to publishing data sources and workbooks. You can package files with the flow or specify a direct connection to data sources to update the flow input as data changes. If your flow connects to databases, specify the authentication type and set credentials to access the data.

You can also publish a flow to share it with others or to continue editing it on the web. For example, publish an incomplete flow to Tableau Cloud and then open the flow on the web in Edit mode to continue working on it. You could also create a flow with only Input steps (that are properly configured) and share it with co-workers who can then download the flow to their computers and create and publish their own flows.

For flows to run they must include output steps and have no errors or incompatible features. For more information about publishing a flow, see Publish a Flow to Tableau Server or Tableau Cloud. For more information about incompatibility, see Version Compatibility with Tableau Prep.

The following table shows the flow management features that are available with and without the Data Management and Tableau Prep Conductor enabled.

Data Management with Tableau Prep Conductor enabled	No Data Management
• View and monitor the details about your flow, including recent activity in the **Content** pages. • Edit your flow (starting in version 2020.4). • View the results of the flow runs and any errors in the **Run History** tab. • Use **Administrative Views** to monitor server and site activity including a new view that tracks flow performance history. • Run flows using REST API • View detailed alerts for failed flow runs. • Set up email notification alerts to send emails to flow owners notifying them when the flow failed to run and why. For more information about setting up alerts, see Monitor Flow Health and Performance.	• View the details about your flow, including recent activity in the **Content** pages. • Edit your flow (starting in version 2020.4). • View and edit your connections on the **Connections** tab.

Enabling Tableau Prep Conductor on Tableau Cloud

After you purchase and license Data Management, you must enable Prep Conductor on Tableau Cloud. For more information, see Enable Tableau Prep Conductor on your Tableau Cloud Site and License Data Management

About the Flow Workspace

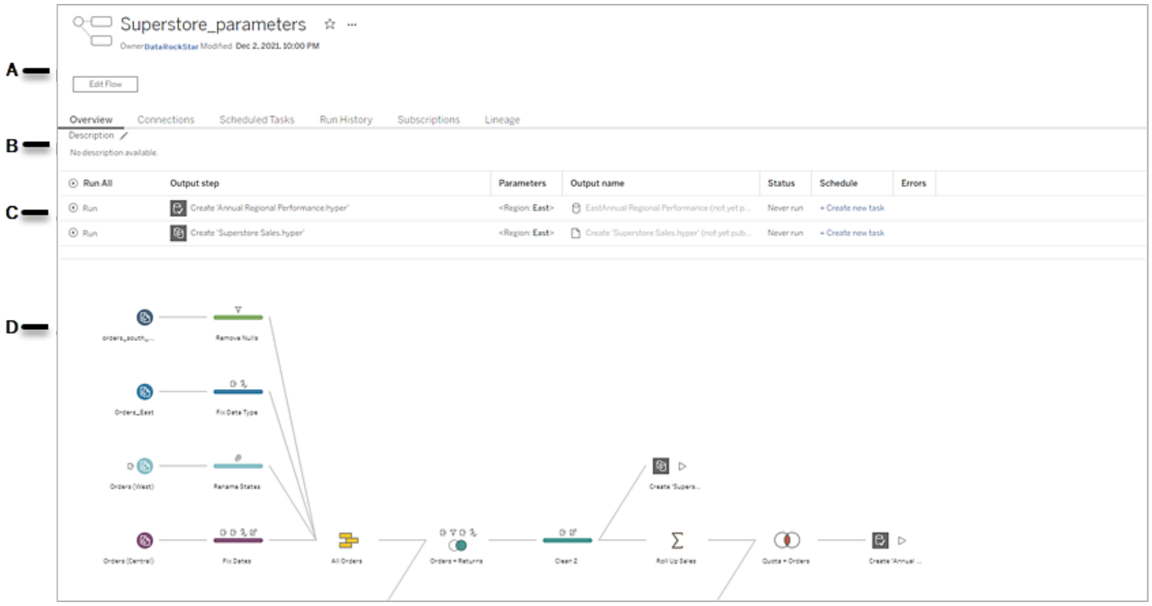
After you publish your flow you can schedule tasks or linked tasks (version 2021.3 and later) in Tableau Cloud to automatically run your flows on a regular basis to keep your output data fresh. You can also run your flows manually at any time (no Data Management required).

Tableau Prep Conductor leverages much of the same functionality for managing flows that you might see when managing workbooks or data sources from Tableau Desktop in Tableau Cloud. For example, just like extract refreshes, scheduled flow tasks and on-demand flow runs are queued as background tasks. But when it comes to working with flows, there are a few differences.

Flow Overview page

The flow **Overview** page is the main landing page where you can view data about your flow and schedule, monitor, and maintain the flow. If you don't have the Data Management, you will have different options.

Open the flow **Overview** page by clicking on a flow in your list. You can navigate there from **Content** > **Explore** > **All Flows** or by opening the project that contains your flows.


A
B
C
D
☆ ···
Edit Flow
Overview
Connections
Scheduled Tasks
Run History
Subscriptions
Lineage
orders_south_...
Remove Nulls
Orders_East
Fix Data Type
Orders (West)
Rename States
Orders (Central)
Fix Dates
All Orders
Orders + Returns
Clean 2
Create 'Supers...
Roll Up Sales
Quota + Orders
Create 'Annual ...

Superstore_parameters

Owner DataRockStar Modified Dec 2, 2021, 10:00 PM

Description

No description available.

⦿ Run All	Output step	Parameters	Output name	Status	Schedule	Errors
⦿ Run	Create 'Annual Regional Performance.hyper'	<Region: East>	EastAnnual Regional Performance (not yet p...	Never run	+ Create new task	
⦿ Run	Create 'Superstore Sales.hyper'	<Region: East>	Create 'Superstore Sales.hyper' (not yet pub...	Never run	+ Create new task	

A. The header lists the name of the flow, the flow owner and the date that the flow was last modified. Starting in version 2020.4, click **Edit** to edit existing flows.

Add a flow to your favorites, or from the **More actions** ••• menu you can also edit, run, download the flow, set permissions, change the flow owner, restore previous flow versions, and more.

B. View and edit the flow description and set tags to help others find the flows they are looking for.

C. View the output steps for a flow along with any parameters applied to the flow (version 2021.4 and later), the status of the last update, any schedule the output is assigned to, and any errors from the last flow run. You can also click the **Run** ▶ button to run all output steps or individual output steps on-demand.

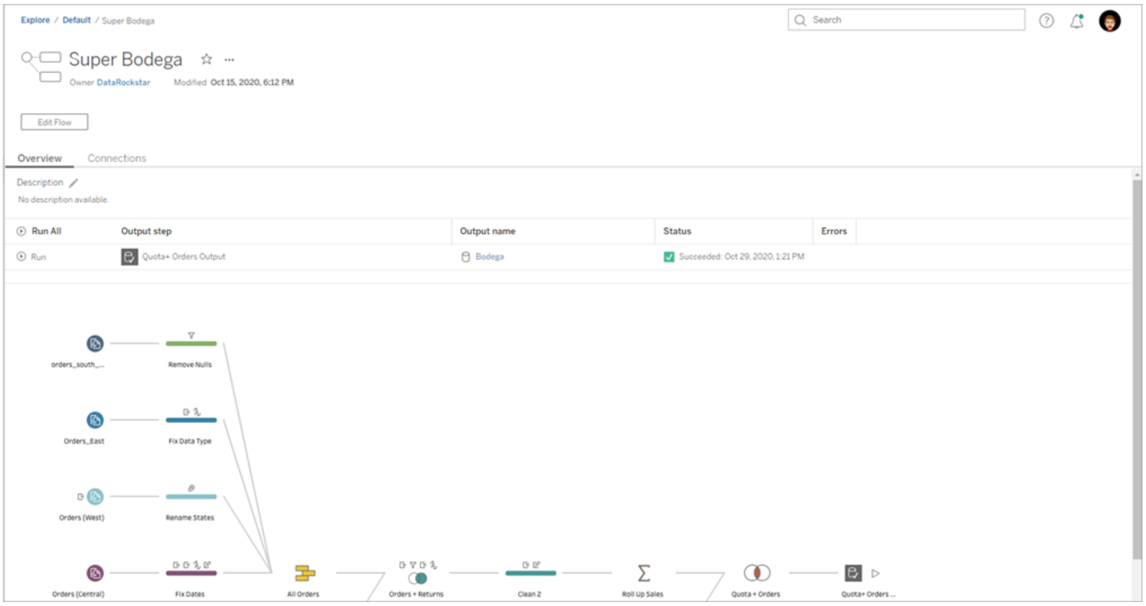
Parameters	If the flow includes user parameters, the parameter value last run in the flow is shown and you can see all generated outputs in the **Output** column. When the flow is run, you'll be prompted to enter the parameter values. System parameters (version 2023.2 and later) are automatically generated at flow run time and the type of system parameter is shown in the **Parameters** column. To see the last system parameter value applied to the flow, edit the flow. For more information about using parameters in flows, see Create and Use Parameters in Flows in the Tableau Prep help.
Status	After a flow has run successfully, outputs that are data sources become links that you can click to open the **Data Source** page to view more information about the data source or edit the flow input connection.
Schedule	In the **Schedule** field, view the scheduled tasks that the output step is assigned to. A flow output can be assigned to one or more tasks.

	If no schedule has been assigned yet, click **Create new task** to add the output step to a schedule. To immediately run the flow to update a specific output step, click the **Run** ▶ button on the left-hand side of the row.
Errors	If the flow has errors, the flow run will fail. Connectivity errors can be resolved directly by navigating to the **Connections** tab for the flow and editing the input connections. To resolve any other flow errors, edit the flow then republish it and try running the flow again. If you are using an earlier version of Tableau Prep Builder, from the **More actions** ··· menu, you can also download and open the flow in Tableau Prep Builder, then republish it and try running the flow again.

D. View an image of the flow.

Flow Overview page without the Data Management

If you don't have the Data Management installed on your server, you can still publish flows to Tableau Cloud, but you will see fewer options to manage your flow.


Explore / Default / Super Bodega
Search
Super Bodega
Owner DataRockstar
Modified Oct 15, 2020, 6:12 PM
Edit Flow
Overview
Connections
Description
No description available.
orders_south_...
Remove Nulls
Orders_East
Fix Data Type
Orders (West)
Rename States
Orders (Central)
Fix Dates
All Orders
Orders + Returns
Clean 2
Roll Up Sales
Quota + Orders
Quota+ Orders ...

○ Run All	Output step	Output name	Status	Errors
○ Run	Quota+ Orders Output	Bodega	✓ Succeeded: Oct 29, 2020, 1:21 PM	

Flow Connections page

View both the input and output locations for a flow, connection types, authentication settings, input and output steps and any connectivity errors. You can set authentication settings when publishing a flow. For more information, see Publish a Flow.

For database input types, click the **More actions** ••• menu for an input connection to edit the connection and change the server name, port, user name and password.

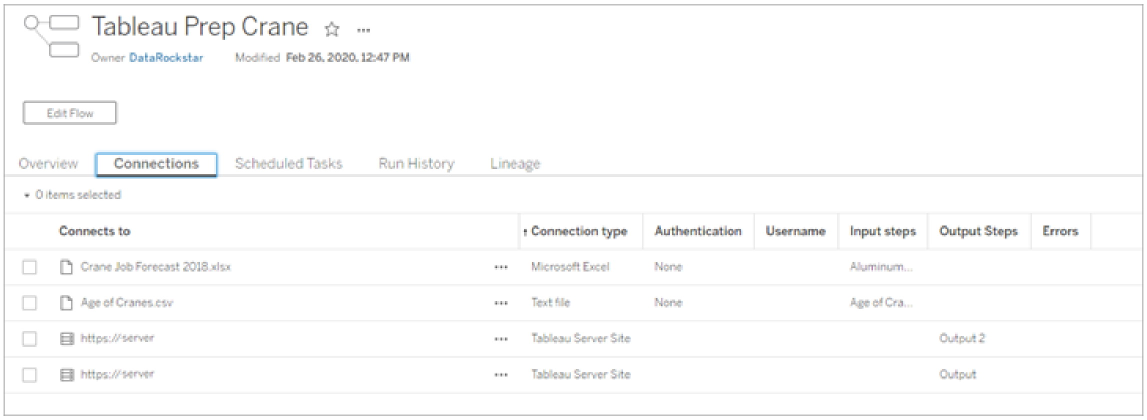


Tableau Prep Crane
Owner DataRockstar
Modified Feb 26, 2020, 12:47 PM
Edit Flow
Overview
Connections
Scheduled Tasks
Run History
Lineage
0 items selected

	Connects to		Connection type	Authentication	Username	Input steps	Output Steps	Errors
☐	Crane Job Forecast 2018.xlsx	•••	Microsoft Excel	None		Aluminum...		
☐	Age of Cranes.csv	•••	Text file	None		Age of Cra...		
☐	https://server	•••	Tableau Server Site				Output 2	
☐	https://server	•••	Tableau Server Site				Output	

Flow Scheduled Tasks page (Data Management required)

View any schedules that the flow is assigned to, the outputs that are included in those schedules, and any parameters applied to the flow (version 2021.4 and later). As an administrator, you can click the schedule link to open the **Schedules** page and see a list of flows that are assigned to that schedule. For more information about assigning flows to a schedule, see *Schedule Flow Tasks* in the Tableau Cloud or Tableau Server help.

To view the outputs on a schedule or the tasks assigned to a linked task (version 2021.3 and later), click the links in the **Schedule type** column.

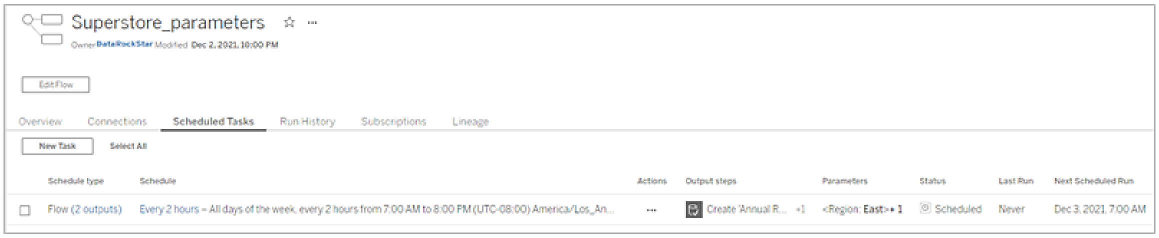
You can also add new tasks or manage existing ones from this page. To take action on an existing task, select the check box on a task card then click the **Actions** drop-down menu to run, edit, or delete the task.

If a flow task fails to run after 5 consecutive attempts, the flow is automatically suspended.

You can see that status on the **Overview** tab as well as this tab. You can resume suspended tasks from this menu.

For more information about suspended flow tasks, see View and resolve errors.

> **Note**: The Scheduled Tasks page for flows was redesigned in version 2021.3. Your view may look different depending on your server version.



Superstore_parameters

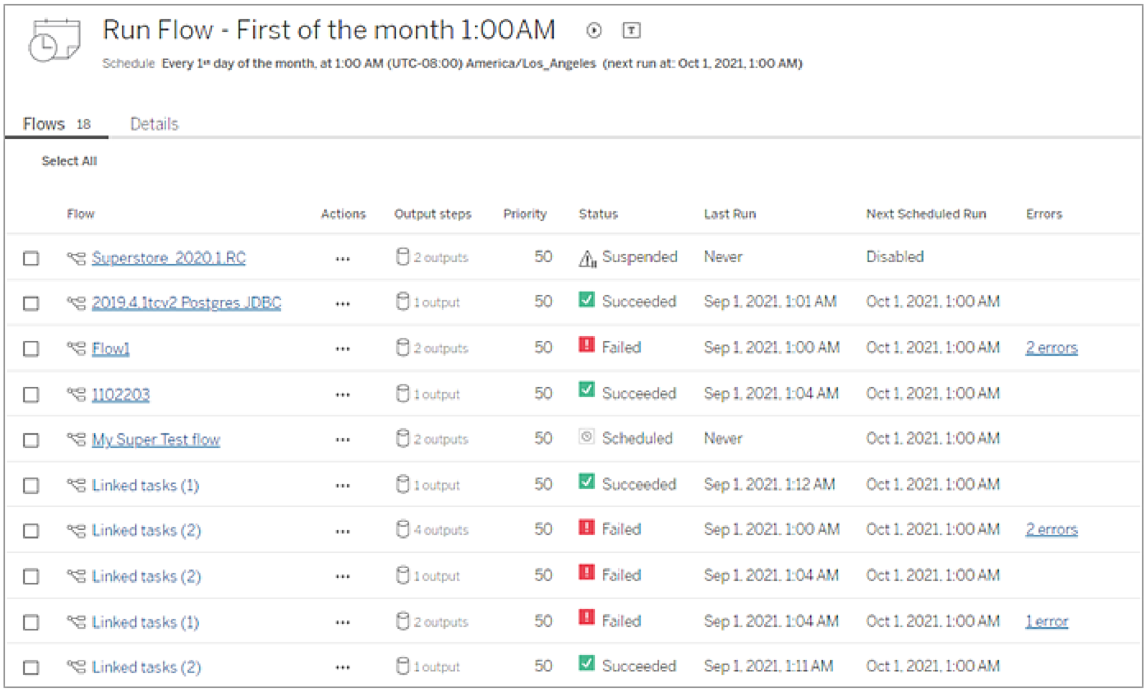
Owner DataRockStar Modified Dec 2, 2021, 10:00 PM

	Schedule type	Schedule	Actions	Output steps	Parameters	Status	Last Run	Next Scheduled Run
☐	Flow (2 outputs)	Every 2 hours – All days of the week, every 2 hours from 7:00 AM to 8:00 PM (UTC-08:00) America/Los_An...	···	Create 'Annual R... +1	<Region: East>+ 1	Scheduled	Never	Dec 3, 2021, 7:00 AM

Schedules page

On the **Schedules** page, you can view the flows assigned to a schedule and the details about the flow runs. If the schedule includes linked tasks (version 2021.3 and later) the number of flows included in the linked tasks is shown.

You can run the schedule on-demand and run all flows assigned to it. You can also select one or more flows, then use the **Actions** menu to change the flow schedule or priority, delete selected flows from the schedule or resume suspended flows.



Run Flow - First of the month 1:00AM

Schedule Every 1st day of the month, at 1:00 AM (UTC-08:00) America/Los_Angeles (next run at: Oct 1, 2021, 1:00 AM)

	Flow	Actions	Output steps	Priority	Status	Last Run	Next Scheduled Run	Errors
☐	Superstore_2020.1.RC	...	2 outputs	50	⚠ Suspended	Never	Disabled	
☐	2019.4.1tcv2 Postgres JDBC	...	1 output	50	✓ Succeeded	Sep 1, 2021, 1:01 AM	Oct 1, 2021, 1:00 AM	
☐	Flow1	...	2 outputs	50	! Failed	Sep 1, 2021, 1:00 AM	Oct 1, 2021, 1:00 AM	2 errors
☐	1102203	...	1 output	50	✓ Succeeded	Sep 1, 2021, 1:04 AM	Oct 1, 2021, 1:00 AM	
☐	My Super Test flow	...	2 outputs	50	◎ Scheduled	Never	Oct 1, 2021, 1:00 AM	
☐	Linked tasks (1)	...	1 output	50	✓ Succeeded	Sep 1, 2021, 1:12 AM	Oct 1, 2021, 1:00 AM	
☐	Linked tasks (2)	...	4 outputs	50	! Failed	Sep 1, 2021, 1:00 AM	Oct 1, 2021, 1:00 AM	2 errors
☐	Linked tasks (2)	...	1 output	50	! Failed	Sep 1, 2021, 1:04 AM	Oct 1, 2021, 1:00 AM	
☐	Linked tasks (1)	...	2 outputs	50	! Failed	Sep 1, 2021, 1:04 AM	Oct 1, 2021, 1:00 AM	1 error
☐	Linked tasks (2)	...	1 output	50	✓ Succeeded	Sep 1, 2021, 1:11 AM	Oct 1, 2021, 1:00 AM	

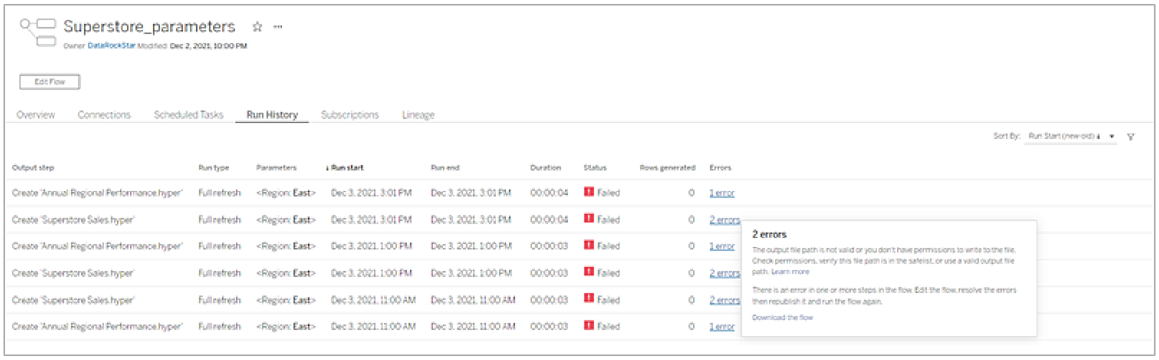
Flow Run History (Data Management required)

See, search, and sort through a list of historical runs for a flow. This page also includes details about the flow run such as run type, parameter values applied to flows included in each flow run (version 2021.4 and later), duration and number of rows that were generated.

If the flow output has an error, hover over the error to view the messages. If applicable, click the **Go to Connections** link in the error message to navigate to the **Connections** page to fix connectivity errors. You can also edit the flow directly to fix any errors, or click **Download the**

flow to download and fix flow errors in Tableau Prep Builder, then republish the flow to continue to manage it using Tableau Prep Conductor.

> **Note**: The run history for a flow will persist unless the flow is deleted.



Superstore_parameters

Owner DataRockStar Modified Dec 2, 2021, 10:00 PM

Output step	Run type	Parameters	Run start	Run end	Duration	Status	Rows generated	Errors
Create 'Annual Regional Performance.hyper'	Full refresh	<Region: East>	Dec 3, 2021, 3:01 PM	Dec 3, 2021, 3:01 PM	00:00:04	Failed	0	1 error
Create 'Superstore Sales.hyper'	Full refresh	<Region: East>	Dec 3, 2021, 3:01 PM	Dec 3, 2021, 3:01 PM	00:00:04	Failed	0	2 errors
Create 'Annual Regional Performance.hyper'	Full refresh	<Region: East>	Dec 3, 2021, 1:00 PM	Dec 3, 2021, 1:00 PM	00:00:03	Failed	0	1 error
Create 'Superstore Sales.hyper'	Full refresh	<Region: East>	Dec 3, 2021, 1:00 PM	Dec 3, 2021, 1:00 PM	00:00:03	Failed	0	2 errors
Create 'Superstore Sales.hyper'	Full refresh	<Region: East>	Dec 3, 2021, 11:00 AM	Dec 3, 2021, 11:00 AM	00:00:03	Failed	0	2 errors
Create 'Annual Regional Performance.hyper'	Full refresh	<Region: East>	Dec 3, 2021, 11:00 AM	Dec 3, 2021, 11:00 AM	00:00:03	Failed	0	1 error

2 errors

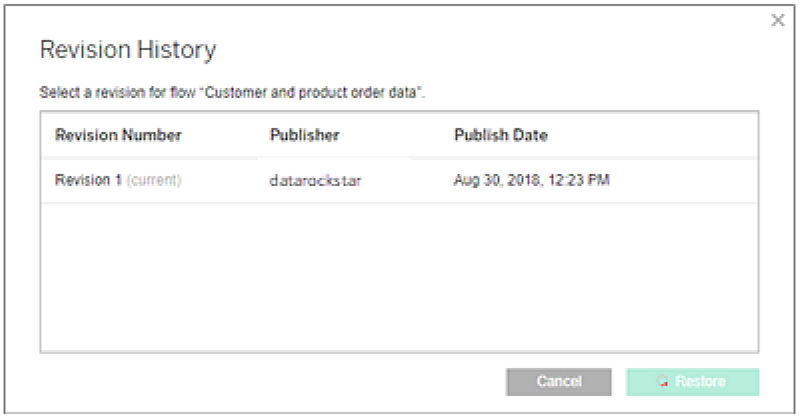
The output file path is not valid or you don't have permissions to write to the file. Check permissions, verify this file path is in the safelist, or use a valid output file path. Learn more

There is an error in one or more steps in the flow. Edit the flow, resolve the errors then republish it and run the flow again.

Download the flow

Flow Revision History

If you need to revert a flow to a previous version, from the **More actions** ••• menu for the flow, select **Revision History**. On the **Revision History** dialog, select the flow version from the list that you want to revert to.



Revision History

Select a revision for flow "Customer and product order data".

Revision Number	Publisher	Publish Date
Revision 1 (current)	datarockstar	Aug 30, 2018, 12:23 PM

Who can do this

Server Administrators can activate Data Management license keys.

Server administrators can enable Tableau Prep Conductor.

Creators can create, edit, and run flows manually. If the Data Management is installed, creators can run flows on a schedule.

Enable Tableau Prep Conductor on your Tableau Cloud Site

Prep Conductor is automatically enabled on your Tableau Cloud site after you purchase Data Management. For information on how to purchase Data Management, contact your account manager.

Verify Tableau Prep Conductor is enabled

1. From Tableau Prep Builder, sign in to Tableau Cloud by selecting **Server** >**Sign In**.

   If your site is set up to use Tableau authentication, enter your user name (email address) and password you use for Tableau Cloud, and then click Sign In. If multi-factor authentication (MFA) is enabled with Tableau authentication, you are prompted to verify your identity using the verification you selected during the MFA registration process. If you are signing in to Tableau Cloud or registering for MFA for the first time, see Register for multi-factor authentication.

   After verifying your identity, you are redirected to your site.

2. Open any of your flows.

3. Verify if there is a **Scheduled Tasks** tab. If the tab is there, then Prep Conductor is enabled.

Schedule Flow Tasks

> **Note**:Flows can be scheduled to run on Tableau Cloud or Tableau Server using Tableau Prep Conductor. Prep Conductor is licensed through Data Management on a per deployment basis. After you purchase and license Data Management, you must enable Prep Conductor.
> Starting in version 2020.4.1, you no longer need the Data Management license to publish

> flows to the web. As a Creator, you can also create and edit flows directly on your server. For more information authoring flows on the web, see Tableau Prep on the Web.

Note: With the 2024.1 release, changes were introduced for flow schedules on Tableau Cloud. The Schedules tab on the left navigation pane has been removed and users with permissions to schedule flow tasks can now create custom schedules directly from the flows Scheduled Tasks tab.

Starting in version 2021.3, you can link flow runs together when scheduling tasks to run flows one after the other. For more information, see Schedule linked tasks in this topic.

Starting in version 2022.1, you can also run linked tasks via the REST API using the new flow methods **Query Linked Tasks**, **Query Single Linked Tasks**, and **Run Linked Task Now**. For more information, see Flow Methods in the Tableau REST API help.

Running flows that include parameters

Starting in version 2021.4, you can include user parameters in your flows to make flows more dynamic. When the flow runs, you are prompted to enter your parameter values. When setting up flows on a schedule, you specify parameter values at that time.

You must specify the parameter values for any required parameters. For optional parameters, you can enter those values as well, or accept the current (default) value for the parameter. For more information about running flows with parameters, see Run flows on a schedule in the Tableau Prep help.

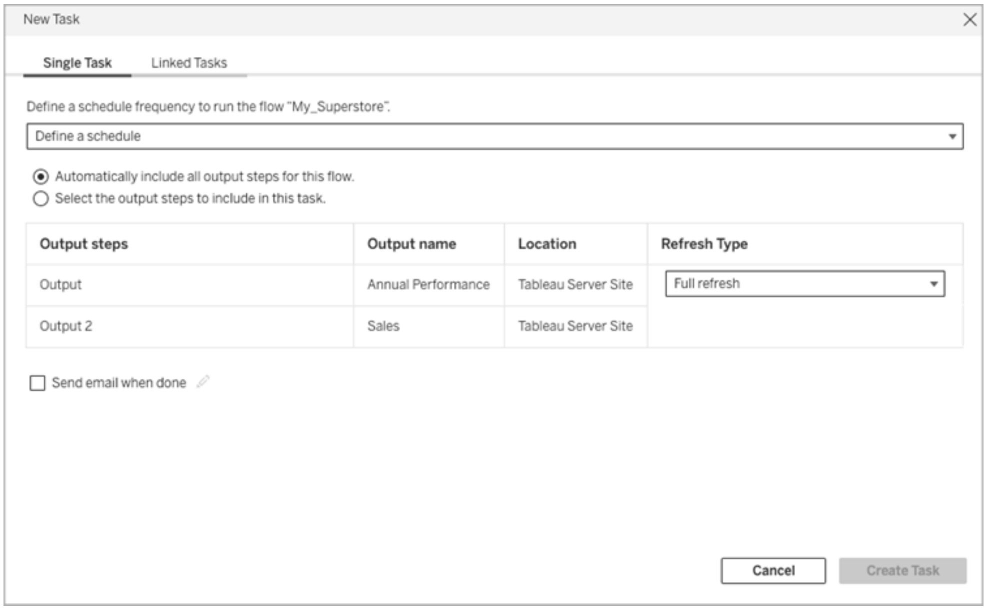
Starting in Tableau Prep Builder and Tableau Cloud version 2023.2, you can apply date or time system parameters to flow output names for file and published data source output types. The start time is automatically added to the flow output name.

> **Note**: Your administrator must enable the **Flow Parameter** server and site settings on your server before you can run flows that include parameters in Tableau Server or

Tableau Cloud. For more information, see **Create and Interact with Flows on the Web** in the Tableau Server or Tableau Cloud help.

Schedule a flow task

1. To create a schedule for a single task, do one of the following:
    - From the Overview page for the flow, click the Scheduled Tasks tab, click **New Task** or click the drop-down and select **Single Task**.



Define a schedule frequency to run the flow "My_Superstore".

Define a schedule

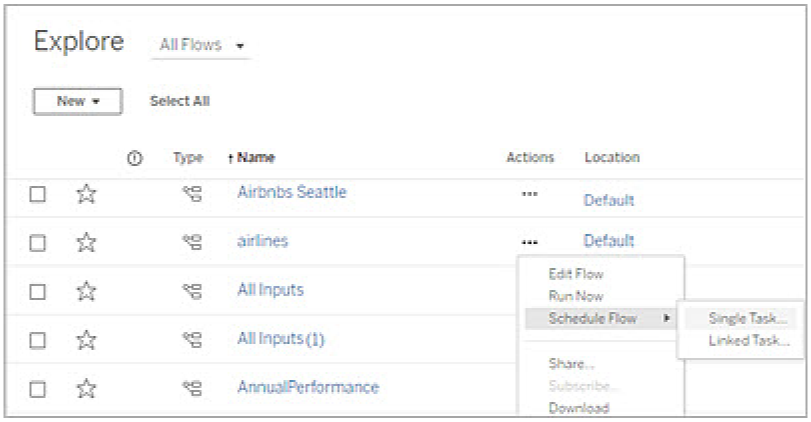
● Automatically include all output steps for this flow.
○ Select the output steps to include in this task.

Output steps	Output name	Location	Refresh Type
Output	Annual Performance	Tableau Server Site	Full refresh
Output 2	Sales	Tableau Server Site	

☐ Send email when done

    - From the **Explore** page, in **List** view, in the **Actions** menu, select **Schedule Flow** > **Single Task**. If you select a flow in the list, you can also use the top

Actions menu.

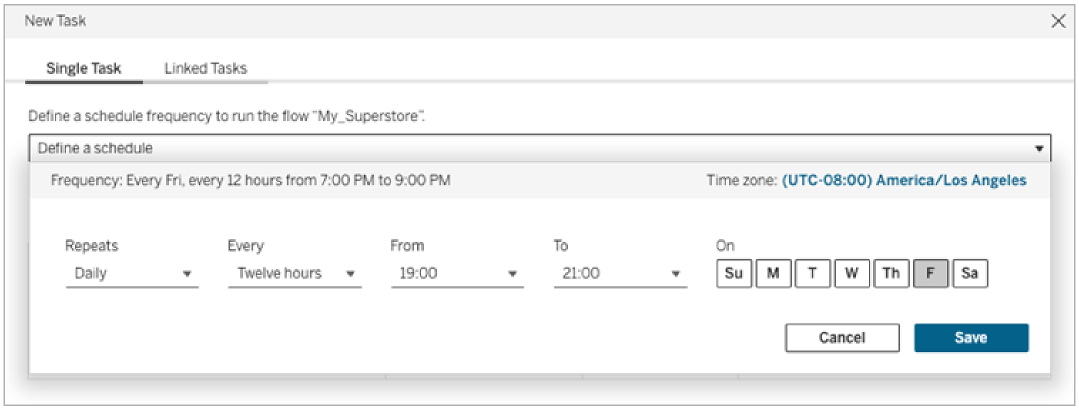

Explore
All Flows
New
Select All
Edit Flow
Run Now
Schedule Flow
Single Task...
Linked Task...
Share...
Subscribe...
Download

Type	Name	Actions	Location
	Airbnbs Seattle	...	Default
	airlines	...	Default
	All Inputs		
	All Inputs (1)		
	AnnualPerformance		

2. On the Single Task tab of the New Task dialog, click **Define a schedule**.

3. Click **Time zone**. You are directed to the settings page. Scroll to Time Zone for Scheduled Tasks, select a time zone, then click **Save Changes**.

4. Enter the frequency of the task, then click **Save**.


New Task
Single Task
Linked Tasks
Su
M
T
W
Th
F
Sa
Cancel
Save

Define a schedule frequency to run the flow "My_Superstore".

Define a schedule

Frequency: Every Fri, every 12 hours from 7:00 PM to 9:00 PM

Time zone: (UTC-08:00) America/Los Angeles

Repeats: Daily

Every: Twelve hours

From: 19:00

To: 21:00

On: F

You can set the frequency to run hourly, daily, weekly or monthly. The time and day intervals depend on the repeat frequency that you select as described below:

- **Hourly**: The available frequency is every hour from a specific time to a specific time. This means that the task will run every hour during the specified time.
- **Daily**: The available frequencies are every two, four, six, eight, or twelve hours, or just once a day. You can also choose one or more days of the week, in addition to

start and end times. This means you can run a task on all or certain days of the week at specific hourly intervals or once a day.
- **Weekly**: The available frequency is one or more days of the week at a specific time. This means you can run the task on certain days of the week, once a week at a certain time.
- **Monthly**: You can set this up in two different ways:
  - You can select **Day** as the frequency interval which then allows you to select specific dates of the month. For example you can select the task to run on the 2nd, 15th and 28th of every month at 2:45 pm.
  - You can also choose the first, second, third, fourth, fifth, and the last day of the week at a specific time. For example you can choose to run the task every second Wednesday of the month at 2:45 pm.

5. Select one of the following options:
   - **Automatically include all output steps for this flow:**(default) Select this option to include all current and future output steps for this flow in the scheduled task. As new output steps are added to the flow over time, they’re automatically included in the schedule when it runs.
   - **Select the output steps to include in this task**: Select this option and manually select the output steps to include in this scheduled task.

     To include all output steps in the flow task, select the check box next to **Output Steps**. This area can't be edited if the **Automatically include all output steps for this flow** radio button is selected. Select the other radio button to enable this section.

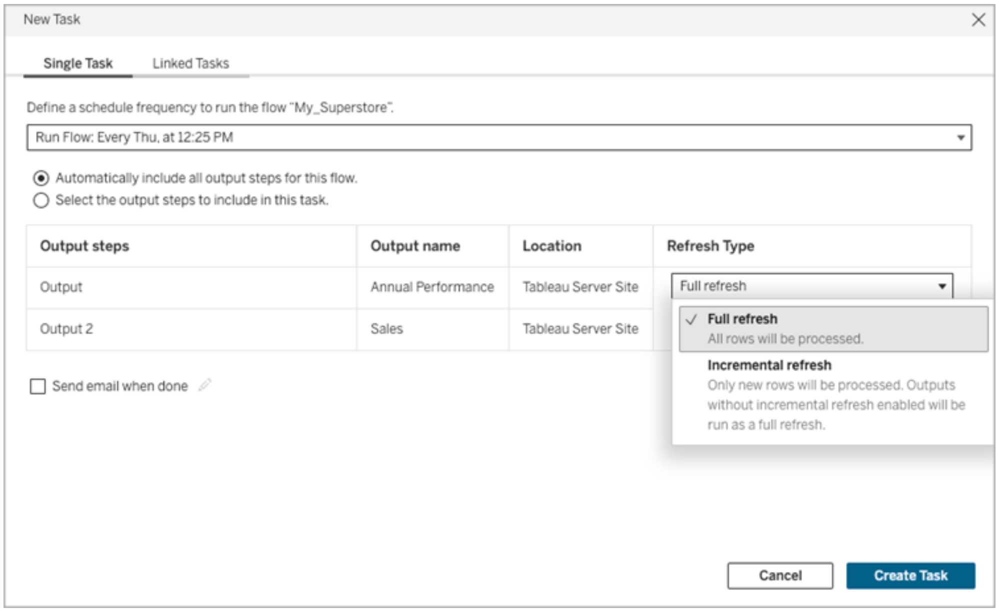
6. Select a **Refresh Type**. For more information about these settings, see Refresh Flow Data Using Incremental Refresh.

   > **Note**: If one input is configured to use incremental refresh and it’s associated with multiple outputs, those outputs must be run together and must use the same refresh type. Otherwise the flow fails.

   - **Full refresh** (default): Refresh all data and create or append data to your table based on the flow output setting.

- **Incremental refresh**: Refresh only the new rows and create or append data to your table based on the flow output setting. The incremental refresh option is only available when the flow is configured to use this refresh type.

  Note: Tableau Prep Conductor runs a full refresh for all outputs regardless of the run option you select if no existing output is found. Subsequent flow runs will use the incremental refresh process and retrieve and process only your new rows unless incremental refresh configuration data is missing or the existing output is removed.



Define a schedule frequency to run the flow "My_Superstore".

Run Flow: Every Thu, at 12:25 PM

● Automatically include all output steps for this flow.
○ Select the output steps to include in this task.

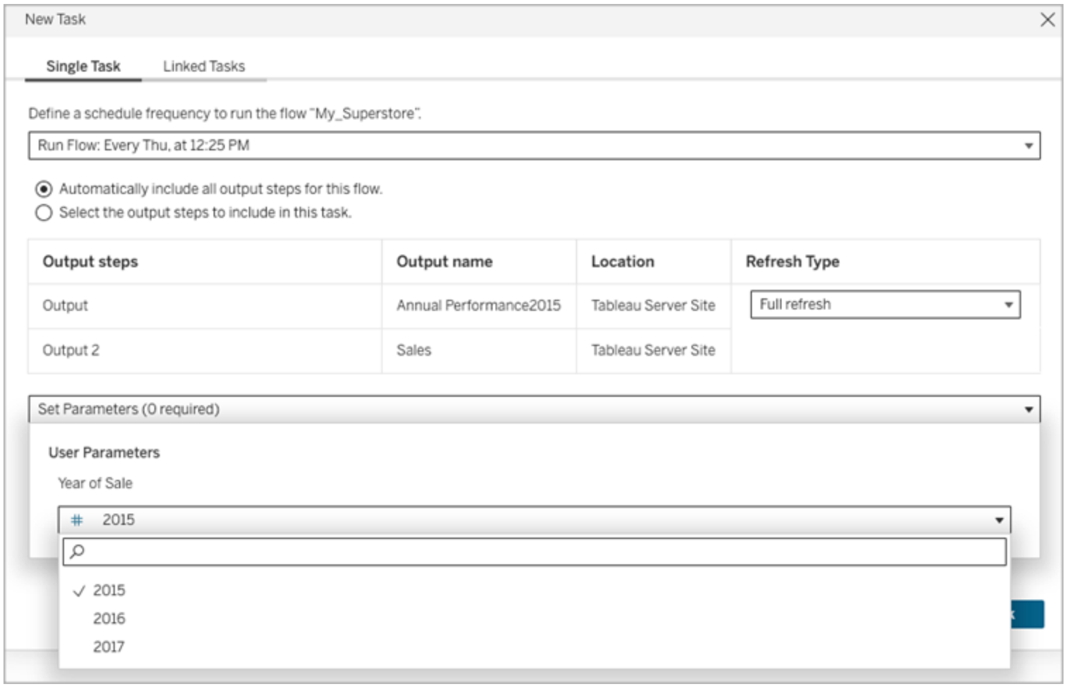
Output steps	Output name	Location	Refresh Type
Output	Annual Performance	Tableau Server Site	Full refresh
Output 2	Sales	Tableau Server Site	

✓ **Full refresh**
All rows will be processed.

Incremental refresh
Only new rows will be processed. Outputs without incremental refresh enabled will be run as a full refresh.

☐ Send email when done

7. (optional) If you’re the flow owner, select **Send email when done** to notify users when the flow is successful. For more information about how to send email notifications on flow runs, see Notify Users of Successful Flow Runs.
8. If your flows include parameters, enter any required or optional parameter values. You must enter required values for the flow to run.



Define a schedule frequency to run the flow "My_Superstore".

Run Flow: Every Thu, at 12:25 PM

● Automatically include all output steps for this flow.
○ Select the output steps to include in this task.

Output steps	Output name	Location	Refresh Type
Output	Annual Performance2015	Tableau Server Site	Full refresh
Output 2	Sales	Tableau Server Site	

Set Parameters (0 required)

User Parameters

Year of Sale

2015

✓ 2015
2016
2017

9. Click **Create Task** to create the scheduled task.

Schedule linked tasks

Supported in Tableau Server and Tableau Cloud version 2021.3.0 and later.

Note: Starting in version 2022.1, Linked tasks functionality is enabled by default. Server and Site Administrators can turn off this functionality on the **Settings** page and on flow schedules in the **Schedules** dialog. In previous versions, Server Administrators must first enable this functionality to use and manage it.

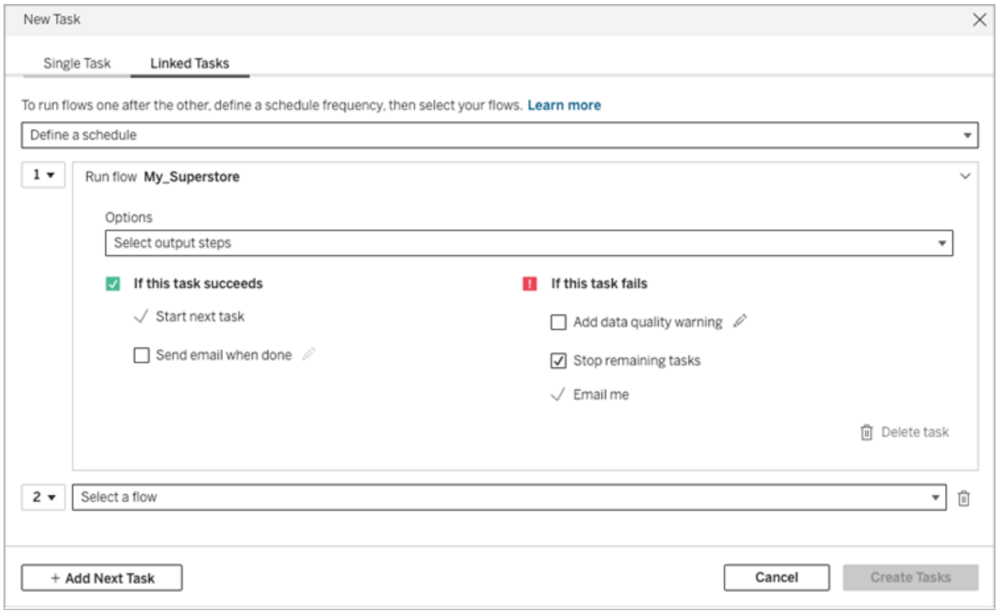
Use the **Linked Tasks** option to schedule up to 20 flows to run sequentially, one after the other. Easily set up your flow list by selecting your schedule, then select downstream flows to run in the order you choose.

Flows run in the order specified in the list. Use the menu to move flows around in your list or add new upstream or downstream flows to the list at any time.

The duration of each individual linked task is counted towards the total flow runtime limit. If the runtime limit is reached when a flow task is run, the flow task will timeout, the linked task fails, and any downstream flows won't run. For more information, see Job Runtime capacity.

Select the outputs that you want to include in the flow run and configure the settings to tell Tableau what to do with remaining flows in the schedule when the previous flow run fails.

1. To create a schedule for a linked task, do one of the following:
    - From the **Overview** page for the flow, **Scheduled Tasks** tab, click **New Task** and select the **Linked Task** tab, or click the drop-down and select **Linked Task**.



New Task

Single Task | **Linked Tasks**

To run flows one after the other, define a schedule frequency, then select your flows. **Learn more**

Define a schedule

1 Run flow **My_Superstore**

Options

Select output steps

☑ **If this task succeeds**

✓ Start next task

☐ Send email when done

If this task fails

☐ Add data quality warning

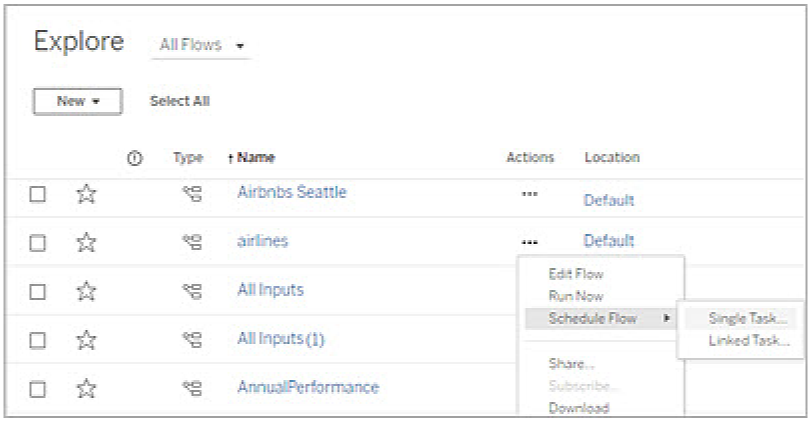
☑ Stop remaining tasks

✓ Email me

Delete task

2 Select a flow

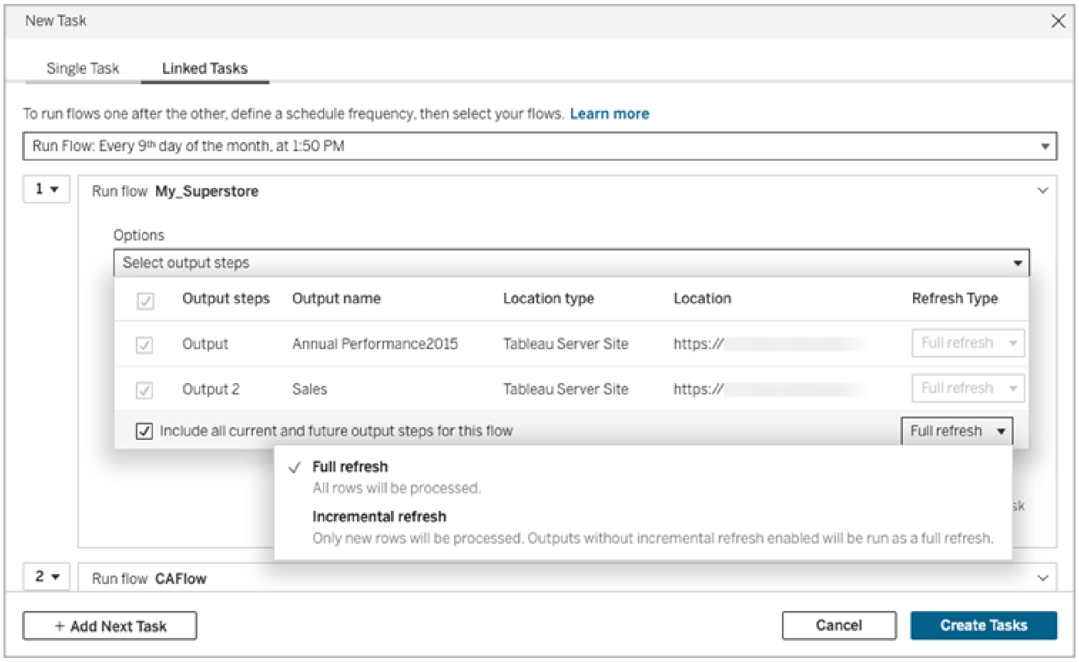
    - From the **Explore** page, in **List** view, in the **Actions** menu, select **Schedule Flow** > **Linked Task**. If you select multiple flows in the list, you can also use the top **Actions** menu.


Explore
All Flows
New
Select All
Type
Name
Actions
Location
Airbnbs Seattle
Default
airlines
Default
All Inputs
All Inputs (1)
AnnualPerformance
Edit Flow
Run Now
Schedule Flow
Single Task...
Linked Task...
Share...
Subscribe...
Download

If the output step isn't assigned to a task, you can also create a new task from the **Overview** page. On that page, in the **Schedules** field, click **Create new task**.

2. On the Linked Task tab of the New Task dialog, click **Define a schedule**.
3. Enter the frequency of the task, then click **Save**.
4. Click the **Select output steps** drop-down to select the flow outputs to run. By default, all flow outputs are included. To select specific outputs, clear the **Include all current and future output steps for this flow** check box.

   The flow where the task is initiated is automatically set as the first flow to run, but you can use the menu to change the run order after you add other flows to your list.



To run flows one after the other, define a schedule frequency, then select your flows. **Learn more**

Run Flow: Every 9th day of the month, at 1:50 PM

1 ▾ Run flow **My_Superstore**

Options

Select output steps

☑	Output steps	Output name	Location type	Location	Refresh Type
☑	Output	Annual Performance2015	Tableau Server Site	https://	Full refresh
☑	Output 2	Sales	Tableau Server Site	https://	Full refresh

☑ Include all current and future output steps for this flow — Full refresh

✓ **Full refresh**
All rows will be processed.

Incremental refresh
Only new rows will be processed. Outputs without incremental refresh enabled will be run as a full refresh.

2 ▾ Run flow **CAFlow**

5. Select your refresh type from the following options:

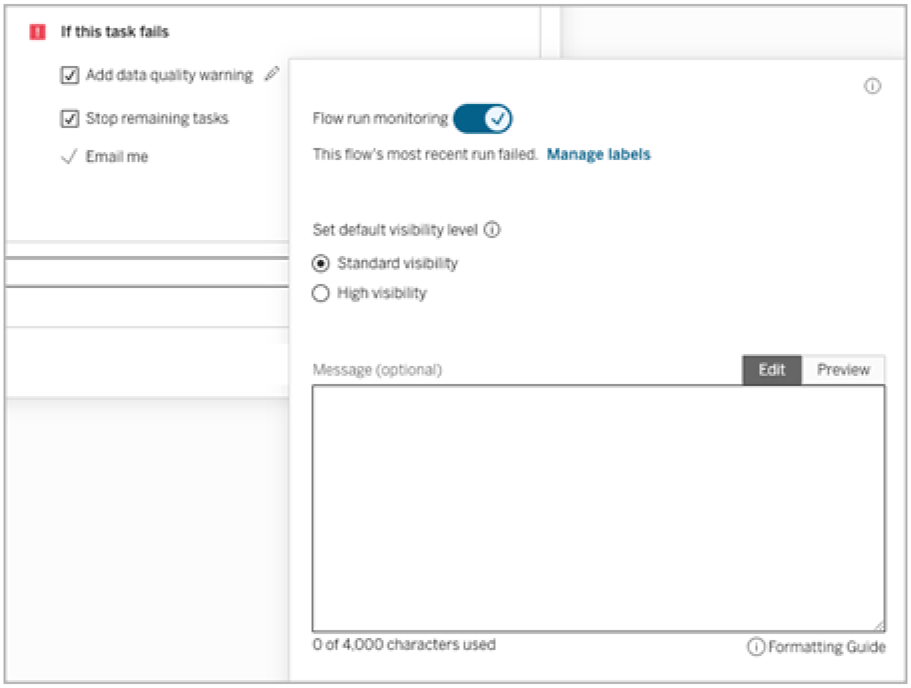
> **Note**: If one input is configured to use incremental refresh and it’s associated with multiple outputs, those outputs must be run together and must use the same refresh type. Otherwise the flow fails.

- **Full refresh** (default): Refresh all data and create or append data to your table based on the flow output setting.
- **Incremental refresh**: Refresh only the new rows and create or append data to your table based on the flow output setting. The incremental refresh option is only available when the flow is configured to use this refresh type. For more information, see Refresh Flow Data Using Incremental Refresh.

> **Note**: If no existing output is found, Tableau Prep Conductor runs a full refresh for all outputs regardless of the run option you select. Subsequent flow runs use the incremental refresh process and retrieve and process only

> your new rows unless incremental refresh configuration data is missing or the existing output is removed.

6. (optional) If you’re the flow owner, select **Send email when done** to notify users when the flow is successful. For more information about how to send email notifications on flow runs, see Notify Users of Successful Flow Runs.
7. Set your flow failure options:
    - **Add data quality warning**: Select the check box to set a warning message on the flow so that users of the data are aware of issues. The message remains until the flow runs successfully. If the flow already has a data quality warning, this option shows selected and can't be turned off.



If this task fails

☑ Add data quality warning

☑ Stop remaining tasks

✓ Email me

Flow run monitoring ✓

This flow's most recent run failed. Manage labels

Set default visibility level

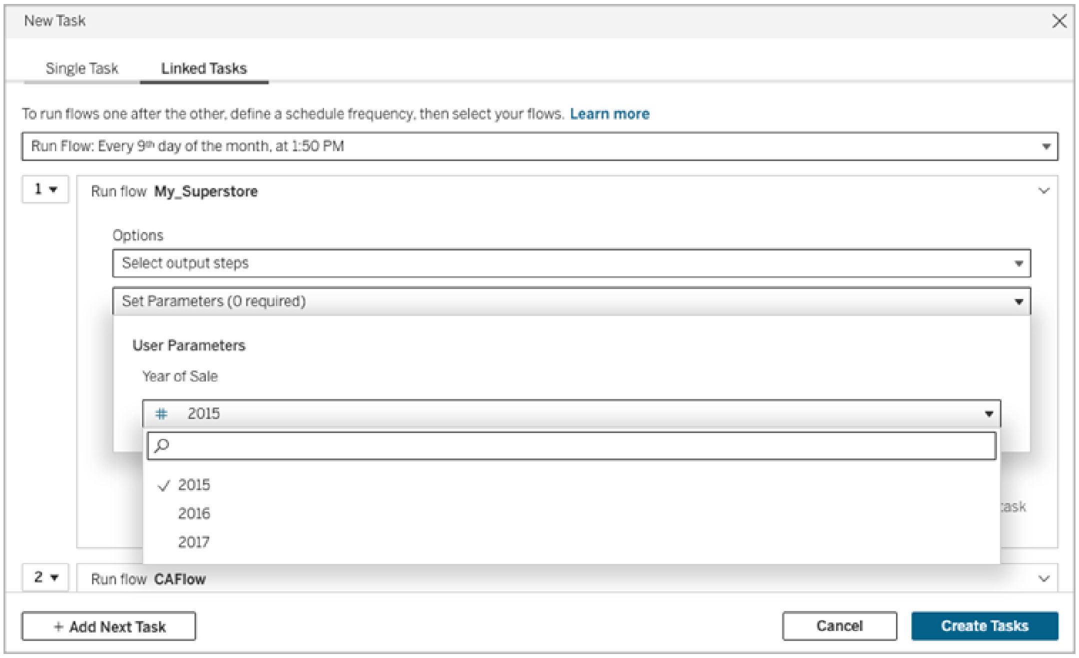
● Standard visibility

○ High visibility

Message (optional)

0 of 4,000 characters used

    - **Stop remaining tasks**: Select this option to prevent the downstream tasks in the list from being queued to run.
    - **Email me**: Email notifications are automatically sent to the flow owner and the linked task creator when the flow fails, is suspended, or is canceled.
8. If your flows include parameters, enter any required or optional parameter values. You must enter required values for the flow to run.


New Task
Single Task
Linked Tasks
Options
User Parameters
2015
2016
2017
task
+ Add Next Task
Cancel
Create Tasks

To run flows one after the other, define a schedule frequency, then select your flows. Learn more

Run Flow: Every 9th day of the month, at 1:50 PM

1 Run flow **My_Superstore**

Select output steps

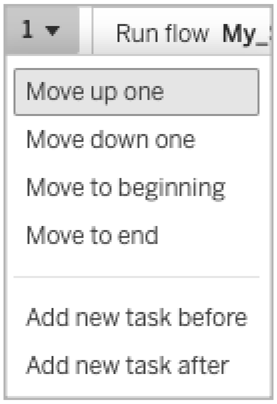
Set Parameters (0 required)

Year of Sale: 2015

2 Run flow **CAFlow**

9. Click the drop-down for the second task to add your next flow. Flows that use the previous flow's outputs are shown automatically or click **View all flows** to see all available flows
10. Select one or more flows and click **Add** or click **Add Next Task** to add more flow run tasks to your list.

    If you don't have permission to run the flow, you must contact the flow owner to grant permissions before adding the flow to your list.
11. Repeat steps 4–6 to configure your flow run options.
12. (Optional) Click the drop-down next to any numbered task to open the menu to change the order of your flow tasks or insert new tasks between existing tasks.



13. Click **Create Tasks** to create the scheduled linked tasks.

Who can do this

- The Server administrator can do this on all sites on the server. The Site administrator can do this on sites they have access to if the site settings to allow users to publish and schedule tasks is enabled.
- For linked tasks, the Server administrator can do this on all sites where the server settings to allow users to schedule linked tasks is enabled. The Site administrator can do this on sites they have access to if the site settings to allow users to schedule linked tasks is enabled.
- Flow owners and project leaders with the Creator site role can create flow tasks for flows or projects that they own respectively.

Site administrators, flow owners, and project leaders can create flow tasks for the flows and projects that they own respectively. Only the Creator site role and above can create or edit a flow task.

For more information, see Set Users' Site Roles and Content Ownership and Permissions

Notify Users of Successful Flow Runs

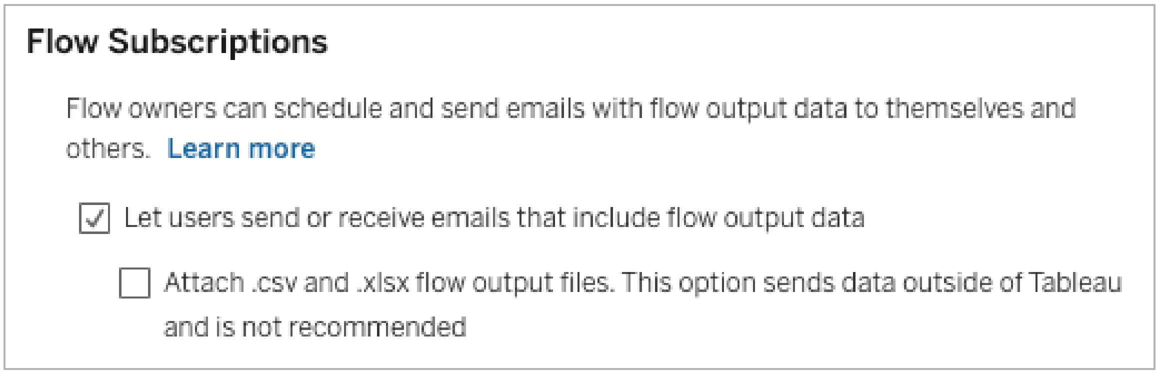
Supported in Tableau Prep Builder version 2021.4.1 and later and in Tableau Server and Tableau Cloud version 2021.4 and later. Data Management is required to use this feature.

Flow owners can subscribe themselves, individual users, and groups to email notifications for information about scheduled tasks for successful flow runs. The email includes links to data within the Tableau environment, or you can optionally include the details of the flow run in attached Excel and CSV files.

Flow subscriptions are added to scheduled tasks for flows. You can add flow subscriptions when you create a new flow task or to an existing flow task. Email notifications are sent when the scheduled task is completed successfully.

Configure the site settings for flow subscriptions

By default, the **Flow Subscriptions** site setting for sending and receiving email notifications is enabled.



Flow Subscriptions

Flow owners can schedule and send emails with flow output data to themselves and others. Learn more

☑ Let users send or receive emails that include flow output data

☐ Attach .csv and .xlsx flow output files. This option sends data outside of Tableau and is not recommended

- The **Let users send or receive emails that include flow output data** option allows the flow owner to receive, and subscribe users and groups to successful flow run notifications. From the notification email, users can access the full data source or view the flow details from within Tableau.
- (Not recommended) The **Attach .csv and .xlsx flow output files** option lets the flow owner attach files to notification emails. The email recipients must be added to the Tableau server or site, however, the files contain the data source and can be exposed outside of the Tableau system. This option is available only for on-premise environments.

Publish the Flow

Publish the flow output as either a file, database table, or data source. Consider the following when saving the flow:

- (On-premise only) When publishing you can save the output as a file or as a database table and choose to attach either a .csv or .xlsx file type to the email.

- When publishing and saving the output as a published data source, the email notification provides a link to the flow in Tableau. Files cannot be attached to the email.

- When choosing to save as a file output, you must use a network share and the output and input location must be included in a safe list. For more information, see Step 4: Safe list Input and Output locations.

- Flow subscriptions are supported on Windows and Linux. The following restrictions apply to flow subscriptions on Linux:
  - File outputs must be output to a Windows server.
  - For flows that output to a file, use the UNC format for the path: \\server\path\filename. Do not use a local drive letter.
  - The mounted path must be safe listed.

- When attaching files to an email, the file limit is approximately 25 MB for Tableau Cloud. When using an on-premise Tableau Server, you configure the size of attachment files.

Add a flow subscription

1. As the owner of the flow, select a published flow in Tableau Server or Tableau Cloud that you want to add subscriptions to for email notifications.
2. You can add subscriptions to a new or existing task:
   - If you are adding a subscription to a new task:
     1. Click **Scheduled Tasks** > **New Task**.

     2. In the New Task dialog select a schedule to run the flow from the **Select a schedule** drop-down list.

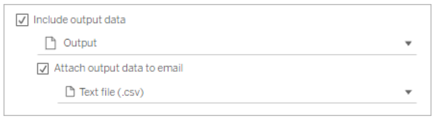
     3. Enable **Send email when done**

- If you are adding a subscription to an existing task:
    1. Click **Subscriptions** > **Subscribe**.
    2. In the **Add Flow Subscriptions** dialog, select a schedule from the **Frequency** drop-down list.

3. In the **Send to** field, start typing the name of the user or group to populate the field. Select the users and groups that you want to send a notification to.

   Users and groups must be added to the Tableau environment by the administrator.

4. (Optional) To be included in the notification, check the **Send to me** box.
5. (Optional) In the **Subject** field, customize the default email subject line for the flow run notification.
6. (Optional) Add information about the flow run in the **Email message** text box.
7. Click **Include output data** and select the type of output that you want to include in the email.
    - If you published your flow as a file or database table output you can choose to attach .csv or .xlsx files containing the data source to the email. This is not recommended because data can be exposed outside of the Tableau system.

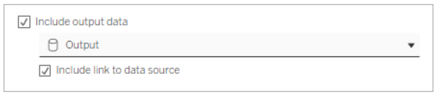
      ☑ Include output data

      Output

      ☑ Attach output data to email

      Text file (.csv)

    - If you published your flow as a data source, you can choose to include the link to the data source. Attaching files to the email is not supported.

      ☑ Include output data

      Output

      ☑ Include link to data source

8. If you are adding a subscription to an existing task, click Subscribe.

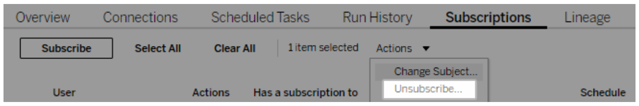
Unsubscribe from a flow subscription

To unsubscribe from notifications from the email, follow these steps.

1. Click **Unsubscribe** from the bottom of a subscription email.
2. As the flow owner, Sign in to Tableau Server or Tableau Cloud. At the top of the page, click the **Notifications** icon.
3. Expand the **…** menu, then select **Remove notification**.

To unsubscribe and remove the subscription as the flow owner, follow these steps.

1. Click **Subscriptions**.
2. Open the published flow in Tableau Server or Tableau Cloud.
3. From the list of flow subscriptions, click the selection box for the flow you want to unsubscribe from.
4. Select **Actions** > **Unsubscribe**.


Overview
Connections
Scheduled Tasks
Run History
Subscriptions
Lineage
Subscribe
Select All
Clear All
1 item selected
Actions
Change Subject...
Unsubscribe...
User
Actions
Has a subscription to
Schedule

View Subscriptions

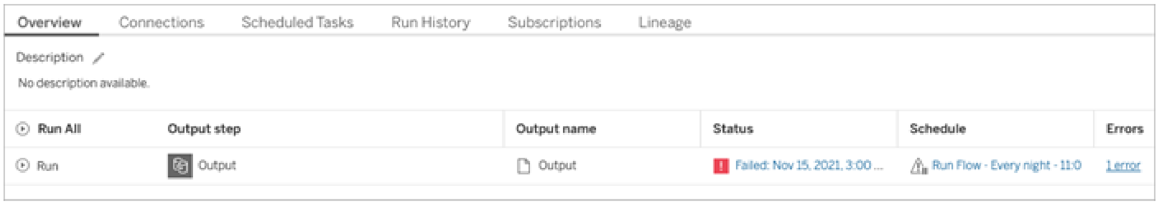
You can view your current flow subscriptions in Tableau Server or Tableau Cloud.

- From the **Subscriptions** tab on the **Overview** page of the flow, you can see the list of current subscriptions.
- From the **Subscriptions** tab on the **Tasks** page, you can see the list of subscriptions along with subscriptions to workbooks.

Resume suspended flow subscriptions

Sometimes, subscriptions fail because of an issue with the flow. If a subscription fails more than five times, you'll receive a notification email thatyour scheduled flow task has been suspended.

From the flow Overview page, you can see when a scheduled flow task fails.


Overview
Connections
Scheduled Tasks
Run History
Subscriptions
Lineage

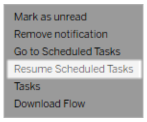
Description

No description available.

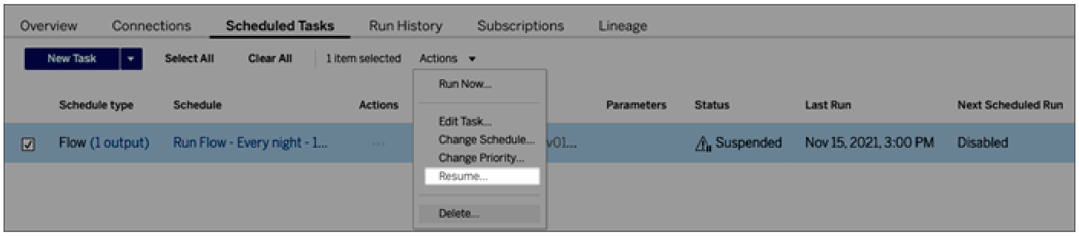
Run All	Output step	Output name	Status	Schedule	Errors
Run	Output	Output	Failed: Nov 15, 2021, 3:00 ...	Run Flow - Every night - 11:0	1 error

There are a few ways to resume a suspended flow task. If you're flow owner:

- From the My Content area of Tableau web pages, an icon appears in the Last update column to indicate that the subscription is suspended. Select **...** > **Resume Scheduled Tasks** to resume.


Mark as unread
Remove notification
Go to Scheduled Tasks
Resume Scheduled Tasks
Tasks
Download Flow

- From the Scheduled Tasks page, an icon appears in the last update column to indicate that the subscription is suspended. Select the flow, then click **Actions** > **Resume**.

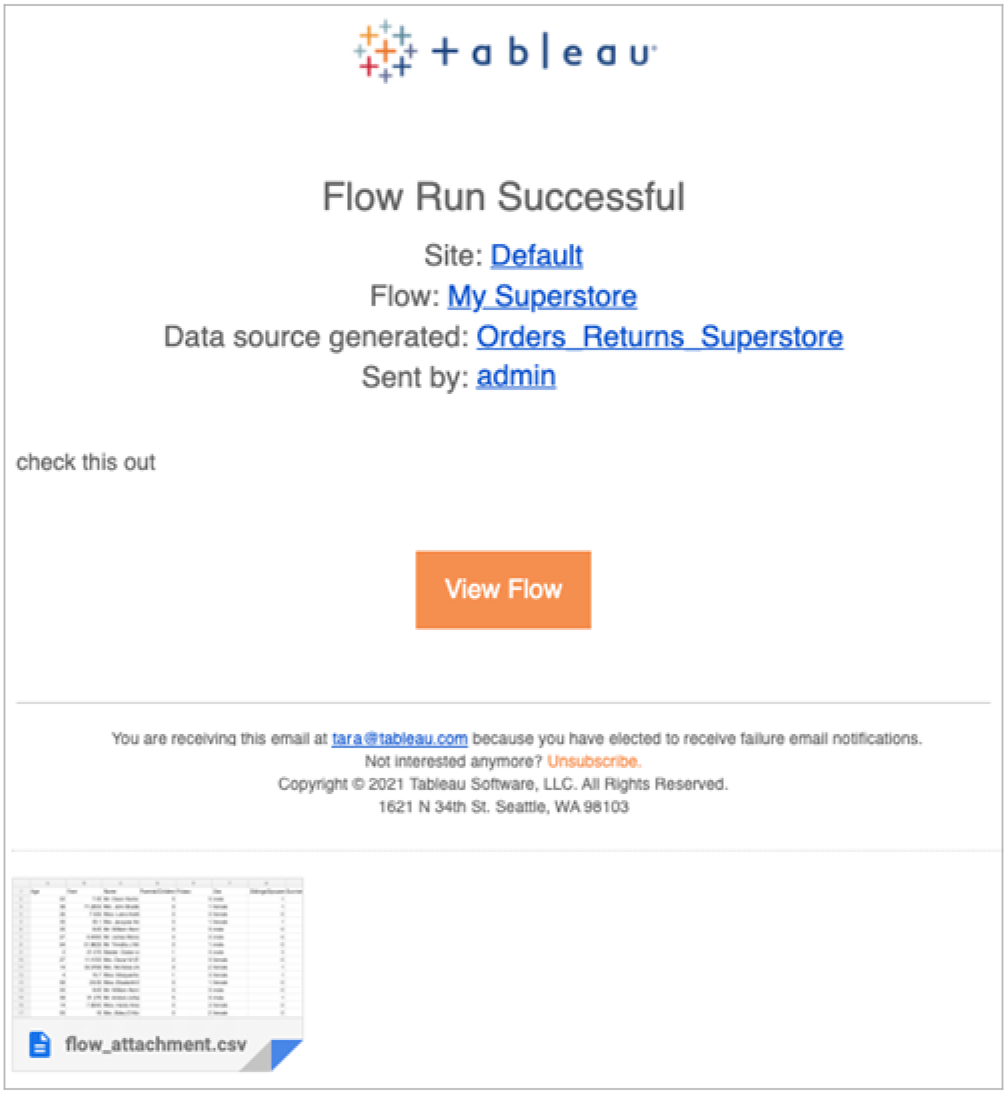

Overview
Connections
Scheduled Tasks
Run History
Subscriptions
Lineage
New Task
Select All
Clear All
1 item selected
Actions
Run Now...
Edit Task...
Change Schedule...
Change Priority...
Resume...
Delete...

	Schedule type	Schedule	Actions		Parameters	Status	Last Run	Next Scheduled Run
☑	Flow (1 output)	Run Flow - Every night - 1...	...	v01...		Suspended	Nov 15, 2021, 3:00 PM	Disabled

Access the flow data from a notification email

Depending on how the flow notification was configured, you can access the data source and file attachments from the notification email.

- Click View Flow to open the flow in Tableau Server or Tableau Cloud.
- Click the attachment file to view the flow data.



Flow Run Successful

Site: Default

Flow: My Superstore

Data source generated: Orders_Returns_Superstore

Sent by: admin

check this out

You are receiving this email at tara@tableau.com because you have elected to receive failure email notifications.
Not interested anymore? Unsubscribe.
Copyright © 2021 Tableau Software, LLC. All Rights Reserved.
1621 N 34th St. Seattle, WA 98103

Who can do this

- Flow owners can create flow notification subscriptions for flows that they own.
- To receive notifications, users and groups must be added to the Tableau environment by the administrator.

For more information, review the following articles:

- Windows: Set Users' Site Roles and Content Permissions and Ownership
- Linux: Set Users’ Site Roles and Content Permissions and Ownership

Manage a Flow

Once you publish a flow to Tableau Server or Tableau Cloud, you can manage your flows and make changes to them as necessary. This topic describes the various actions you can take to manage your flows.

> **Note**: The content in this topic applies to both Tableau Server and Tableau Cloud, exceptions are called out specifically.

Managing your flows

Following is a list of actions you can take to manage your flows:

- **Create flows:** Starting in version 2020.4, as a Creator you can create flows directly on the web. From the **Home** page, click **Create** > **Flow** or from the **Explore** page, click **New** > **Flow**. For more information, see Tableau Prep on the Web.

- **Edit flows:** Starting in version 2020.4, as a Creator you can edit flows directly on the web. Navigate to the list of flows, select **Actions** and click **Edit Flow**, or open a flow and click the **Edit** button.

  When you edit a flow, your changes are moved to a draft state. When you're finished, publish your flow to commit your changes and create a new version of the flow. For more information, see Autosave and working with drafts.

  You can edit the data connection using the **Edit Connection** menu option from the **Connections** view, **Actions** (…) menu for the data source. The new connection is saved and used the next time the flow runs in Tableau Prep Conductor. However, when you open the flow to view it, the original connection persists and won't be updated until you edit the flow, update the connector, and republish it.

If you open, edit, and republish the flow without changing the original connection, any connection changes made using the **Edit Connection** menu will be overridden and replaced with the original connection.

- **Run flows:** As a Creator, you can manually run a flow in addition to creating scheduled flows tasks that run at a specific time.
- **Note**: The Data Management is not required to manually run flows, but is required to schedule flows to run.
- Navigate to the list of flows, select one or more flows you want to run, select **Actions** and click **Run Now**.
- **Tag:** Tags are keywords you can create for flows to help you find, filter, and categorize content. Authors can add tags to flows when they publish it. But you can also add tags to any workbook, view, or data source that you are allowed to access and you can delete any tags you have added. You can add a tag to a list of flows.

  Navigate to the list of flows, select one or more items you want to tag, select **Actions** and click **Tag**. To add a tag to a specific flow you can do it from the list of flows as described above. Open the Flow, from the Overview tab, select **Actions**, and click **Tag**.
- **Change Owner:** Administrators and flow owners can change owners to any Creator on their site. In versions 2025.1 and earlier, they could only change the owner to themselves. For more information, see Manage Content Ownership.
- **Permissions:** You can set permissions for users and specify if they can perform edit actions like save, download, move to a different project and delete. In addition, you can specify who can view and run the flow.
- **Download:** You can download a flow to view or modify it using Tableau Prep Builder. To download a flow, you need download permissions. You'll have that by default if you

are the owner, but you might need to add it for other users.

- **Revision History:** When you make a change to the flow, and republish it to the same project with the same name, a new version of the flow is created. You can view the revision history by selecting revision history from the actions menu. Flow owners have permissions to restore a previous version of a flow.
- **Move:** You can move flows between projects. To move a flow, users need Move permission. You’ll have that by default for flows you own, but you might need to add it for other users.
- **Rename:** You can rename a flow. To rename a flow, users need the Save permission. You'll have that by default for flows you own, but you might need to add it for other users.
- **Delete:** You can delete a flow. To delete a flow, users need the Delete permission. You’ll have that by default for flows you own, but you might need to add it for other users.

Who can do this

Tableau Server Administrator

Can do the following tasks across all the sites:

- Create flows
- Edit published flows
- View a list of all draft flows
- Run flows
- Delete flows
- Download flows

- Change Owner
- Change Permissions
- Change Project
- Add/Remove Tags
- Change Description
- Change Name
- Update Flow Task
- Delete Flow Task
- Create a Flow Task*
- Version Management*

*Some additional conditions apply to these actions:

- To create a flow task:
  - A flow schedule must be available. In Tableau Server, only Server Administrators can create a schedule. In Tableau Cloud, users with permissions to schedule flow tasks can create a custom schedule. For more information, see Schedule Flow Tasks.
  - The flow must have at least one output step.
  - The flow version must be compatible with the Tableau Server version.
- Version management:
  - Revision history must be enabled on the site.
  - User role is allowed to publish to the project.

Tableau Site Administrator

Can do the following tasks on flows published to the sites that they are site administrator for:

- Create flows
- Edit published flows
- View a list of all draft flows
- Run flows
- Delete flows
- Download flows
- Change Owner
- Change Permissions
- Change Project
- Add/Remove Tags
- Change Description
- Change Name
- Update Flow Task
- Delete Flow Task
- Create a Flow Task*
- Version Management*

Some additional conditions apply to these actions:

- To create a flow task:
  - A flow schedule must be available. In Tableau Server, only Server Administrators can create a schedule. In Tableau Cloud, users with permissions to schedule flow tasks can create a custom schedule. For more information, see Schedule Flow

  Tasks.
  - The flow must have at least one output step.
  - The flow version must be compatible with the Tableau Server version.

- Version management:
  - Revision history must be enabled on the site.
  - User role is allowed to publish to the project.

Project Leader

Can do the following tasks on flows published to the projects where they have project leader permissions:

- Create flows
- Edit published flows
- Run Flows
- Delete
- Download
- Change Permissions
- Change Project
- Add/Remove Tags
- Change Description
- Change Name
- Update Flow Task
- Delete Flow Task

- Create a Flow Task*
- Version Management*

*Some additional conditions apply to these actions:

- To create a flow task:
  - A flow schedule must be available. In Tableau Server, only Server Administrators can create a schedule. In Tableau Cloud, users with permissions to schedule flow tasks can create a custom schedule. For more information, see Schedule Flow Tasks.
  - The flow must have at least one output step.
  - The flow version must be compatible with the Tableau Server version.
- Version management:
  - Revision history must be enabled on the site.
  - User role is allowed to publish to the project.

Project Owner

Can do the following tasks on flows published to the projects that they own:

- Create Flows
- Edit published flows
- Run Flows
- Delete
- Download
- Change Permissions
- Change Project

- Add/Remove Tags
- Change Description
- Change Name
- Update Flow Task
- Delete Flow Task
- Create a Flow Task*
- Version Management*

* Some additional conditions apply to these actions:

- To create a flow task:
  - A flow schedule must be available. In Tableau Server, only Server Administrators can create a schedule. In Tableau Cloud, users with permissions to schedule flow tasks can create a custom schedule. For more information, see Schedule Flow Tasks.
  - The flow must have at least one output step.
  - The flow version must be compatible with the Tableau Server version.
- Version management:
  - Revision history must be enabled on the site.
  - User role is allowed to publish to the project.

Flow Owner

Can do the following tasks on flows that they own:

- Create Flows
- Edit Draft (flows they own) and Published Flows

- Run flows
- Delete flows
- Download flows
- Change Owner
- Change Permissions
- Change Project
- Add/Remove Tags
- Change Description
- Change Name
- Update Flow Task
- Delete Flow Task
- Create a Flow Task*
- Version Management*

*Some additional conditions apply to these actions:

- To create a flow task:
  - A flow schedule must be available. In Tableau Server, only Server Administrators can create a schedule. In Tableau Cloud, users with permissions to schedule flow tasks can create a custom schedule. For more information, see Schedule Flow Tasks.
  - The flow must have at least one output step.
  - The flow version must be compatible with the Tableau Server version.
- Version management:

- Revision history must be enabled on the site.
- User role is allowed to publish to the project.

User with Creator License

Can do the following tasks:

- Create Flows
- Edit Draft (flows they own) and Published Flows
- Run Flows (with Run flow permissions)
- Delete (with delete permissions)
- Download (with download or Save as, and read permissions)
- Change Permissions (with Change Permissions)
- Change Project (with move permissions, and write permissions on the destination project)
- Add/Remove Tags (with read permissions)
- Change Description (with Save permissions)
- Change Name (with Save permissions)
- Update Flow task (with Execute permissions)
- Delete Flow Task (with Execute permissions)
- Create a Flow Task* (with Execute permissions)
- Version Management* (with view, read, save as, download permissions)

* Some additional conditions apply to these actions:

- To create a flow task:
  - A flow schedule must be available. In Tableau Server, only Server Administrators can create a schedule. In Tableau Cloud, users with permissions to schedule flow tasks can create a custom schedule. For more information, see Schedule Flow Tasks.
  - The flow must have at least one output step.
  - The flow version must be compatible with the Tableau Server version.
- Version management:
  - Revision history must be enabled on the site.
  - User role is allowed to publish to the project.

User with Explorer License

Can do the following tasks:

Note: Starting in version 2020.4, Explorer license users can no longer run flows on Tableau Server.

- Explorer license users (with Run flow permissions) can run flows on Tableau Cloud.
- Delete (with delete permissions)
- Download (with download or Save as, and read permissions)
- Change Permissions (with Change Permissions)
- Change Project (with move permissions and write permissions on the destination project)
- Add/Remove Tags (with read permissions)
- Change Description (with Save permissions)

- Change Name (with Save permissions)
- Update Flow task (with Execute permissions)
- Delete Flow Task (with Execute permissions)
- Create a Flow Task* (with Execute permissions)
- Version Management* (with view, read, save as, download permissions)

*Some additional conditions apply to these actions:

- To create a flow task:
  - A flow schedule must be available. In Tableau Server, only Server Administrators can create a schedule. In Tableau Cloud, users with permissions to schedule flow tasks can create a custom schedule. For more information, see Schedule Flow Tasks.
  - The flow must have at least one output step.
  - The flow version must be compatible with the Tableau Server version.
- Version management:
  - Revision history must be enabled on the site.
  - User role is allowed to publish to the project.

User with Viewer License

Viewers cannot manage flows, they can however view the flow and the different versions of the flow.

For more information about the full capabilities you can set on flows, see Permission capabilities.

Monitor Flow Health and Performance

After you publish Tableau Prep flows and schedule them to run periodically, you want to know that they are running as expected and resolve any issues as they occur. You will also want to monitor, troubleshoot, and understand the performance of your flows.

This topic describes the various methods that Tableau Cloud provides to help you monitor and troubleshoot your Tableau Prep flows.

Detect issues as they occur and resolve them

In Tableau Cloud, email notifications are automatically sent when flows fail. You can also find and review errors on your server using the Alerts menu or by reviewing the flow pages for the flows that you are interested in. This type of monitoring allows you to detect problems as they occur.

Get notifications when a flow fails:

Email notifications is turned on by default for your site in Tableau Cloud. You can verify this by going to **Settings** > **General** page.

View and resolve errors

> **Note**: Starting in version 2020.4.1, you can now create and edit flows directly in Tableau Server and Tableau Cloud. The content in this section applies to all platforms, unless specifically noted. For more information about authoring flows on the web, see Tableau Prep on the Web.

The following errors can happen when running a flow:

- **Connection errors:** Connection errors generally happen when Tableau Cloud is unable to connect to one or more data inputs or is unable to make a connection in one or more output steps.

  - For Input connection errors, use the **Edit connections** option on the **Connections** tab to make changes to connection details, then run the flow again.
  - For output connection errors, check the output location for the flow output steps. If the flow output is going to a network share, make sure the output steps are pointing to a safe listed location. After you make any changes republish the flow and try running it again.

    > **Note**: To fix output connection errors for flows that output to a file or network share, download the flow to Tableau Prep Builder, then republish the flow to your server. Flows that output to a published data source or database can be edited directly on the web.

- **Errors in the flow:** If there are errors in one or more steps in the flow, you will see an error message. You can edit the flow directly on the web and republish it. You can also download the flow to Tableau Prep Builder, resolve the errors, republish the flow to the server and then run the flow again.
- **Suspended flow tasks:** When a scheduled flow task fails to run after a configured number of attempts, the flow task is suspended. By default, a flow task is suspended after 5 consecutive flow tasks failures.

  A flow can have multiple scheduled tasks assigned to it, but only the failed tasks are suspended. All other flow tasks will continue to run unless they have errors. To resolve a suspended task, review and resolve the errors then run the flow on-demand or let the flow run automatically based on the assigned schedule.

You can view errors on the following pages:

Flow Overview page

On this page you can see the status of the most recent flow run and any errors. Hover on the error text to review the error details. If a scheduled task is suspended, a warning icon shows next to the schedule. Hover on the icon to view the status.

After you resolve the error that caused the flow to fail or the task to be suspended, you can run the flow manually or let the flow run based on the assigned schedule. For suspended flow tasks, click the **Go to Scheduled Task** link on the tooltip for the suspended task to navigate to the **Scheduled Tasks** page and click the **Resume Scheduled Tasks** button to resume the suspended tasks.

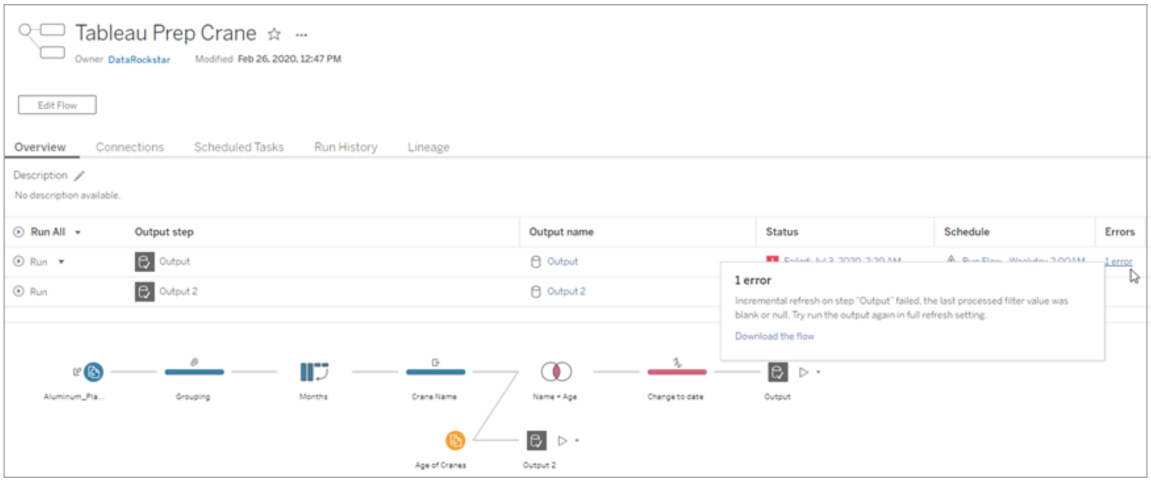


Tableau Prep Crane
Edit Flow
Overview
Connections
Scheduled Tasks
Run History
Lineage
Aluminum_Pla...
Grouping
Months
Crane Name
Name + Age
Change to date
Output
Age of Cranes
Output 2

Owner DataRockstar Modified Feb 26, 2020, 12:47 PM

Description

No description available.

Run All	Output step	Output name	Status	Schedule	Errors
Run	Output	Output	[illegible]	[illegible]	1 error
Run	Output 2	Output 2			

1 error

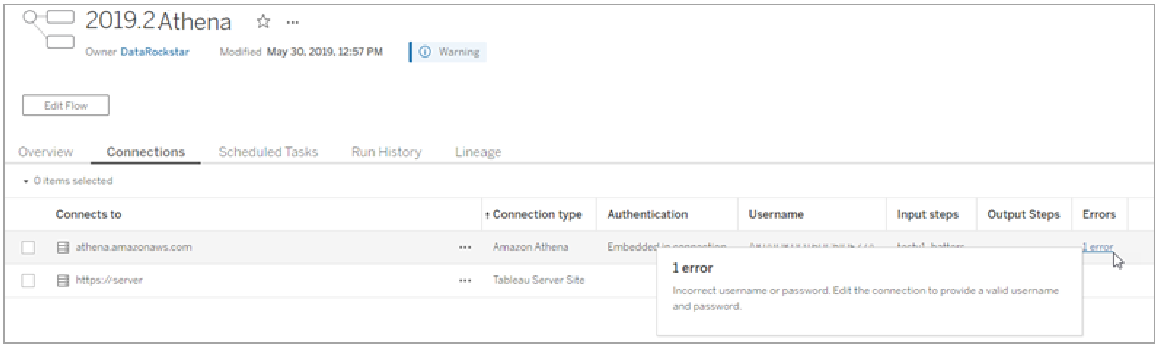
Incremental refresh on step "Output" failed, the last processed filter value was blank or null. Try run the output again in full refresh setting.

Download the flow

Connections page

The **Connections** page shows the most recent status and any related connectivity errors. To correct input errors, click the **More actions** ••• menu for an input connection to edit the connection and change the server name, port, user name and password.

To fix output connection errors, edit the flow directly or download the flow in Tableau Prep Builder, correct the file path, then republish the flow to continue running it.


2019.2Athena
Warning
Edit Flow
Overview
Connections
Scheduled Tasks
Run History
Lineage

Owner DataRockstar Modified May 30, 2019, 12:57 PM

0 items selected

	Connects to	Connection type	Authentication	Username	Input steps	Output Steps	Errors
☐	athena.amazonaws.com •••	Amazon Athena	Embedded in connection	[illegible]	[illegible]		1 error
☐	https://server •••	Tableau Server Site					

1 error

Incorrect username or password. Edit the connection to provide a valid username and password.

Scheduled Tasks page

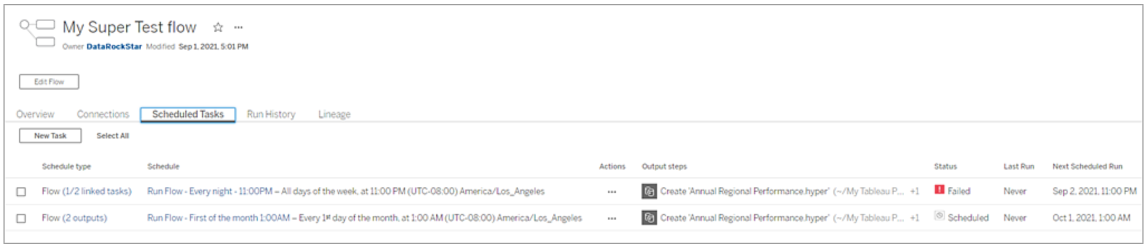
Note: The Data Management is required to see this tab.

View the scheduled tasks assigned to a flow. If a scheduled task is suspended, you can see the status of that tasks here and you can manually resume the flow tasks from this page. Before resuming a suspended task, resolve any errors in the flow.

Error details are not shown on this page, but you can review them on the **Overview** or **Run History** pages. You can also click the links in the **Schedule type** column to view the details of what was scheduled and to edit the tasks.

A suspended scheduled task will automatically resume when the flow is republished, if you edit a connection for the flow or manually run the flow tasks. To manually resume a suspended tasks, on the **Scheduled Tasks** page, click **Resume Scheduled Tasks**. This resumes all suspended tasks for the flow.

To resume individual tasks, click the **More actions** ••• menu for a scheduled task and select **Resume**. You can also click **Run Now** to run all tasks for the flow immediately.



My Super Test flow

Owner **DataRockStar** Modified Sep 1, 2021, 5:01 PM

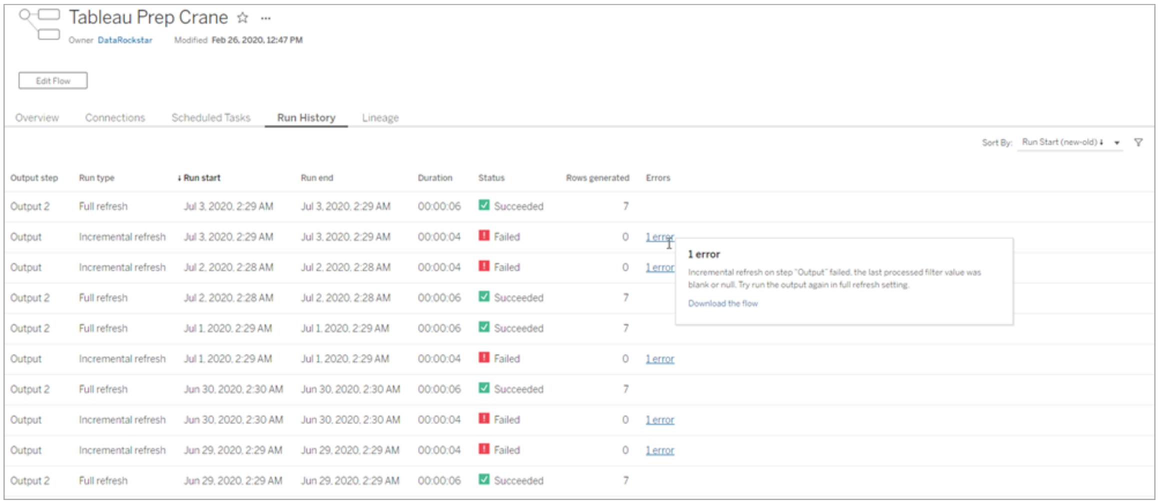
	Schedule type	Schedule	Actions	Output steps	Status	Last Run	Next Scheduled Run
☐	Flow (1/2 linked tasks)	Run Flow - Every night - 11:00PM – All days of the week, at 11:00 PM (UTC-08:00) America/Los_Angeles	···	Create 'Annual Regional Performance.hyper' (~/My Tableau P... +1	Failed	Never	Sep 2, 2021, 11:00 PM
☐	Flow (2 outputs)	Run Flow - First of the month 1:00AM – Every 1st day of the month, at 1:00 AM (UTC-08:00) America/Los_Angeles	···	Create 'Annual Regional Performance.hyper' (~/My Tableau P... +1	Scheduled	Never	Oct 1, 2021, 1:00 AM

Run History page

Note: The Data Management is required to see this tab.

The **Run History** page shows the details of all the flow runs that have either completed or are in progress for each output. View any error details by hovering over the errors in the **Errors** column. The duration column shows you the run time of the flow.

Note: Starting in version 2020.2.1, the **Run Type** field shows the refresh type for the output. In prior releases this field showed whether the output was run on a schedule or on-demand. For more information about setting up output refresh types, see Refresh Flow Data Using Incremental Refresh.



Output step	Run type	↓ Run start	Run end	Duration	Status	Rows generated	Errors
Output 2	Full refresh	Jul 3, 2020, 2:29 AM	Jul 3, 2020, 2:29 AM	00:00:06	✓ Succeeded	7	
Output	Incremental refresh	Jul 3, 2020, 2:29 AM	Jul 3, 2020, 2:29 AM	00:00:04	! Failed	0	1 error
Output	Incremental refresh	Jul 2, 2020, 2:28 AM	Jul 2, 2020, 2:28 AM	00:00:04	! Failed	0	1 error
Output 2	Full refresh	Jul 2, 2020, 2:28 AM	Jul 2, 2020, 2:28 AM	00:00:06	✓ Succeeded	7	
Output 2	Full refresh	Jul 1, 2020, 2:29 AM	Jul 1, 2020, 2:29 AM	00:00:06	✓ Succeeded	7	
Output	Incremental refresh	Jul 1, 2020, 2:29 AM	Jul 1, 2020, 2:29 AM	00:00:04	! Failed	0	1 error
Output 2	Full refresh	Jun 30, 2020, 2:30 AM	Jun 30, 2020, 2:30 AM	00:00:06	✓ Succeeded	7	
Output	Incremental refresh	Jun 30, 2020, 2:30 AM	Jun 30, 2020, 2:30 AM	00:00:04	! Failed	0	1 error
Output	Incremental refresh	Jun 29, 2020, 2:29 AM	Jun 29, 2020, 2:29 AM	00:00:04	! Failed	0	1 error
Output 2	Full refresh	Jun 29, 2020, 2:29 AM	Jun 29, 2020, 2:29 AM	00:00:06	✓ Succeeded	7	

1 error

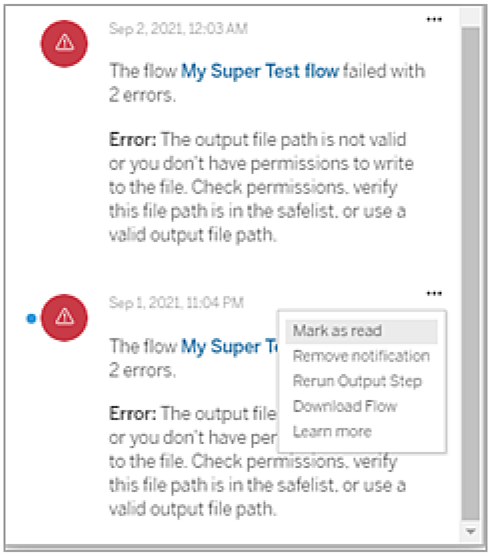
Incremental refresh on step "Output" failed, the last processed filter value was blank or null. Try run the output again in full refresh setting.

Download the flow

Alerts

When a flow fails, the alerts menu is populated with the error details with the option to re-run the flow, or download the flow to troubleshoot.

Note:Flow owners and Site Administrators can see this menu.



Sep 2, 2021, 12:03 AM

The flow **My Super Test flow** failed with 2 errors.

Error: The output file path is not valid or you don't have permissions to write to the file. Check permissions, verify this file path is in the safelist, or use a valid output file path.

Sep 1, 2021, 11:04 PM

The flow **My Super T** 2 errors.

Error: The output file or you don't have per to the file. Check permissions, verify this file path is in the safelist, or use a valid output file path.

Who can do this

- **Tableau Site Administrators**:
  - Set up email notifications at the site level
  - View errors
  - Resume suspended tasks
  - View alerts
- **Flow owners, project leaders and any user who is granted permissions to view the flow**:
  - View errors
  - Resume suspended tasks
  - View alerts (Flow owners)

Administrative Views for Flows

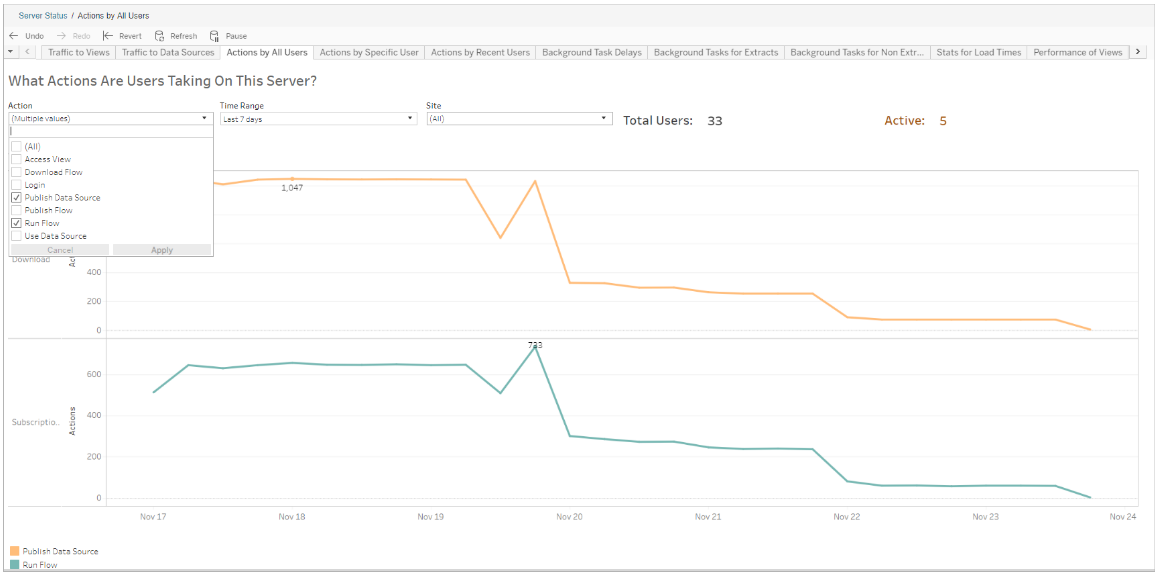
Administrative views can be used to monitor the activities related to flows, performance history, and the disk space used. The **Status** page contains an embedded Tableau workbook with various administrative views that can be used to monitor different types of server or site activity.

Who can do this?

Tableau Site administrators can view and work with Administrative Views.

Action by all users

Use this view to gather insight into how flows are being used. This includes actions like publish, download, and flow runs. You can filter the view by actions, by site, and by time range. The Total Users count shows the number of users who have performed an action. This value is not affected by any filtering. The Active user count shows the number of users who have been active during the selected time period and performed one of the selected actions.



What Actions Are Users Taking On This Server?

Action: (Multiple values)
- ☐ (All)
- ☐ Access View
- ☐ Download Flow
- ☐ Login
- ☑ Publish Data Source
- ☐ Publish Flow
- ☑ Run Flow
- ☐ Use Data Source

Time Range: Last 7 days

Site: (All)

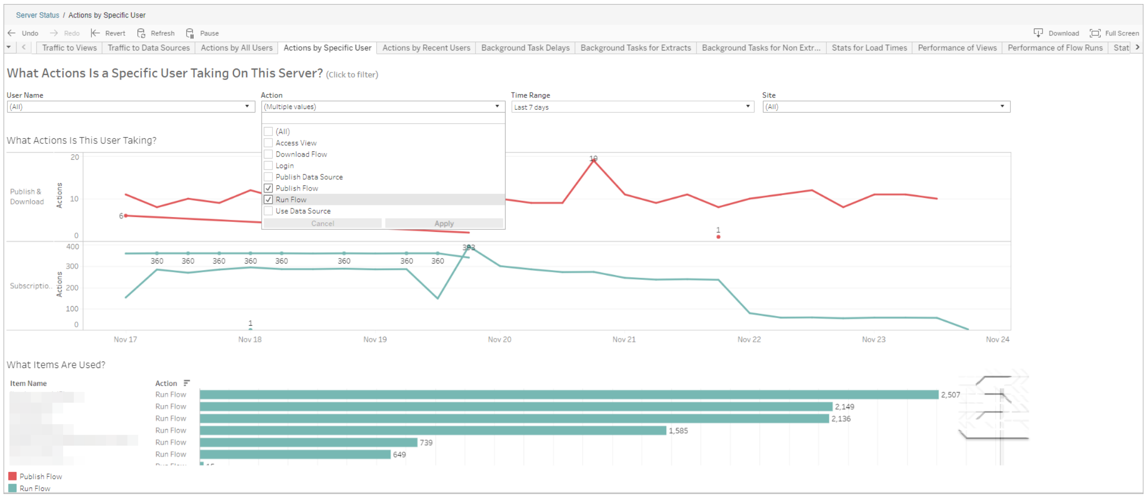
Total Users: 33

Active: 5

Server Status / Actions by All Users
Undo
Redo
Revert
Refresh
Pause
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Cancel
Apply
Download
Ac
1,047
400
200
0
733
600
400
200
0
Subscriptio..
Actions
Nov 17
Nov 18
Nov 19
Nov 20
Nov 21
Nov 22
Nov 23
Nov 24
Publish Data Source
Run Flow

Action by Specific User

Use this view to gather insights about how an individual user is working with flows. You can filter the view by user name, the type of action, and by time range.



Server Status / Actions by Specific User
Undo
Redo
Revert
Refresh
Pause
Download
Full Screen
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
Stat
What Actions Is a Specific User Taking On This Server? (Click to filter)
User Name
(All)
Action
(Multiple values)
☐ (All)
☐ Access View
☐ Download Flow
☐ Login
☐ Publish Data Source
☑ Publish Flow
☑ Run Flow
☐ Use Data Source
Cancel
Apply
Time Range
Last 7 days
Site
(All)
What Actions Is This User Taking?
Publish & Download
Subscriptio..
Actions
20
10
0
400
300
200
100
6
19
1
360
393
Nov 17
Nov 18
Nov 19
Nov 20
Nov 21
Nov 22
Nov 23
Nov 24
What Items Are Used?
Item Name
Action
Run Flow
2,507
2,149
2,136
1,585
739
649
🟥 Publish Flow
🟩 Run Flow

Action by Recent Users

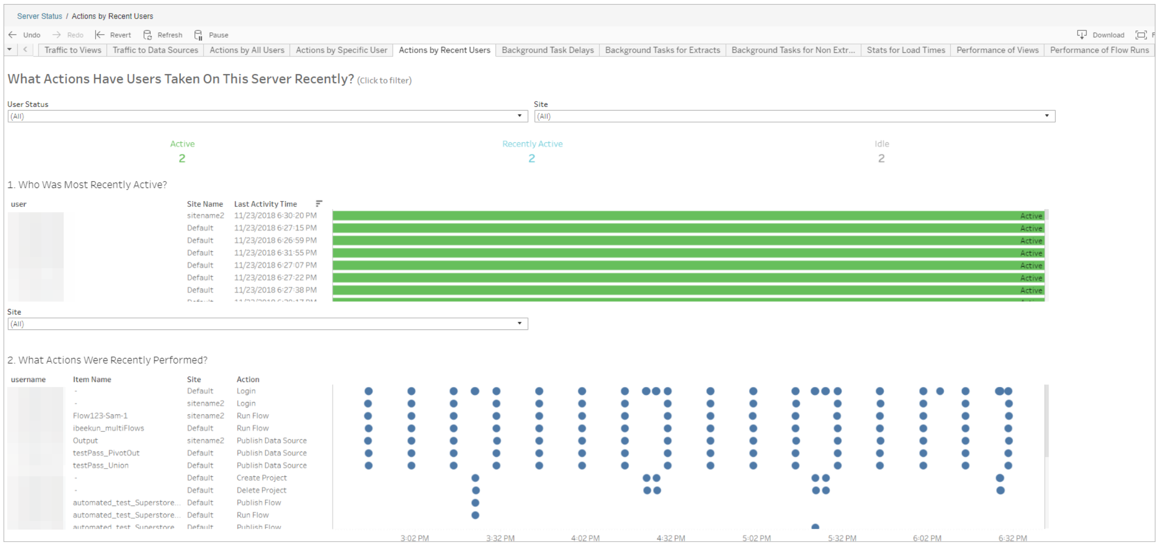
This view shows you which users have been active on Tableau Cloud over the past 24 hours.

This can be useful if you need to do some maintenance activity on the server and want to know which users and how many this will affect, and what they're doing.

The view shows **Active**, **Recently Active**, and **Idle** users that are currently signed in to Tableau Cloud.

For this view, an active user is one who took an action in the last 5 minutes, a recently active user is one who last took an action within 30 minutes, and an idle user is one who last took an action more than 30 minutes ago.

Select a user to see only the actions that user performed recently. Hover over an action to see details of the action.


Server Status / Actions by Recent Users
Undo
Redo
Revert
Refresh
Pause
Download
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
Active
3:02 PM
3:32 PM
4:02 PM
4:32 PM
5:02 PM
5:32 PM
6:02 PM
6:32 PM

What Actions Have Users Taken On This Server Recently? (Click to filter)

User Status: (All)

Site: (All)

Active 2

Recently Active 2

Idle 2

1. Who Was Most Recently Active?

user	Site Name	Last Activity Time
[redacted]	sitename2	11/23/2018 6:30:20 PM
	Default	11/23/2018 6:27:15 PM
	Default	11/23/2018 6:26:59 PM
	Default	11/23/2018 6:31:55 PM
	Default	11/23/2018 6:27:07 PM
	Default	11/23/2018 6:27:22 PM
	Default	11/23/2018 6:27:38 PM

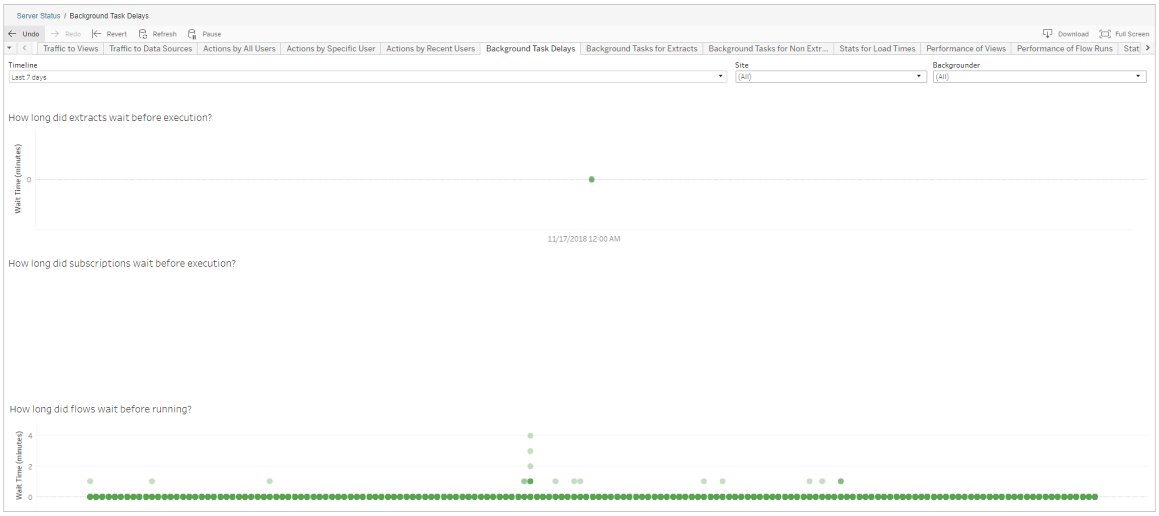
Site: (All)

2. What Actions Were Recently Performed?

username	Item Name	Site	Action
[redacted]	-	Default	Login
	-	sitename2	Login
	Flow123-Sam-1	sitename2	Run Flow
	ibeekun_multiFlows	Default	Run Flow
	Output	sitename2	Publish Data Source
	testPass_PivotOut	Default	Publish Data Source
	testPass_Union	Default	Publish Data Source
	-	Default	Create Project
	-	Default	Delete Project
	automated_test_Superstore...	Default	Publish Flow
	automated_test_Superstore...	Default	Run Flow

Backgrounder Task Delays

This view shows the delay for extract refresh tasks, subscription, and flow tasks—that is, the amount of time between when they are scheduled to run and when they actually run. You can use the view to help identify places you can improve server performance by distributing your task schedules and optimizing tasks.


Server Status / Background Task Delays
Undo
Redo
Revert
Refresh
Pause
Download
Full Screen
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
Stat
Wait Time (minutes)
0
11/17/2018 12:00 AM
Wait Time (minutes)
4
2
0

Timeline: Last 7 days

Site: (All)

Backgrounder: (All)

How long did extracts wait before execution?

How long did subscriptions wait before execution?

How long did flows wait before running?

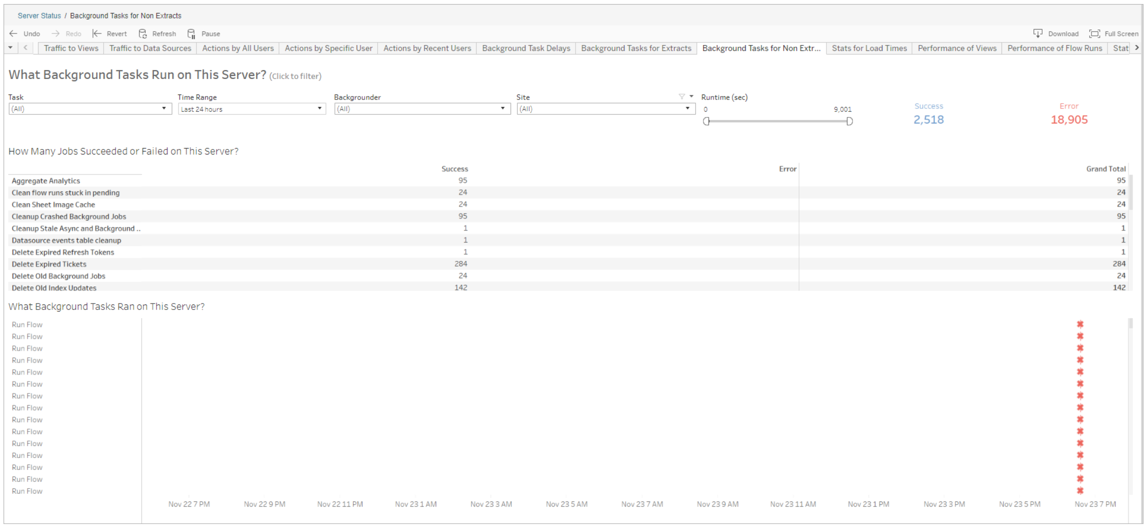
Possible reasons for the delays and ways to reduce the delays include the following:

- Many tasks are scheduled for the same time.

  In the example view, tasks that show long delays are clustered at the same time every day, which creates spikes in the wait time. You can set the Timeline filter to a single day to view task delays by hour and identify the hours of the day when many tasks are scheduled at the same time. One solution is to distribute the tasks to off-peak hours to reduce load on the server.

Background Tasks for Non Extracts

Background Tasks are created to run flows (scheduled and ad hoc). You can use this view to see how many flow tasks succeeded or failed on this site. For details on a task, hover over its icon.


Server Status / Background Tasks for Non Extracts
Undo
Redo
Revert
Refresh
Pause
Download
Full Screen
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
Stat
Nov 22 7 PM
Nov 22 9 PM
Nov 22 11 PM
Nov 23 1 AM
Nov 23 3 AM
Nov 23 5 AM
Nov 23 7 AM
Nov 23 9 AM
Nov 23 11 AM
Nov 23 1 PM
Nov 23 3 PM
Nov 23 5 PM
Nov 23 7 PM

What Background Tasks Run on This Server? (Click to filter)

Task: (All)

Time Range: Last 24 hours

Backgrounder: (All)

Site: (All)

Runtime (sec): 0 – 9,001

Success 2,518

Error 18,905

How Many Jobs Succeeded or Failed on This Server?

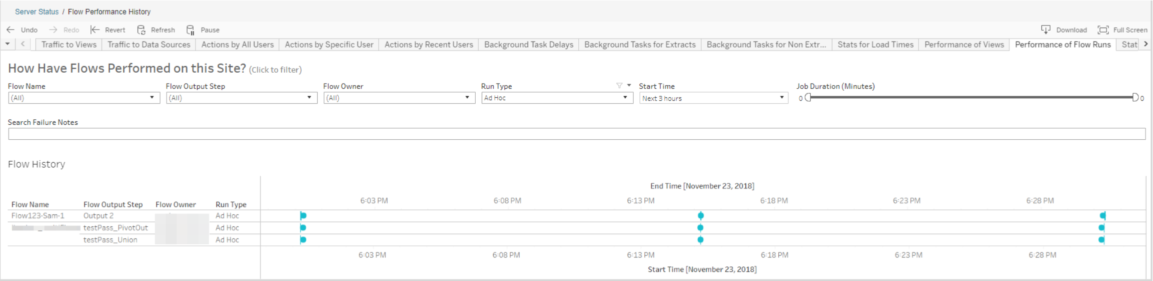
	Success	Error	Grand Total
Aggregate Analytics	95		95
Clean flow runs stuck in pending	24		24
Clean Sheet Image Cache	24		24
Cleanup Crashed Background Jobs	95		95
Cleanup Stale Async and Background ..	1		1
Datasource events table cleanup	1		1
Delete Expired Refresh Tokens	1		1
Delete Expired Tickets	284		284
Delete Old Background Jobs	24		24
Delete Old Index Updates	142		142

What Background Tasks Ran on This Server?

Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow
Run Flow

Performance of Flow Runs

Use this view to see the performance history for all the flows on a site. You can filter by Flow Name, Output Step Name, Flow Owner, Run Type (Scheduled or Ad Hoc), and the time the flow runs were started.


Server Status / Flow Performance History
Undo
Redo
Revert
Refresh
Pause
Download
Full Screen
Traffic to Views
Traffic to Data Sources
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
Stat
How Have Flows Performed on this Site? (Click to filter)
Search Failure Notes
Flow History
End Time [November 23, 2018]
6:03 PM
6:08 PM
6:13 PM
6:18 PM
6:23 PM
6:28 PM
Start Time [November 23, 2018]

Flow Name: (All)
Flow Output Step: (All)
Flow Owner: (All)
Run Type: Ad Hoc
Start Time: Next 3 hours
Job Duration (Minutes): 0 – 0

Flow Name	Flow Output Step	Flow Owner	Run Type
Flow123-Sam-1	Output 2	[redacted]	Ad Hoc
[redacted]	testPass_PivotOut		Ad Hoc
	testPass_Union		Ad Hoc

Questions you can answer using this view include:

- **What flow tasks are currently scheduled?** – To do this, use the Start Time filter and select the time frame you want to look at. For example, to see flow tasks that are scheduled in the next 3 hours, select **Hours** -> **Next** -> and enter **3**.

- **What is the duration of flow tasks?** - To answer this, click on a mark in the view to see details, including the task duration.

- **How many flows were run ad hoc, and how many were scheduled runs?** - To answer this, use the **Run Type** filter and select **Ad hoc** or **Scheduled**.

This view can also show you the following information:

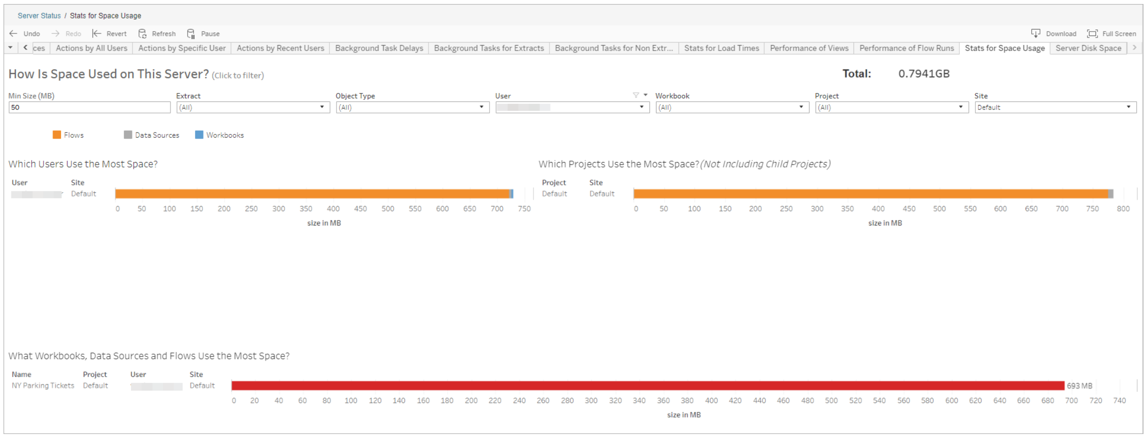
- Flows with the highest run frequency have the most marks.

- To see flows that are currently running at the same time, hover over a mark that shows “**In Progress**” or “**Pending and select** “**Keep Only**” to filter all flow runs that are currently running.

- To see flows that are running at the same time during a specific time range, select a range for the **Start Time** filter. For example, select “**Next three hours**” to see which flows will be running in the next three hours.

Stats for Space Usage

Use this view to identify which flow outputs are taking up the most disk space on the server. Disk space usage is displayed by user, project, and by the size of flow output and is rounded down to the nearest number.


Server Status / Stats for Space Usage
Undo
Redo
Revert
Refresh
Pause
Download
Full Screen
Actions by All Users
Actions by Specific User
Actions by Recent Users
Background Task Delays
Background Tasks for Extracts
Background Tasks for Non Extr...
Stats for Load Times
Performance of Views
Performance of Flow Runs
Stats for Space Usage
Server Disk Space
How Is Space Used on This Server? (Click to filter)
Total: 0.7941GB
Min Size (MB) 50
Extract (All)
Object Type (All)
User
Workbook (All)
Project (All)
Site Default
Flows
Data Sources
Workbooks
Which Users Use the Most Space?
User
Site
Default
size in MB
Which Projects Use the Most Space? (Not Including Child Projects)
Project
Site
Default
Default
size in MB
What Workbooks, Data Sources and Flows Use the Most Space?
Name
Project
User
Site
NY Parking Tickets
Default
Default
693 MB
size in MB

Use the Min Size filter to control which flow outputs are displayed, based on the amount of space they take up. Use the object type filter for flows.

- **What Users Use the Most Space** – This section shows the users who own flows (when filtered for flows) that are taking up the most space. Click a user name to filter the next two graphs for that user.
- **What Projects Use the Most Space** – This section shows the projects with flows (when filtered for flows) that are using the most space.
- **What Workbooks, Data Source and Flows Use the Most Space** – This section shows the flows (when filtered for flows) that take up the most space.

Who can do this

- **Tableau Site Administrators**:
  - Set up email notifications at the site level
  - View errors
  - Resume suspended tasks
  - View alerts
- **Flow owners, project leaders and any user who is granted permissions to view the flow**:
  - View errors
  - Resume suspended tasks
  - View alerts (Flow owners)

About Tableau Catalog

Data is increasing in volume, formats, and importance leading to more complex environments. With the rapid pace that data changes, it can be hard to keep track of that data and how it's being used in such complex environments. At the same time, more users need to access more of that data in more places, and it’s difficult for users to find the right data. Ultimately, this causes a lack of trust in the data because people question whether they’re using the right source or if the source is up to date.

Tableau Catalog integrates features like lineage, impact analysis, data dictionary, data quality warnings, and search into your Tableau applications, helping solve these problems differently from a stand-alone catalog. It focuses on both IT and the end user so that everyone using Tableau Server or Tableau Cloud has more trust in and visibility into the data, while also enabling more discoverability. Tableau Catalog builds a catalog out of the Tableau content being used by your organization, enabling comprehensive functionality like the following:

- **Impact analysis and lineage**.
  - You can see the workbooks and other Tableau content that depend on particular columns or fields from tables or data sources you manage. When you need to make changes to your data, you can notify the impacted Tableau authors using email.
  - As a workbook author, you can use lineage to trace the fields that your workbook depends on.
  - As a user, when you use a Tableau visualization, you can see where the data came from that was used to create the view.
- **Curation and trust**. As a data steward, you can add helpful metadata, like descriptions and certification, so that users find the right data. You can set data quality warnings, view data details on the Data Details pane, certify assets, and remove assets from the catalog.
- **Data discovery**. In Tableau Desktop or Tableau web authoring, you can use Tableau Catalog to search for databases, tables, data sources, and virtual connections to analyze in Tableau and connect to them from the search results.

Starting in 2019.3, Tableau Catalog is available as part of Data Management for Tableau Server and Tableau Cloud. When the product key is active and enabled, the catalog features described above are integrated into the product you're using, so you can work with the data where you find it.

How Tableau Catalog works

Tableau Catalog discovers and indexes all the content on your site—workbooks, data sources, sheets, virtual connections, and flows—to gather metadata about the content. From the metadata, external assets (databases, tables, and other objects) are identified. Knowing the relationships between the content and the external assets enables Tableau to display the lineage of the content and external assets. Tableau Catalog also enables users to connect to external assets using Tableau Server or Tableau Cloud.

Users on your site can publish or delete content, can attach data quality warnings or certifications, or do anything else that changes the content or its metadata on the site, and Tableau Catalog will update its information accordingly.

For information about how you can use Tableau Catalog to support data governance in your organization, see Governance in Tableau in the Tableau Blueprint Help.

Key Tableau Catalog terms

- Metadata. Information about the data.
- Tableau content. Content created in Tableau such as workbooks, data sources, virtual connections, and flows.
- External assets. The metadata about the databases and tables used by Tableau content that's published to Tableau Server or Tableau Cloud.

License Tableau Catalog

Tableau Catalog is licensed through Data Management. For information about how Data Management licensing works, see License Data Management.

Enable Tableau Catalog

After Tableau Server or Tableau Cloud is licensed with Data Management capabilities, you can enable Tableau Catalog by doing one of the following tasks:

- **For Tableau Cloud**, no action is necessary. Tableau Catalog is on by default, configured to use derived permissions, and ready to use. For more information about derived permissions, see the Permissions on metadata topic.

- **For Tableau Server**, the Server admin must first enable the Tableau Metadata API using the `tsm maintenance metadata-services` command. For more information, see Enable Tableau Catalog.

  After the Metadata API is enabled, Tableau Catalog is on by default, configured to use derived permissions, and ready to use. For more information about derived permissions, see the Permissions on metadata topic.

Features and functionality

To learn more about the features you can use with Tableau Catalog, see the following Help articles:

Data discovery

- In the **Connect** pane on Tableau Desktop, under **Search for Data** select **Tableau Server** to connect to data using Tableau Server or Tableau Cloud. When Tableau Catalog is enabled, in addition to searching for published data sources to connect to, you can now search for and connect to the specific databases, tables, and objects used by published data sources and workbooks on your Tableau Server or your Tableau Cloud site.
- Search is expanded to include results based on columns, databases, tables, and other objects when Tableau Catalog is enabled.
- If you author in the web, in addition to published data sources, you can also connect to databases and tables.
- If you use Tableau Prep on the web, you can create new flows based on external assets, such as databases and tables.
- If you connect to Salesforce Data Cloud, you'll see support for native Data Cloud objects built into Tableau Catalog. Data Lake Objects (DLOs), Data Model Objects (DMOs), and

calculated insights appear distinct in search, connect, and lineage pages, which makes discovering, connecting to, and reusing them simpler.

Curation and trust

- Certify your data assets to help users find trusted and recommended data.
- Set data quality warnings to alert users to data quality issues, such as stale or deprecated data.
- Add sensitivity labels to warn users about data that needs to be handled with care.
- Add custom labels to classify data in ways that suit the needs of your organization
- Manage data labels to extend the label names and categories available to users.
- Categorize items on Tableau Server and Tableau Cloud using tags to help users filter external assets.
- Better understand published visualizations by using the Data Details tab to see information about the data used.
- Add descriptions to databases, tables, and columns to help users find the data they're looking for.

Lineage and impact analysis

- Use lineage to trace the source of your data and to analyze the impact of changes to your data and identify which users might be impacted.
- Email owners of a workbook, data source, or flow about data-related updates. Do the same with database, table, or object contacts.

Developer resources

You can use metadata methods in the Tableau REST API to programmatically update certain metadata. For more information about the metadata methods, see Metadata Methods in the Tableau Server REST API.

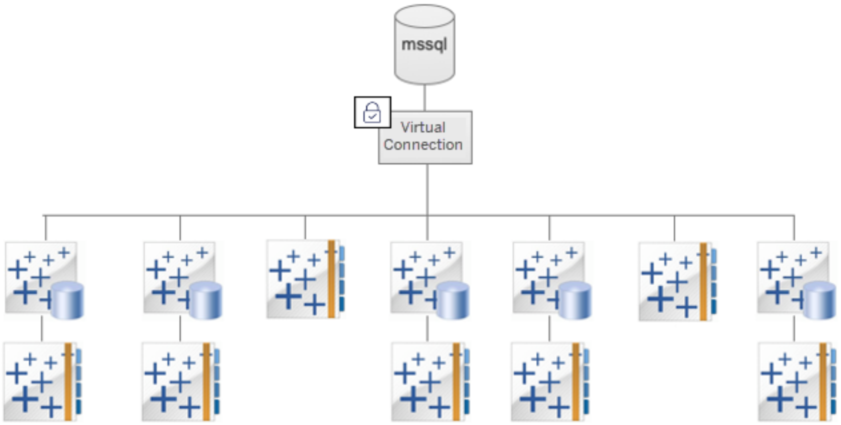
In addition to the REST API, you can use the Tableau Metadata API to programmatically query metadata from the content published to Tableau Server or Tableau Cloud. The Metadata API is fast and flexible and is best when you are looking to find out specific information about the relationship between metadata and its structures. Explore and test queries against the Metadata API using an interactive in-browser tool called GraphiQL.

Note: Data Management is not required to use the Metadata API or GraphiQL.

About Virtual Connections and Data Policies

Virtual connections are a Tableau content type, along with data sources, workbooks, and flows, to help you see and understand your data. Virtual connections provide a central access point to data. Another key feature introduced with virtual connections is data policies, which support row-level security at the connection level, rather than the workbook or data source level. Row-level security data policies are applied to any workbook, data source, or flow that uses the virtual connection.

A virtual connection can access multiple tables across several databases. Virtual connections let you manage extracting the data and the security in one place, at the connection level.



For information about row-level security options, see an Overview of Row-Level Security Options in Tableau.

Not every virtual connection has an associated data policy. You can also use a virtual connection simply as a central place to manage connection credentials.

Key terms

- Virtual connection. A sharable resource that provides a central access point to data.

- Connection. The server name, database, and credentials you use to access data. A virtual connection has one or more connections. Each connection accesses one database or file.
- Virtual connection table. A table in a virtual connection.
- Data policy. A policy that's applied to one or more tables in a virtual connection to filter data for users. For example, use a data policy to apply row-level security to tables in a virtual connection.
- Policy table. A fact or data table in a data policy that is filtered.
- Policy column. A column that's used to filter the data in the policy tables. A policy column can be in a policy table or in an entitlement table.
- Entitlement table. A table that includes both a policy column you can use to filter policy tables and another column you can relate (map) to a column in a policy table.
- Policy condition. An expression or calculation that is evaluated for every row at query time. If the policy condition is TRUE, then the row is shown in the query.

License virtual connections and data policies

Virtual connections and data policies are licensed through Data Management. For information about how Data Management licensing works, see License Data Management.

Enable virtual connections and data policies

Virtual connections and data policies are automatically enabled on Tableau Server and Tableau Cloud with Data Management.

Permissions

Permissions for virtual connections work much like the permissions for other Tableau content. After you publish a virtual connection, anyone can view the connection. However, only the connection creator and administrators can access data using the connection, until the connection creator explicitly grants more permissions.

When you create a virtual connection, you must set the permissions for the Connect capability to enable other users to connect to data using the virtual connection. The Connect capability allows you to share a virtual connection and allows users to query it. With connect permissions, a user can view the tables in a virtual connection and create content using the tables. For more information, see Set permissions on a virtual connection.

Permissions vs. data policies

Permissions define what a person can or can't do with a piece of content in Tableau. Permissions are made up of capabilities—the ability to do things like view content, web edit, download data sources, or delete content. Permission rules define which capabilities are allowed or denied for a user or group on a piece of content. The interplay between license level, site role, and potentially multiple permission rules factor into the final determination of what a person can or can’t do—their effective permissions. See Permissions for details.

Data policies filter the data in a virtual connection, making sure that people see only the data they're supposed to see. A data policy is applied and filters the data when it's viewed in the Tableau content (for example, a workbook or flow). The policy condition in a data policy is a calculation or expression that defines access to the data. User functions are often used to limit access to users or groups. Access can be based on the user name, the group a user belongs to, or a region value. See Create a Data Policy for Row-Level Security for details.

Both permissions and data policies govern access. Simply put, permissions determine which *content* you can see, access, use, or create; data policies determine which *data* you can see.

How permissions and data policies work together

Tableau permissions are applied to Tableau content first. People can only do the things they have the capabilities to do with Tableau content—data policies don't override Tableau permissions. After permissions are evaluated, the data policy is applied to determine which data in the virtual connection the person can see based on the policy condition.

The following example describes the effects of permissions and data policies on a virtual connection that contains salary data:

- The virtual connection is in the HR project, which is restricted to Tableau users in the HR group. Anyone outside the HR group can't see content in the HR project, which means they can't browse to, connect to, or view the virtual connection.

- The virtual connection has Connect permissions granted only to members of the HR Business Partners group. All others in the HR group can see that the virtual connection exists, but they can’t view the data it contains. When they view a workbook that uses that virtual connection, they can't see any data.
- The virtual connection also contains a data policy that filters the salary data based on the individual user, so HR Business Partners can see only rows that pertain to employees in their business unit. When they view a workbook that uses that virtual connection, they see data only for their business unit.

Features and functionality

For the manager of data, virtual connections provide:

- **Securely managed service accounts.** If you use a ‘service account’ model, now instead of having to share that service account information with any user who wants to access that data, you can give the service account credentials to the few analysts who are empowered to create virtual connections.
- **Agile physical database management.** You must make database changes (for example, a field is added or table name is changed) only one time in the virtual connection, rather than in every piece of content where the data is used.
- **Reduced data proliferation.** By centrally managing extract refresh schedules, refreshes are scheduled once, ensuring that anyone who accesses the data from that virtual connection is seeing fresh data.
- **Centralized row-level security.** You can create data policies that apply row-level security to both Tableau extracts and live queries at the connection level. The data policies are applied to any workbook, data source, or flow that uses the virtual connection.

Note: Data policies are valid for flow input data, but not for flow output data. Users with access to flow output data will see all of the data, and not only a subset of it that pertains only to them.

As the user of data, you benefit from virtual connections knowing that you have:

- **Appropriate access** to only the data you should see, because row-level security is already applied to the data.

- **Flexibility** to use data that's been curated and secured. The virtual connection stores and shares the connection information. All you have to do is create a data source with a data model specific to your needs.
- **Trust** that data is fresh because the extract refresh schedule has already been set.
- The ability to **share** content freely, assured that you won’t put security at risk because data policies are always enforced.

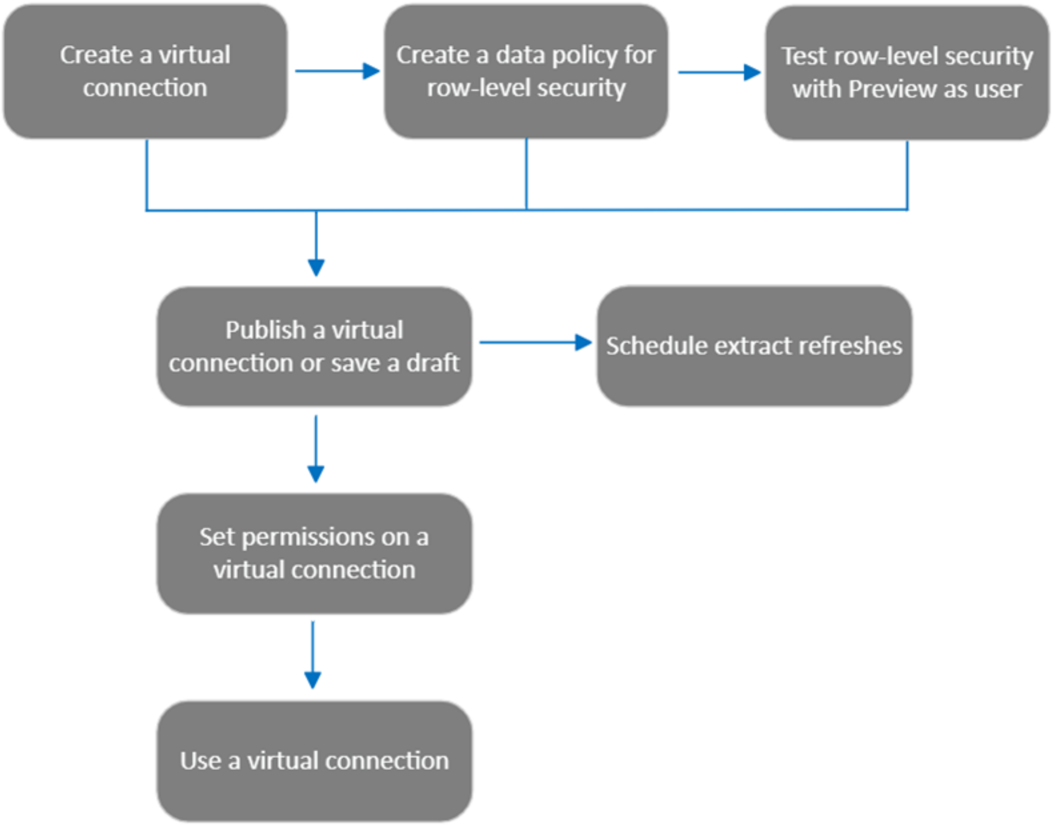
Virtual connection editor workflow

The virtual connection editor enables you to create:

- Virtual connections, which are a Tableau content type that provides a sharable central access point to data.
- Data policies that support row-level security at the connection level.

After you create a virtual connection and its associated data policies, you can publish it and set the permissions to share with other users. You can also schedule extract refreshes so that all content that uses the virtual connection is accessing fresh data.

The following diagram shows the workflow to create a virtual connection. At any time during the process, you can publish or save a draft of your connection, but the connection must be published before you can schedule extract refreshes or use (or edit) a virtual connection. You must also set permissions before others can use the connection.


Create a virtual connection
Create a data policy for row-level security
Test row-level security with Preview as user
Publish a virtual connection or save a draft
Schedule extract refreshes
Set permissions on a virtual connection
Use a virtual connection

Click a step in the process to go to that help topic.

Next step

The first step is to Create a Virtual Connection.

Create a Virtual Connection

A virtual connection is a Tableau content type that provides a sharable central access point to data, and supports row-level security at the connection level. Creating a virtual connection is a multi-step process. This topic covers connecting to the data you want to share and working in the Tables tab of the virtual connection editor.

Connect to data

To create a virtual connection in Tableau Cloud or Tableau Server:

1. From the Home or Explore page, click **New** > **Virtual Connection**.
2. In the Connect to Data dialog box, select the connector for your data. For a list of supported connectors for virtual connections, see Creators: Connect to Data in the Tableau Desktop and Web Authoring help.
3. Enter the information you're prompted for. The credentials you enter are saved in the virtual connection, so connection users don't have to enter credentials to connect to the data.
4. Click **Sign In** if prompted. To add another connection, click ⊕ and select a connector, enter credentials, and sign in.

A virtual connection can have multiple connections. Each connection accesses one database or file.

> **Note:** For Tableau Cloud, virtual connections that connect to private network data use Tableau Bridge to keep data fresh. For information about configuring Tableau Bridge, see Configure and Manage the Bridge Client Pool. For information about supported connections, see Connectivity with Bridge.

Add another connection

As needed, add another connection to a virtual connection and connect to more than one database by clicking ⊕ next to **Connections**. You can add a connection to a different server or database, or to the same server or database.

With multiple connections, you can:

- Use a table from any connection or database as an entitlement table in a data policy that secures tables from other connections and databases.
- Add or replace tables in a virtual connection with tables from a different database. For example, say you migrate data from one database to another. In the virtual connection editor, you can add a connection to the second database and replace the existing tables from the first database with tables from the second one.

- Add multiple connections to the same server or database. This can be helpful when you need to for example access data from the same database but with different credentials.
- Share a group of tables that are related or meant to be used together, no matter where they're physically located. For example, from multiple databases you can group tables related to employee information.

When you open a virtual connection to edit it, if prompted you must authenticate connections in sequence. If any connections fail to authenticate, you can't edit the virtual connection.

Select tables to include in the connection

If necessary, select a database to view the tables in it.

1. On the left, under **Tables**, select the tables and click or drag them to the Tables tab on the right. You can include tables from different connections. Include an entitlement table, if you're using one.
2. (Optional) Click **New Custom SQL** to create a custom table schema.

Note: Virtual connections don't support tables with a spatial data type.

Select live or extract mode for tables

You can set individual tables—whether they're from multiple connections or not—to either live or extract mode in the same virtual connection.

- **Live**- Tables are queried directly from the database. (Live is the default.)
- **Extracts**- Tables are extracted and saved to Tableau.

As an example, you can set some tables to extract mode so that they're not impacted by report generation or heavy customer traffic.

Under Tables, select the table or tables you want to change the mode for and select **Actions**, and **Change to Live** or **Change to Extract**. Alternatively, select the Actions Menu (...) in the table's row and select **Live** or **Extract**.

Incremental Extracts

Starting in Tableau Cloud June 2024 and Tableau Server 2024.2, you can configure table extracts for incremental refresh.

When configuring an incremental extract, you specify a key column that is used to identify new rows. When the incremental extract is refreshed, only the rows where the key column has increased will be added to the extract. Fewer rows processed means a faster extract refresh job and less load on the database.

For example, suppose we have an extract for the **Batters** table, and the data in the extract is:

Year	Team
1978	Lions
1979	Tigers

The **Batters** table is configured for incremental extract refresh, and the key column is **Year**.

The live table is updated with a new row for **1980**:

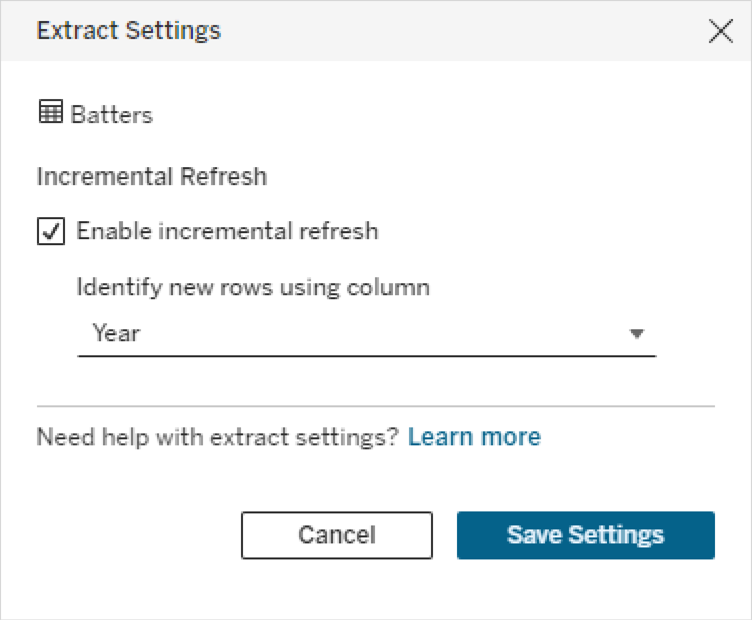
Year	Team
1978	Lions
1979	Tigers
1980	Bears

When the **Batters** table's extract is refreshed incrementally, only rows that exceed the greatest value in the extract's key column are added. In this case, that means that the **1980** row is added to the extract. Instead of refreshing the entire extract file, only 1 row is processed and appended.

You can still do a full refresh on an extract configured for incremental refresh if you want to refresh the entire extract.

To configure incremental refresh for a table extract:

1. Change the table from **Live** to **Extract.**
2. Select the Actions Menu (...) in the table's row and select **Extract Settings...**.
3. Check **Enable incremental refresh**.
4. Select an incrementing column to use when determining which rows to add.
5. Select **Save Settings**.



☑ Enable incremental refresh

Identify new rows using column: Year

Convert to Custom SQL

Starting in Tableau Cloud June 2024 and Tableau Server 2024.2, you can approximate the SQL used to connect to a table and use that as a starting point for your own custom SQL. Custom SQL allows you to filter or make other query changes that can modify the result set. Creating custom SQL this way instead of using **New Custom SQL** in the data pane is less impactful to existing virtual connections. Downstream assets see the table as the same table instead of a new one.

To convert a table to custom SQL:

1. Select the Actions menu (...) in the row for the table.
2. Select **Convert to Custom SQL**.
3. In the **Edit Custom SQL** dialog, edit the SQL as needed.
4. Select **Generate Table**.

> Note: The SQL that first appears in the dialog should be considered a starting point, and may not work without modification. The virtual connection editor lacks nuanced information about the specific SQL syntax used in the connection. If you encounter errors when selecting the Generate Table button, try removing or changing single quotes, double quotes, back quotes, and square brackets to make the SQL compliant with the database you're using.

To edit the custom SQL:

1. Select the Actions menu (...) in the row for the table.
2. Select **Edit Custom SQL**.
3. In the **Edit Custom SQL** dialog, edit the SQL.
4. Select **Generate Table**.

To return the table to its default state, without custom SQL:

1. Select the Actions menu (...) in the row for the table.
2. Select **Replace**.
3. In the replace table dialog, select the original table name.
4. Select **OK**.

Extract table data

After a table or tables are changed from live to extract but haven’t been extracted yet, click **Create Pending Extracts** to run the pending extracts. After all pending extracts are run, click **Refresh All Extracts** to extract all table data at that time.

Alternatively, in Tableau Cloud June 2024 or Tableau Server 2024.2 and later, select the Actions Menu (...) in the table's row and select **Refresh Extract...**. If incremental refresh is not configured for the table, you can only select **Refresh (Full)**. If incremental refresh is configured, you can choose either **Refresh (Full)** to refresh the extract completely, or **Refresh (Incremental)** to incrementally refresh the extract.

You must run any pending extracts before you publish the virtual connection. You can't edit the connection while extracts are generated.

Schedule extract refreshes of the tables in your virtual connection on the virtual connection page after you publish the connection. See Schedule Extract Refreshes for a Virtual Connection.

Set the table visibility state

Use the Visibility toggle on the Tables tab to show or hide tables and their data from users.

✓ Users can see table data. You can create a data policy to govern which data users can see. (Visible is the default.)

✗ Users can't see table data. You can use hidden tables in a data policy and as an entitlement table.

See table details

Click a table at the top of the Tables tab to see its details. You can make simple edits in the Table Details section, such as change a table name, hide or rename a column, or change a data type.

Switch the table information you see using these icons:

- A list of columns in the table and each column's data type.
- Sample data for each column and linked keys, if available. Linked keys show which columns link to other tables. They're visible only when databases have primary and foreign key information.
- The range of values in a histogram for each column selected.

Refresh data from the database

Click the refresh icon ⟳ in the toolbar to get the latest data from the database for all the connections in a virtual connection, including:

- The lists of databases, tables, and columns. Both the tables included in a virtual connection and not included are refreshed.
- Table and histogram data.

For tables in live mode, refreshing retrieves the latest list of databases, tables, and columns and the most recent table and histogram data. For tables in extract mode, refreshing retrieves the updated list of tables and columns. But to see the most recent table and histogram data, you must start a new extract. For example, when there's a new column in a database table and you click the refresh icon, the new column appears in the editor but its data does not. To see the most current data, you must start a new extract.

Refreshing data invalidates any currently cached data. Closing and reopening the editor, switching tables from extract to live mode, and changing a connection credential like user-name or password also refreshes data.

Who can do this

To create a virtual connection, you must

- have credentials to the database that the virtual connection connects to, and
- be a server or site administrator, or a Creator.

Next steps

After tables have been added and configured on the Tables tab, you can choose to Create a Data Policy for Row-Level Security or Publish a Virtual Connection and Set Permissions.

See also

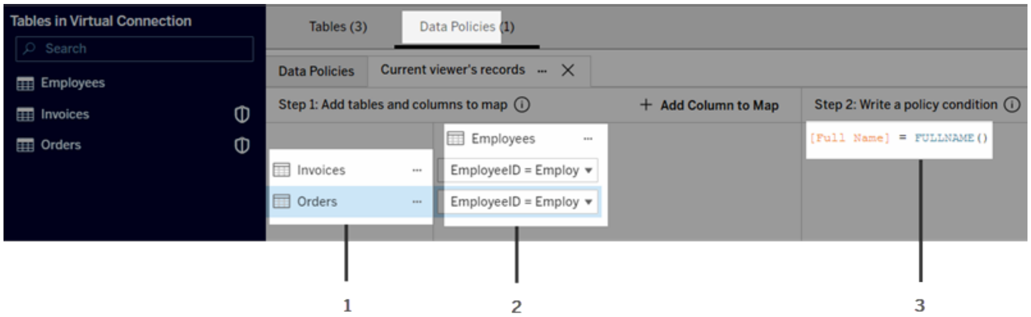
Use a .properties file to customize a JDBC connection — If you're customizing a JDBC-based connection, you can also make customizations in a .properties file

Create a Data Policy for Row-Level Security

Use a data policy to apply row-level security to one or more tables in a virtual connection. A data policy filters the data, ensuring that users see only the data they're supposed to see. Data policies apply to both live and extract connections.

About data policies

A data policy has three main components:


Tables in Virtual Connection
Search
Employees
Invoices
Orders
Tables (3)
Data Policies (1)
Data Policies
Current viewer's records
Step 1: Add tables and columns to map
+ Add Column to Map
Step 2: Write a policy condition
Employees
Invoices
Orders
EmployeeID = Employ
EmployeeID = Employ
1
2
3

```
[Full Name] = FULLNAME()
```

1. The tables it applies to, called policy tables. These are the tables that are filtered.
2. The mapped columns that define the relationships between tables (for example, between entitlement and fact tables) and between table columns and policy columns. A policy column is the column used to filter data.
3. The policy condition, which is an expression or calculation that is evaluated for every row at query time. If the policy condition is TRUE, then the row is shown in the query.

When you create a data policy, you need a column you can use to filter the data. This column is called a policy column. Data is filtered by the policy condition, usually using a user function, such as USERNAME() or FULLNAME().

If your policy table includes a column that you can filter on, then use that column as your policy column.

When a policy table doesn't include such a column, use an entitlement table with a column you can use to filter the data. An entitlement table is a table that includes both a policy column you can use to filter policy tables and another column you can relate (map) to a column in a policy table (as shown in the data policy example image above).

Filter with a policy column from a policy table

The most common way to filter data is to use a column in the table that has the data that you want to filter on. Use that column as a policy column and then map the appropriate table columns to the policy column.

To use a policy column to filter your data, first, add tables to the policy from the left pane. To add a table, do one of the following:

- Double-click the table name.
- Click the drop-down arrow near the table name and select **Manage table with policy**.
- Or, drag the table to the right and drop it on **Add as Policy Table**.

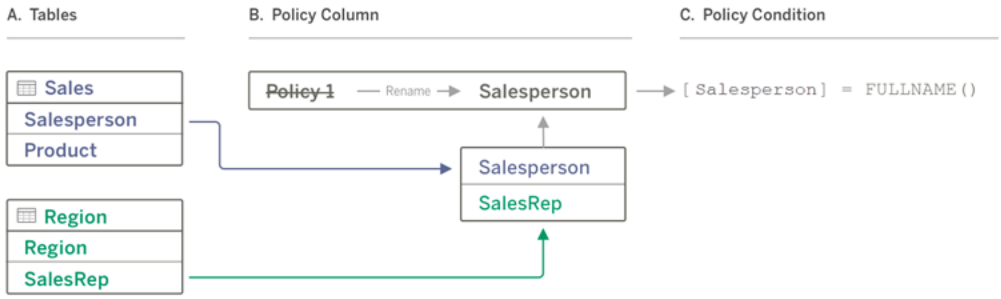
After a table is added to a policy, a shield icon 🛡 appears to the right of the table name in the left pane indicating that it's a policy table.

Next, map columns to create a relationship between the column name in the table and the policy column name. Use the policy column name in the data policy condition to control row-level data access for users:

1. Click **+Add Column to Map** to add one or more columns you’ll use to filter data.
2. Name the policy column. You'll use this name in the policy condition.
3. For each table the policy applies to, use the drop-down menu to select the table column that maps to the policy column.
4. Repeat this process for as many policy columns as you want to use in the policy condition.

Tip: Instead of using the +Add Column to Map button, you can start typing the calculation in the policy condition area and use auto-complete to choose the column name, which will then populate the policy column information under Step 1.

An example using a policy column from a policy table



A. The Sales table has a [Salesperson] column, and the Region table has a [SalesRep] column. The Salesperson and SalesRep data matches the full name of Tableau users on your site.
B. You want to filter the Sales and Region data by Salesperson, so you name the policy column "Salesperson" and then map the Salesperson column from Sales and the SalesRep column from Region to the Salesperson policy column.
C. Then write the policy condition to filter both tables. Use the [Salesperson] policy column and the FULLNAME() user function so that each user can see only their own data.

Filter with policy column from an entitlement table

Entitlement tables are used when your policy table doesn’t contain a column you can filter on. You can use the entitlement table to map a column in the data table to a column in the entitlement table. Note the following:

- Be sure to include the entitlement table as a table in the virtual connection. You can use a table from any connection or database as a central entitlement table that secures tables across many other databases. In some cases, an entitlement table that’s in the same database as the tables you’re securing can be a potential security risk because of the potential for exposing employee data. And having an entitlement table in a different database can make it easier to control permissions, for example, to grant someone access to a database.
- If you don't want virtual connection users to see the entitlement table, you can toggle the setting in the Visibility column on the Tables tab to hide it. Once hidden, the entitlement table is still available for policy filtering but can’t be used in vizzes or workbook data sources.

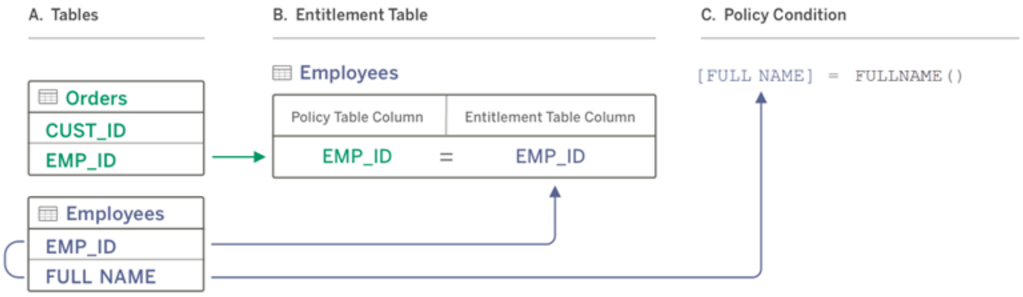
Note: Connecting directly to a flow output (.hyper file) is not supported for the entitlement table. The flow output must write directly to the database.

To use an entitlement table to filter your data:

1. Add the data tables that you want the data policy to apply to. Do one of the following:
    - Double-click the table name.
    - Click the drop-down arrow near the table name and select **Manage table with policy**.
    - Or, drag the table to the right and drop it on **Add as Policy Table**.
2. After a table is added to a policy, a shield icon 🛡 appears to the right of the table name in the left pane indicating that it's a policy table.
3. Select the entitlement table, then either:
    - Click the drop-down arrow and select **Use as entitlement table**.
    - Or, drag the table to the right and drop it on **Add as Entitlement Table**.
4. For each table that the policy applies to, click the drop-down menu and select the

column to map the policy table to the entitlement table.

An example using a policy column from an entitlement table


A. Tables
B. Entitlement Table
C. Policy Condition
Orders
CUST_ID
EMP_ID
Employees
EMP_ID
FULL NAME
Employees
Policy Table Column
Entitlement Table Column
EMP_ID = EMP_ID
[FULL NAME] = FULLNAME()

A. The data you want to filter has an EMP_ID column, but not an employee name column. However, you have a second table that includes columns for both EMP_ID and the employee's FULL NAME. And, the values in the employee FULL NAME column match the full name of Tableau users on your site.
B. You can add Employees table to the policy as an entitlement table, and then map the policy table column name EMP_ID to the entitlement column name EMP_ID for each table.
C. Then use the FULLNAME() function in your policy condition to match the Tableau Server user's full name with the entitlement table's [FULL NAME] column (which is the policy column) so that each user can see only their own data.

Write a policy condition

The last step in creating a data policy is to write a policy condition, which is a calculation or expression used to define row-level access. Policy conditions are often used to limit access to users or groups through user functions.

A policy condition:

- Is required in a data policy.
- Must evaluate to true or false.
- Shows rows when the policy condition is true.

When you close a policy tab, it doesn't discard your work.

Policy condition examples

Shows only rows where the Region column value is North:

```
[Region] = "North"
```

Enables a signed-in user to see the rows where the user's name matches the value in EmployeeName:

```
FULLNAME() = [EmployeeName]
```

Enables members of the Managers group to see all rows, while users can see only the rows where their username matches the value in the employee_name column:

```
ISMEMBEROF('Managers') OR USERNAME() = [employee_name]
```

Supported Tableau functions in policy conditions

Policy conditions support a subset of Tableau functions:

- Logical (except null-related)
- String
- User
- Date
- Number: MIN, MID, MAX

To see which specific functions are supported, in the virtual connection editor, on the Data Policies tab, see the **Reference** panel on the right.

Note: If the virtual connection has a data policy that contains user functions (for example, `USERNAME()`) and you connect to it from a workbook or data source and create an extract there, the extract will contain only the rows that match the virtual connection data policy at the time the extract is created. To take advantage of a virtual connection with user functions in the data policy, use a live connection from the workbook or data source to the virtual connection instead of an extract.

Who can do this

To create a data policy, you must

- have credentials to the database that the virtual connection connects to, and
- be a server or site administrator, or a Creator.

Next steps

After you create a data policy, the next step is to verify that it works as you expect it to. See Test Row-Level Security with Preview as User. Or, if you're ready to share the virtual connection and its data policies with others, see Publish a Virtual Connection and Set Permissions.

Resources

For detailed information about calculations, see Understanding Calculations in Tableau in the Tableau Desktop and Web Authoring help.

For information about user functions, see User Functions in the Tableau Desktop and Web Authoring help.

For information about other row-level security options in Tableau, see Overview of Row-Level Security Options in Tableau in the Tableau Server help.

Test Row-Level Security with Preview as User

Use **Preview as user** to test your data policy. You can see the data as the user sees it and ensure that row-level security is working as expected. This helps when the data policy keeps you from seeing the rows in the table (for example, if only salespeople can see rows, and you’re not a salesperson).

To preview the data when the data policy is applied:

1. Select a table.
2. In the Table Details section, select the **With policy applied** check box.
3. Click **Preview as user**, select a **Group** (optional) and a **User**.

4. Verify that the policy shows the correct data for that user in the table details.
5. Repeat for other users as needed.

Tip: In Table Details, click to show the range of values for a column, including which values show and which are filtered out by the data policy. Select one or two columns that are good indicators that the policy is correctly filtering the data.

Who can do this

To test a virtual connection, you must

- have credentials to the database that the virtual connection connects to, and
- be a server or site administrator, or a Creator.

Next step

After you test your data policy, when you're ready to share the virtual connection with others, see Publish a Virtual Connection and Set Permissions.

Publish a Virtual Connection and Set Permissions

When you work in the virtual connection editor, your changes are automatically saved as a draft while you work. To share a new virtual connection with other users, you need to publish it.

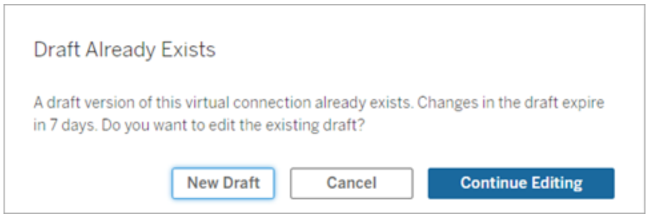
Save a draft

You can manually save a draft of the connection by clicking the save icon in the toolbar or by selecting **File** > **Save Draft** from the menu.

When editing a published virtual connection, the connection stays available to users in its current published state. You can save your updates as a draft while you work on the connection in the editor. To share the updates to the virtual connection with other users, you need to publish it.

Draft in progress

If you close the editor while updating a published virtual connection, the next time you open the connection in the editor within seven days, you have the option of continuing to make edits to the existing draft, starting a new draft, or opening the connection in its current published state by clicking **Cancel**.



Draft Already Exists

A draft version of this virtual connection already exists. Changes in the draft expire in 7 days. Do you want to edit the existing draft?

To return to a draft version of an unpublished virtual connection, you need to manually save the URL of the draft **before** you close the editor. You can use the URL to open the draft in the editor the next time you want to work on the connection within seven days. For example:

```
https://yourserver.test.com/published-connection-edit-
or/?draft=d1789edc-5d9f-40ae-988d-9fc879f37a98
```

Publish the connection

To publish a new connection:

1. Click the **Publish** button in the upper right corner of the editor or select **File** > **Publish** from the menu.
2. In the Publish dialog box:
   a. Type a name in the **Name** field.
   b. Select a project to save the connection to.
3. Click **Publish**.

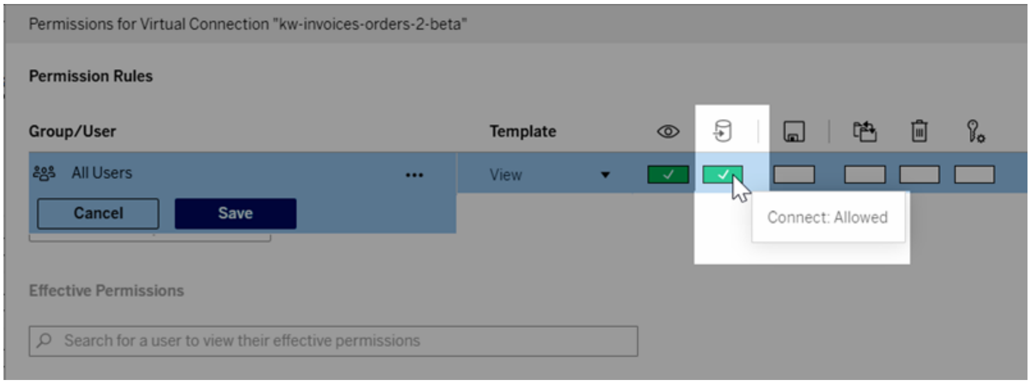
To publish an updated connection, click the **Publish** button in the upper right corner of the editor or select **File** > **Publish** from the menu.

Set permissions on a virtual connection

After you publish a virtual connection, you need to set the permissions so that others can use it. By default, all users can **View** the connection, in other words, see it listed under Virtual Connections in Tableau, but unless you set the **Connect** capability to Allowed, only you and administrators can use the virtual connection. For more information on the Connect capability, see Permissions.

To set permissions:

1. Navigate to the virtual connection.
2. Open the Actions menu (...) and click **Permissions**.
3. Check the box under the Connect icon so that connect is allowed for all users.



Permissions for Virtual Connection "kw-invoices-orders-2-beta"

Permission Rules
Group/User
Template
All Users
View
Cancel
Save
Connect: Allowed
Effective Permissions
Search for a user to view their effective permissions

Tip: You can add additional rules if you want to grant the permission only to certain users or groups.

4. Click **Save**.

For more information about permissions on Tableau content, see Permissions. For information on embedding passwords when you publish Tableau content such as a data source or workbook that uses a virtual connection, see Virtual connections in the Tableau Server help.

Who can do this

To publish a virtual connection or set permissions, you must

- have credentials to the database that the virtual connection connects to, and
- be a server or site administrator, or a Creator.

Next step

After you publish a virtual connection and set its permissions, you can Use a Virtual Connection .

Schedule Extract Refreshes for a Virtual Connection

One of the benefits of virtual connections is that you can reuse the same extract multiple times, reducing data proliferation and removing redundant extract refresh jobs. To ensure that extract data is fresh for any content that uses a virtual connection, you can create an extract refresh schedule for the tables in your connection after you publish the connection.

You can also schedule extract refreshes of data sources and workbooks that use virtual connections. See Schedule Refreshes on Tableau Cloud and Refresh Data on a Schedule (Tableau Server).

Extract tables

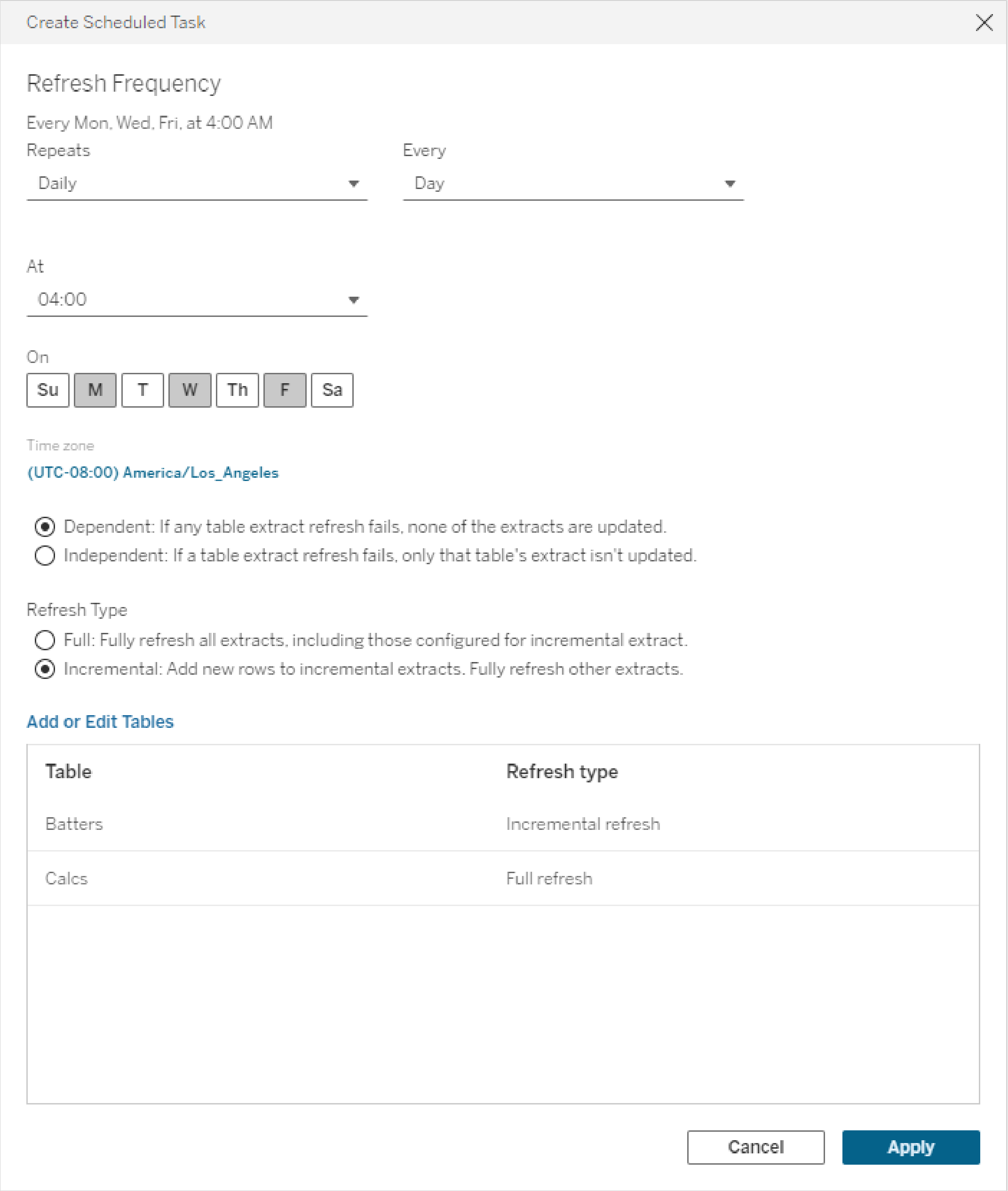
See Extract table data.

Schedule extract refreshes on Tableau Cloud

1. Navigate to the virtual connection page. (From the **Home** or **Explore** page, click **Virtual Connections** from the dropdown menu, then select your virtual connection.)
2. At the top of the page, a heading should say **Data is Extract**. If it says **Data is Live**, refresh your browser.
3. Select the **Scheduled Tasks** tab and click **+New Task**.
4. The **Create Scheduled Task** dialog box opens. The **Create Scheduled Task** dialog box looks different in Tableau Server and Tableau Cloud. If you are using Tableau Server, see Schedule Extract Refreshes for a Virtual Connection in the Tableau Server Product Help.
5. Select the **Refresh Frequency** using the dropdowns for **Repeats**, **Every**, and **At**. Use the buttons under **On** to select the days of the week.
6. For cases when multiple tables use extracts, select **Dependent** or **Independent**.
   - **Dependent** means that none of the extracts will be updated if one or more tables' extract refresh jobs fails.
   - **Independent** means that the success or failure of a table's extract job doesn't affect whether or not other tables' extracts are updated.
7. Select **Refresh Type**. You can configure the type of extract in the virtual connection editor. For more information, see the Incremental Extracts section of the Create a Virtual Connection page.

  - **Full** means that full extract refresh jobs will be run on all extracts in the virtual connection, regardless of whether they are configured for full extract refresh or incremental extract refresh.
  - **Incremental** means that incremental extract refresh jobs will be run on all incremental extracts in the virtual connection. For all other extracts in the virtual connection, full extract refresh jobs will be run.

8. Select **Add or Edit Tables** and select the tables you want to refresh.
9. Select **OK**.
10. Select **Apply**.



Create Scheduled Task

Refresh Frequency

Every Mon, Wed, Fri, at 4:00 AM

Repeats: Daily

Every: Day

At: 04:00

On: Su **M** T **W** Th **F** Sa

Time zone

(UTC-08:00) America/Los_Angeles

● Dependent: If any table extract refresh fails, none of the extracts are updated.

○ Independent: If a table extract refresh fails, only that table's extract isn't updated.

Refresh Type

○ Full: Fully refresh all extracts, including those configured for incremental extract.

● Incremental: Add new rows to incremental extracts. Fully refresh other extracts.

Add or Edit Tables

Table	Refresh type
Batters	Incremental refresh
Calcs	Full refresh

Virtual connections that connect to private network data use Tableau Bridge to keep data fresh. For more information, see Configure and Manage the Bridge Client Pool.

Time limit for extract refreshes

To ensure that long running refresh tasks don't take up all system resources and don't prevent refreshes of other extracts on your site, extract refreshes for a virtual connection are subject to a two-hour time limit. For more information about the timeout limit for refresh tasks and suggestions for resolving these errors, see Time limit for extract refreshes. Note: Starting with Tableau Cloud June 2024 and Tableau Server 2024.2, virtual connections support incremental refresh for table extracts. Prior to that release, virtual connections only supported full refreshes.

Who can do this

To publish a virtual connection or set permissions, you must

- have credentials to the database that the virtual connection connects to, and
- be a server or site administrator, or a Creator.

Next step

After you schedule extract refreshes for a virtual connection, you can Use a Virtual Connection

Use a Virtual Connection

After a virtual connection is published and permissions are set, it's available to users to connect to data in the same ways that users access all data in Tableau. When you must edit a virtual connection or the data policy in the connection—for example, when the underlying schema changes—simply open the connection in the virtual connection editor, make your changes, and either save or publish the updates. You can also replace an existing data source in a workbook with a virtual connection.

Connect to a virtual connection

For web authoring in Tableau Cloud or Tableau Server:

1. On the Home or Explore page, click **New**.
2. Select the type of content you want to create: workbook, flow, or published data source.
3. In Connect to Data > On This Site > Content Type dropdown menu, select **Virtual Connections**.
4. Select the name of the connection and click **Connect**.

For Tableau Desktop and Tableau Prep:

1. On the Connect pane, under Search for Data, click **Tableau Server**.
2. Enter the server name and click **Connect**, or click **Tableau Cloud**.
3. Enter the information prompted for.
4. On the Search for Data dialog box, from the Content Type dropdown menu, select **Virtual Connections**.
5. Select the name of the connection and click **Connect**.

> **Note:** There's no need to enter credentials when you connect using a virtual connection. The credentials to access the data are embedded in the connection.

Edit a virtual connection or data policy

When editing a published virtual connection, the connection stays available to users in its current published state. For more information, see Publish a Virtual Connection and Set Permissions.

To edit a connection, navigate to it from the Explore page. Note that even though database credentials are embedded in the connection, only those with the database credentials can make any changes to a virtual connection.

1. From the dropdown menu, select **All Virtual Connections**, then select the connection you want to edit.
2. Click **Edit Virtual Connection**.
3. Enter the information prompted for to connect. To edit a connection, you must enter the credentials required to access the data.

4. Click **Sign In**.
5. In the virtual connection editor, make your changes and then either save a draft or publish the connection.

Respond to underlying schema changes

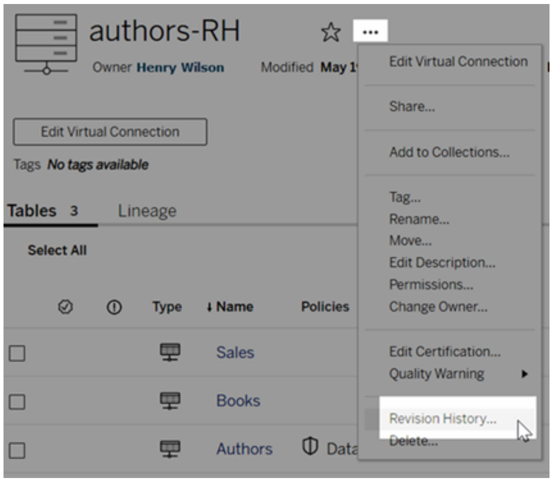
When the underlying schema in a virtual connection changes—for example, a table is added or deleted, or a column is added or renamed—you must edit the virtual connection to reflect the schema changes and then republish the connection. (If the connection has extracts, remember to refresh the extracts.) This way, you can add or edit the tables, columns, and policies in the connection before new data is exposed to everyone.

Work with virtual connection revision history

When you publish a virtual connection, a version is saved in the revision history for Tableau Cloud or Tableau Server. You can revert to a previous version at any time.

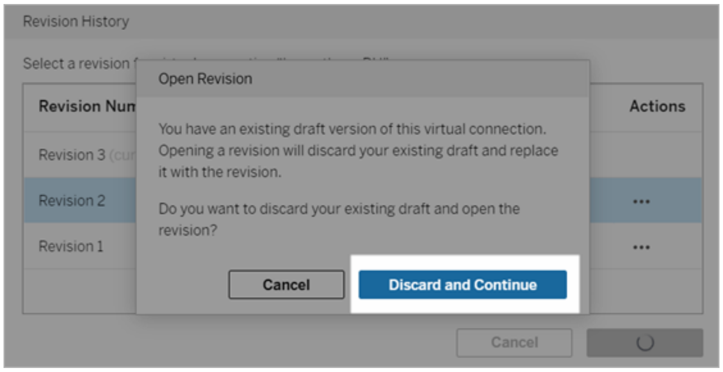
To access revision history, you must have a **Creator** site role and the **View** and **Overwrite** permissions.

To see the virtual connection revision history, click the actions menu (. . .) for the virtual connection, then click **Revision History**.


authors-RH
Owner Henry Wilson
Modified May 1
Edit Virtual Connection
Tags No tags available
Tables 3
Lineage
Select All
Type
Name
Policies
Sales
Books
Authors
Data
Edit Virtual Connection
Share...
Add to Collections...
Tag...
Rename...
Move...
Edit Description...
Permissions...
Change Owner...
Edit Certification...
Quality Warning
Revision History...
Delete...

Restore or delete a virtual connection revision

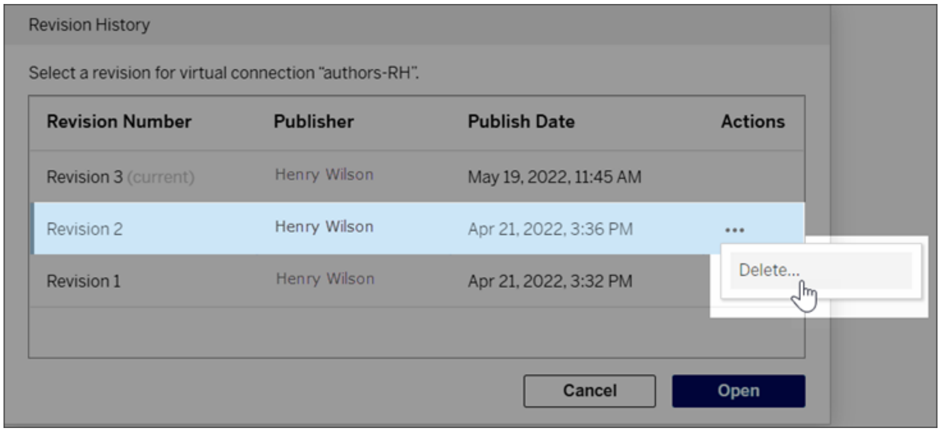
To restore a virtual connection revision, select a revision, and then click **Open**. You are then prompted to discard the existing version of the connection. When you click **Discard and Continue**, the revision you selected becomes the current version of the connection.


Revision History
Select a revision f
Revision Num
Actions
Revision 3 (cu
Revision 2
Revision 1
Open Revision
Cancel
Discard and Continue
Cancel

You have an existing draft version of this virtual connection. Opening a revision will discard your existing draft and replace it with the revision.

Do you want to discard your existing draft and open the revision?

To delete a revision, from the revision's actions menu (. . .), click **Delete**.


Revision History
Delete...
Cancel
Open

Select a revision for virtual connection "authors-RH".

Revision Number	Publisher	Publish Date	Actions
Revision 3 (current)	Henry Wilson	May 19, 2022, 11:45 AM	
Revision 2	Henry Wilson	Apr 21, 2022, 3:36 PM	...
Revision 1	Henry Wilson	Apr 21, 2022, 3:32 PM	

Replace an existing data source in a workbook with a virtual connection

For web authoring in Tableau Cloud or Tableau Server:

1. Download the workbook. For more information, see Download Views and Workbooks in Tableau Desktop Help.
2. In Tableau Desktop, open the workbook and replace its existing data source with a virtual connection. For more information, see Replace Data Sources in Tableau Desktop Help.

3. In Tableau Desktop, upload the workbook to your Tableau Cloud or Tableau Server site. For more information, see Upload Workbooks to a Tableau Site in Tableau Desktop Help.
4. In Tableau Cloud or Tableau Server, click **Publish** to save your changes to the server.

For Tableau Desktop:

1. Open the workbook and replace its existing data source with a virtual connection. For more information, see Replace Data Sources in Tableau Desktop Help.
2. Republish the workbook. For more information, see Simple Steps to Publish a Workbook in Tableau Desktop Help.

Who can do this

To use a virtual connection, you must be a Server Administrator, Site Administrator Creator, or Creator.

To edit a virtual connection or data policy, you must

- have credentials to the database that the virtual connection connects to, and
- be a server or site administrator, or a Creator.

To migrate existing content to use a virtual connection, you must

- be a server or site administrator, or
- be a Creator who is also the data source owner.

About Tableau Advanced Management on Tableau Cloud

> **Important:** As of September 16, 2024, Advanced Management is no longer available as an independent add-on option. Advanced Management capabilities are only available if you previously purchased Advanced Management, or if you purchase certain license editions - either Tableau Enterprise (for Tableau Server or Tableau Cloud) or Tableau+ (for Tableau Cloud).

Tableau Advanced Management is a collection of features designed to provide enhanced security, manageability, and scalability capabilities for your Tableau Cloud deployment.

Advanced Management Licensing

Advanced Management is licensed on a per deployment basis as part of Tableau Enterprise or Tableau+.

- Advanced Management can only be used with a Tableau Cloud deployment. For more information on how to purchase Advanced Management for an existing Tableau Cloud deployment, contact your account manager.
- If Advanced Management is removed or deactivated for your deployment, you will no longer be able to use the features associated with Advanced Management.

Feature table

The following table lists the features that are included with Advanced Management:

Feature	Description	Requirements to use the feature
Content Migration Tool	The Content Migration Tool provides an easy way to copy or migrate content between Tableau projects in your Tableau Cloud deployment. For more information, see About Tableau Content Migration Tool.	• The Content Migration Tool must be installed on a version of Microsoft Windows that supports .NET 4.6.1 (Windows 7 or later, Windows Server 2008R2 or later).
Activity Log	The Activity Log can send log events to Amazon Simple Storage Service (S3), where you can use them to conduct further auditing and analysis. For more information, see Activity Log.	• Amazon Web Services (AWS) account. • Amazon Simple Storage Service (S3) bucket to receive data. • AWS Key Management Service (KMS) key.
Admin Insights data retention	Admin Insights data sources retain up to 365 days of site data. For more information, see Use Admin Insights to Create Custom Views.	
Customer-Managed Encryption Keys	Customer-Managed Encryption Keys give you an extra level of security by allowing you to encrypt your site data extracts with a customer managed site-specific key. For more information, see Customer-Managed Encryption Keys.	
Increased Site Capa-	With Advanced Management you get the following capacity increases for your	

Feature	Description	Requirements to use the feature
city	licensed sites: • Storage of up to 5 Terabytes (TB) • Maximum file size of 25 Gigabytes (GB) • Up to 25 concurrent Extract refreshes For more information on site capacity, see Tableau Cloud Site Capacity.	

Activity Log

If you have Tableau Cloud with Advanced Management, you can use Activity Log to analyze and audit tenant and site events. Depending on the event you want to review, accessing your data requires additional configuration steps or using API calls.

With the Activity Log, you can:

- **View and analyze event data:** Access detailed event data for Tableau Cloud, capturing compliance information and tracking activities on your tenants and sites. All events include a timestamp and the ID of the actor, and if relevant, the ID of the affected content.

- **Audit permissions changes:** Track and audit permissions changes, such as adding or removing users from a group, moving content between projects, and explicitly changing content permissions. This is essential for implementing robust controls for compliance purposes.

- **Supplement Admin Insights:** Enhance the information provided by Admin Insights and Admin Views to track site activity and usage metrics. You can integrate Activity Log data with monitoring tools, such as Splunk or Amazon EventBridge to query log fields and answer questions like the last 10 actions taken by a user, who last performed an event on content, and what the last action on content was. Activity Log data can also be imported to cloud data warehouses for analysis, such as Snowflake, Data Bridge, Google BigQuery.

Accessing Activity Log events

Before you jump into Activity Log, it's important to understand the different event types in Tableau Cloud and how to access them.

Tenant events

Tenant events record changes that occur within Tableau Cloud Manager tenants. These include activities like assigning users access and roles on a site, changing site role capacity limits, and monitoring license consumption across multiple sites. Tenant events are accessed using the Tableau Cloud Manager REST API by users with a cloud administrator role. For more information, see List tenant activity log paths and Batch generate tenant activity log download urls methods in Tableau Cloud Manager REST API Help.

For a full list of Activity Log tenant events, see Activity Log Tenant Event Type Reference.

Site events

Site events record changes that occur within Tableau sites. These include activities like login successes and failures, permission changes, and user interactions with content. Site events are accessed by configuring the Activity Log to send log data to Amazon Simple Storage Service (S3) for analysis. For more information, see Set Up Activity Log.

For a full list of Activity Log site events, see Activity Log Site Event Type Reference.

Event update frequency and data retention

Depending on the type of Activity Log event, there are different values for log update frequency and data retention.

	Tenant events	**Site events**
Access method	Tableau Cloud Manager REST API	Customer-managed Amazon Simple Storage Service (S3) Bucket
Update frequency	15 minutes	15 minutes
Data retention	365 days	Data retention is determined based on the S3 Lifecycle configuration of your bucket. For more information, see Setting an S3 Lifecycle configuration on a bucket in AWS Help.

Set Up Activity Log

The Activity Log contains detailed events for your Tableau deployment that you can use for compliance, monitoring, and auditing. You must complete the following steps in order to use Activity Log.

Prerequisites

To use the Activity Log, you must have the following:

- Tableau Cloud with Advanced Management
- Amazon Web Services (AWS) account
  - You'll need your own AWS account to complete these steps.
  - You'll also need the Tableau AWS account number (`061095916136`) in Step 3 below, to receive the activity log in your Amazon Simple Storage Service (S3) bucket.

- Amazon Simple Storage Service (S3) bucket to receive data
    - You'll create an Amazon S3 bucket as part of the setup process. Amazon S3 is currently the only supported data delivery option.
    - You must create the Amazon S3 bucket in the same AWS region where your Tableau Cloud site is hosted. For more information about data locations, see Security in the Cloud and IP addresses for data provider authorization.

      Important: Pods in the Europe - Ireland region have moved to the Europe - Germany region as part of Tableau Cloud's migration to Hyperforce. If your site resided on a Europe - Ireland pod, you'll need to reconfigure Activity Log to use an AWS S3 bucket in the new region, Europe - Germany. For more information, see AWS region change for sites on Europe - Ireland pods below.
- AWS Key Management Service (KMS) single-region key for the Amazon S3 bucket that you create during setup.

Step 1. Create an AWS account

If you don't already have an Amazon Web Services (AWS) account, you can sign up for an AWS account at the AWS website.

Step 2. Create an Amazon S3 bucket and set up permissions

1. Create an Amazon S3 bucket to receive your log data. For more information, see Creating a bucket at the AWS website.
2. Configure the Amazon S3 bucket with the following settings:
    a. Under **Object Ownership**, select **ACLs disabled** (recommended). This ensures that the bucket owner is the owner of all objects written to it.
    b. Under **Bucket Versioning**, select **Enable**. Bucket versioning must be enabled in order to replicate objects.

c. Under **Default encryption**, select **Enable**.

d. Choose **AWS Key Management Service (SSE-KMS)**.

e. Choose **Enter AWS KMS key ARN**.

f. Click the **Create key** button that appears to create a new AWS Key Management Service (KMS) key.

> **Note:** KMS multi-region keys aren't supported.

g. Select **Symmetric Key** type and **Encrypt and decrypt Key usage**.

h. Name the key with an alias, and then click through until the **Review** page.

i. Add the following statement to the **Statement list** inside the Key policy, to give Tableau access to encrypt objects in the S3 bucket.

> **Note:** This statement allows the Tableau IAM role to encrypt the objects placed in the Amazon S3 bucket. “kms:GenerateDataKey” is used to generate a data key to encrypt object replicas. “kms:Encrypt” is used to encrypt object replicas created in the target S3 bucket. “Resource”: “*” grants permission for the KMS key only to the replication role and doesn’t allow the role to elevate its permissions. For more information see Protecting data using server-side encryption with AWS Key Management Service (SSE-KMS) at the AWS website.

```
{

"Sid": "AllowTableauS3ReplicationSourceRoleToUseTheKey",

"Effect": "Allow",
"Principal": {

"AWS": "arn:aws:iam::061095916136:role/prod-replication-rule-role"

},

"Action": [

"kms:GenerateDataKey",

"kms:Encrypt"

],

"Resource": "*"

}
```

   j. Click **Finish** to create the KMS key.

   k. Click **Create bucket** to create the Amazon S3 bucket.

3. Update permissions on the Amazon S3 bucket policy.

   a. Open the Amazon S3 bucket and click the **Permissions** tab.

   b. Locate the **Bucket policy** section and click **Edit**.

   c. Add the following to the **Statement list** in the bucket policy. Replace **S3-BUCKET-NAME** with the name of the bucket.

   > **Note:** This statement allows the Tableau IAM role to replicate objects into the bucket. Using "*" and "<path>/*" grants access to all prefixes in the specified bucket and path in the bucket, respectively. The "s3:ReplicateObject" and "s3:ReplicateDelete" permissions are the minimum permissions

required to successfully replicate objects and delete markers. See Granting permissions when the source and destination buckets are owned by different AWS accounts at the AWS website.

```
{

"Sid": "TableauS3ReplicationRoleAccess",

"Effect": "Allow",

"Principal": {

"AWS":

"arn:aws:iam::061095916136:role/prod-replication-rule-role"

},

"Action": [

"s3:ReplicateObject",

"s3:ReplicateDelete"

],

"Resource": [

"arn:aws:s3:::S3-BUCKET-NAME",

"arn:aws:s3:::S3-BUCKET-NAME/*"

]

}
```

d. Optional. If your destination bucket has a policy that restricts access through an Amazon Virtual Private Cloud (VPC) endpoint, you must change the bucket policy in addition to the TableauS3ReplicationRoleAccess that you just added. For more information, see How can I restrict access to my Amazon S3 bucket using specific VPC endpoints or IP addresses? at the AWS website.

   If the current bucket policy contains a VPC restriction like this:

   ```
   {

   "Sid": "Restricted VPC Access",

   "Effect": "Deny",

   "Principal": "*",

   "Action": "s3:",

   "Resource": [

   "arn:aws:s3:::<S3-BUCKET-NAME>",

   "arn:aws:s3:::<S3-BUCKET-NAME>/*"

   ],

   "Condition": {

   "StringNotEquals": {

   "aws:SourceVpc": "vpc-<ID>"

   }

   }

   }
   ```

   Then edit the “Condition” list to include the following:

```
"StringNotLike": {
"aws:userId": ["AROAQ4OMZWJUBZG3DRFW5:*"]
}
```

Note: You must use the "AROAQ4OMZWJUBZG3DRFW5" RoleId for the Tableau IAM role.

The edited policy should look like the following:

```
{
"Sid": "Restricted VPC Access",
"Effect": "Deny",
"Principal": "*",
"Action": "s3:",
"Resource": [
"arn:aws:s3:::<S3-BUCKET-NAME>",
"arn:aws:s3:::<S3-BUCKET-NAME>/*"
],
"Condition": {
"StringNotLike": {
"aws:userId": ["AROAQ4OMZWJUBZG3DRFW5:*"]
},
"StringNotEquals": {
"aws:SourceVpc": "vpc-<ID>"
}

}

}
```

This policy explicitly allows the Tableau IAM role to ReplicateObject and ReplicateDelete, and additionally excludes the role from the existing explicit VPC deny statement.

e. Click **Save changes**.

Step 3. Configure Tableau Cloud

1. Navigate to your Tableau site.
2. On the **Settings** page, select the **Integrations** tab.
3. In the **Activity Log** section, select the **Enable** button.
4. In the **Set Up Connection** dialog box, enter the following information:
    a. In the **AWS account number** box, enter your 12-digit AWS account number. This is the AWS account number associated with your Amazon S3 bucket location.

    b. In the **S3 bucket name** box, enter the name of the Amazon S3 bucket where Activity Log files will be delivered. This is the Amazon S3 bucket you created in Step 2. Create an Amazon S3 bucket and set up permissions. This must be a valid name according to AWS bucket name requirements.

    c. In the **KMS key ARN** box, enter the KMS key Amazon Resource Name (ARN) that you created in Step 2. Create an Amazon S3 bucket and set up permissions. The account number in the ARN must match the provided AWS account number, and be of valid format (i.e. arn:aws:kms:<*region*>:<*account-id*>:key/<*key-id*>).
5. Click **Submit**.

The connection status column will show In progress as the system attempts to replicate a text file to the target Amazon S3 bucket to test the connection.

After the file has been successfully replicated to the target Amazon S3 bucket, the connection status column will state Pending verification and display a widget to input ‘Test file contents’. You might need to refresh the page to see updates.

Verify security file replication

1. Go to the target Amazon S3 bucket and find the folder beginning with **siteLuid** (the remainder of the name is the site’s unique identifier).
2. Find the text file named `SECURITY_VERIFICATION_FILE.txt`.
3. Download and open the text file.
4. Copy the text content inside the file.
5. Return to the **Settings** page and paste the text contents into the **Text file contents** input field, and then click **Submit**.
6. If the submitted content is correct, the connection status changes to **Active**. Activity Log is now enabled, and data will begin to replicate to the target Amazon S3 bucket.
7. If the submitted content is incorrect, an error message will be displayed. Check that the content was copied correctly without extra characters or spaces.

Troubleshooting

Security verification file not appearing?

- The file could take up to 15 minutes to appear in the target Amazon S3 bucket due to Amazon S3 limitations.

  If the connection status says "In progress", the file is still attempting to replicate. For more information, see Troubleshooting replication at the AWS website.

- A connection status of **Failed** means that the file was unable to replicate successfully.

Confirm that the permissions on the Amazon S3 bucket policy and the AWS Key Management Service (KMS) key policy contain the appropriate statements. For more information, see the following topics at the AWS website:

- Troubleshooting replication
- Configuring replication when source and destination buckets are owned by different accounts
- I set up replication between my buckets, but new objects aren’t replicating. How can I troubleshoot this?

Other settings that are required for log files to reach the Amazon S3 bucket

- The Amazon S3 bucket has **Bucket Versioning** enabled (under **Properties** > **Bucket Versioning**).
- The Amazon S3 bucket has **Block all public access** enabled (under **Permissions** > **Block public access (bucket settings)**).
- The Amazon S3 bucket has the following ACL permissions for only “Bucket owner” (under **Permissions** > **Access Control List (ACL)**):
  - Objects: List, Write
  - Bucket ACL: Read, Write
- The KMS key permissions policy contains the statement in Step 2. Create an Amazon S3 bucket and set up permissions, step 2. i. (under **Properties** > **Default encryption** click on the ARN under **AWS KMS Key ARN** to go to the KMS key policy).
- The Amazon S3 bucket has default encryption enabled and bucket key enabled (under Properties > Default encryption).
- The Amazon S3 bucket permissions policy (under Permissions > Bucket Policy) exactly matches the one in the instructions. Ensure that you have replaced the example value “S3-BUCKET-NAME” with the Amazon S3 bucket you just created.

AWS region change for sites on Europe - Ireland pods

Between August 2024 to March 2025, Tableau Cloud sites were migrated to Salesforce's Hyperforce. As part of the migration, pods in the Ireland region moved to the Germany region. If your site resided on a pod in the Ireland region, you’ll need to reconfigure Activity Log to use an AWS S3 bucket in the new region, Germany.

Audit Permissions Using the Activity Log

Permission auditing allows system administrators to monitor which users have modified access controls to Tableau content. There are two ways to modify access control: *explicit* changes (by changing permission capabilities on a project or content item) and *effective* changes (by changing user site roles, group membership, moving content, and so on). All of these changes are recorded, so administrators can certify that security and access controls are maintained.

For more information about how permission rules are evaluated, see Effective permissions.

Log format

Every action that modifies user or group access to content will get a log entry. Each log entry is structured in a JSON format, with specific keys representing different pieces of information. A log entry contains two parts:

- Metadata: Contains information about when and where an action occurred and what user performed the action.
- Action: Contains information about what piece of content had its permissions changed, what capabilities were changed, and to what values the capabilities were changed.

Note: Activity Log records changes made through the Permissions Dialog UI and REST API. For more information about API methods, see Permissions Methods.

The Activity Log entries are not formatted, and the keys are not sorted in any particular order in the logs. When auditing permissions, you can combine Activity Log data with other data sources, such as Admin Insights, to link IDs to names and make the events easier to interpret.

Example

The following is an example log entry showing a group was allowed to connect to a data source.

```
{
        "actorUserId": 39872,
        "actorUserLuid": "4e6b42bf-9040-4e60-b326-1c56a4fb96f8",
        "authorizableType": "DATASOURCE",
        "capabilityId": 32,
        "capabilityValue": "connect",
        "contentId": 2099835,
        "contentName": "Superstore ExtractNeal3",
        "eventTime": "2023-01-31T22:44:23.650058Z",
        "granteeId": 22,
        "granteeLuid": "dae0717a-d524-436d-b469-fadeaa22a5dd",
        "granteeType": "Group",
        "granteeValue": "GROUP_ALLOW",
        "initiatingUserId": 39872,
        "initiatingUserLuid": "4e6b42bf-9040-4e60-b326-1c56a4fb96f8",
        "isError": false,
        "eventCategory": "security",
        "eventType": "set_permissions",
        "eventVersion": "1.0",
        "permissionType": "explicit",
        "siteLuid": "b45e272d-10c7-49d5-9037-e53ce47dbf4e"
}
```

The log entry captures essential information regarding the event, including:

- `eventType` shows a set permissions event occurred
- `permissionType` shows an explicit change to permissions

- `contentId` shows the ID of the content that was modified
- `authorizableType` shows the content type, in this case, a data source
- `capabilityValue` shows the capability that was changed
- `granteeId` shows the grantee that was affected
- `actorUserId` shows the ID of the user who performed the change
- `eventTime` shows the date and time of the change

Events

Log entries contain various event types for permissions changes, such as `content_owner_change` when the content owner changes or `delete_permissions` when an explicit permission rule is deleted on content. For more information about event types, attributes, and when they're recorded, see Activity Log Site Event Type Reference.

Activity Log Tenant Event Type Reference

This topic describes the Activity Log tenant event types and attributes. For information about site events, see Activity Log Site Event Type Reference.

Event type details

The following content describes tenant event types and attributes in Activity Log. Use the alphabetically sorted list of event types on the right, or **ctrl/cmd-f** to go directly to keywords you have in mind.

Note: Timestamps for events are recorded in ISO 8601 UTC.

Common attributes

The table contains common attributes for all Activity Log tenant events. For event-specific attributes, review the individual event tables in this topic.

Attribute Name	Type	Description
eventOutcome	string	Represents the final outcome of the operation. Possible values are: • **success:** The attempted operation completed successfully. • **unauthorized:** The initiating user wasn't authorized to perform the operation. • **client_error:** The operation failed due to a cause attributable to the client/caller. For example, invalid API request parameters, client connection timeout, or throttling. • **internal_error:** The operation failed due to an unexpected internal error.
eventOutcomeReason	string	Provides additional details about the event outcome
eventTime	string	Timestamp when the event occurred
initiatingSessionId	string	ID of user's session which initiated the operation
initiatingUrl	string	URL associated with the request that initiated the operation, such as the URL of a REST API endpoint that was invoked.
initiatingUserAgent	string	User-Agent HTTP header associated with the request that initiated the operation
initiatingUserDisplayName	string	Display name of the user who initiated the operation
initiatingUserEmail	string	Email address of the user who initiated the operation
initiatingUserIpAddress	string	Remote client IP address of the request that initiated the operation. Either a valid IPv4 or IPv6

		address.
initiatingUserId	string	ID of the user who initiated the operation
initiatingUserRole	string	Role or privilege level that allowed the initiating user to perform the operation
podUri	string	Uniform Resource Identifier (URI) of pod where the operation occurred
siteId	string	ID of site where the operation occurred
siteName	string	Name of site where the operation occurred
siteUri	string	Uniform Resource Identifier (URI) of site where the operation occurred
tenantId	string	ID of tenant where the operation occurred
tenantName	string	Name of tenant where the operation occurred
tenantUri	string	Uniform Resource Identifier (URI) of tenant where the operation occurred
traceUuid	string	Auto-generated UUID identical across all the events in a batch, such as multiple permissions changed by a single user action.

batch_revoke_personal_access_token

The `batch_revoke_personal_access_token` event occurs when a tenant is suspended or deleted, or a user is removed.

Attribute Name	**Type**	**Description**
patUserId	string	ID of the user whose PATs were revoked. Not included if PATs were revoked for the entire tenant.

batch_revoke_session

The `batch_revoke_sessions` event occurs when all sessions associated with a tenant or user are revoked.

Attribute Name	Type	Description
sessionUserId	string	ID of the user whose sessions were revoked. Not included if sessions were revoked for the entire tenant.

create_or_update_oidc_config

The `create_or_update_oidc_config` event occurs when the OIDC configuration is changed.

Attribute Name	Type	Description
isSecretUpdated	bool	Indicates whether the secret has been updated. The actual secret value isn't recorded. This attribute helps admins track changes in their organization, such as those affecting system functionality or ensuring scheduled secret rotations are carried out properly.
newSettingsValue	string	New OIDC configuration settings
oldSettingsValue	string	Previous OIDC configuration settings
resourceId	string	Resource ID of an OIDC configuration

create_or_update_saml_config

The `create_or_update_saml_config` event occurs when the SAML configuration is changed.

Attribute Name	Type	Description
newSettingsValue	string	New SAML configuration settings

oldSettingsValue	string	Previous SAML configuration settings
resourceId	string	Resource ID of a SAML configuration

create_personal_access_token

The `create_personal_access_token` event occurs when a personal access token (PAT) is generated.

Attribute Name	Type	Description
expiresAt	string	Timestamp when the PAT expires. Not included if the creation attempt failed.
tokenId	string	ID of the PAT created. Not included if the creation attempt failed.
tokenName	string	Name of the PAT

create_private_connection

The `create_private_connection` event occurs when a private connection is created.

Attribute Name	Type	Description
description	string	Description of the private connection
endpointServiceName	string	AWS endpoint service name of the private connection
name	string	Name of the private connection
privateConnectionId	string	ID of the created private connection
region	string	AWS region where the private connection is created

create_site

The `create_site` event occurs when a site is created in a tenant.

Attribute Name	Type	Description
This event only uses common attributes. For more information, see the Common attributes section in this topic.		

create_tenant

The `create_tenant` event occurs when a tenant is created.

Attribute Name	Type	Description
This event only uses common attributes. For more information, see the Common attributes section in this topic.		

create_user

The `create_user` event occurs when a new user is created in a tenant.

Attribute Name	Type	Description
email	string	Email of the user added to the tenant
language	string	Language code of the user added to the tenant
locale	string	Locale code of the user added to the tenant
userId	string	Unique identifier of the user added to the tenant
userName	string	User name of the user added to the tenant

delete_oidc_config

The `delete_oidc_config` event occurs when the OIDC configuration is deleted.

Attribute Name	Type	Description
idpConfigurationId	string	ID of the IdP configuration
idpConfigurationName	string	Name of the IdP configuration

resourceId	string	Resource ID of the OIDC configuration

delete_private_connection

The `delete_private_connection` event occurs when a private connection is deleted in a tenant.

Attribute Name	Type	Description
privateConnectionId	string	ID of the deleted private connection

delete_saml_config

The `delete_saml_config` event occurs when the SAML configuration is deleted.

Attribute Name	Type	Description
idpConfigurationId	string	ID of the IdP configuration
idpConfigurationName	string	Name of the IdP configuration
resourceId	string	Resource ID of the SAML configuration

delete_site

The `delete_site` event occurs when a site is deleted from a tenant.

Attribute Name	Type	Description
This event only uses common attributes. For more information, see the Common attributes section in this topic.		

delete_tenant

The `delete_tenant` event occurs when a tenant is deleted.

Attribute Name	Type	Description

This event only uses common attributes. For more information, see the Common attributes section in this topic.

delete_user

The `delete_user` event occurs when a user is deleted from a tenant.

Attribute Name	Type	Description
email	string	Email of the user removed
userId	string	ID of the user removed
userName	string	User name of the user removed

get_sites

The `get_sites` event occurs when a list of sites under a tenant is requested.

Attribute Name	Type	Description
This event only uses common attributes. For more information, see the Common attributes section in this topic.		

get_users

The `get_user` event occurs when a list of users within a tenant or site is requested.

Attribute Name	Type	Description
This event only uses common attributes. For more information, see the Common attributes section in this topic.		

list_personal_access_tokens

The `list_personal_access_tokens` event occurs when all valid personal access tokens (PATs) in Tableau Cloud Manager (TCM) are requested.

Attribute Name	**Type**	**Description**
This event only uses common attributes. For more information, see the Common attributes section in this topic.		

merge_tenant

The `merge_tenant` event occurs when a Tableau Cloud Manager tenant is merged into another tenant. This consolidation allows cloud admins to manage all sites under one tenant and benefit from unified governance.

Attribute Name	**Type**	**Description**
sourceTenantId	string	ID of source tenant in the merge operation
sourceTenantName	string	Name of the source tenant in the merge operation
sourceTenantUri	string	Uniform Resource Identifier (URI) of the source tenant in the merge operation

migrate_site

The `migrate_site` event occurs when a site is migrated to a tenant.

Attribute Name	**Type**	**Description**
This event only uses common attributes. For more information, see the Common attributes section in this topic.		

personal_access_token_login

The `personal_access_token_login` event occurs when a personal access token (PAT) is used to sign in to Tableau Cloud Manager.

Attribute Name	**Type**	**Description**
newSessionId	string	ID of the session created by this login request. Not included if the login failed.

tokenId	string	ID of the PAT used to login
tokenName	string	Name of the PAT

reactivate_site

The `reactivate_site` event occurs when a site in a tenant is reactivated.

Attribute Name	**Type**	**Description**
This event only uses common attributes. For more information, see the Common attributes section in this topic.		

revoke_personal_access_token

The `revoke_personal_access_token` event occurs when a personal access token (PAT) is revoked in Tableau Cloud Manager.

Attribute Name	**Type**	**Description**
tokenId	string	ID of the PAT revoked
tokenName	string	Name of the PAT

revoke_session

The `revoke_session` event occurs when a user is logged out due to a revoked session, such as a user explicitly logging out or the session expiring.

Attribute Name	**Type**	**Description**
This event only uses common attributes. For more information, see the Common attributes section in this topic.		

site_limits_change

The `site_limits_change` event occurs when site-level license capacity limits for site roles (Creator, Explorer, or Viewer) are changed.

Attribute Name	Type	Description
newCreatorCapacity	integer	New value for the Creator site role limit. Not included if the new limit is the default cloud limit.
newCreatorCapacityIsDefaultCloudLimit	bool	New Creator limit was set to the default cloud limit
newExplorerCapacity	integer	New value for the Explorer site role limit. Not included if the new limit is the default cloud limit.
newExplorerCapacityIsDefaultCloudLimit	bool	New Explorer limit is set to the default cloud limit
newViewerCapacity	integer	New value for the Viewer site role limit. Not included if the new limit is the default cloud limit.
newViewerCapacityIsDefaultCloudLimit	bool	New Viewer limit is set to the default cloud limit
oldCreatorCapacity	integer	Previous value for the Creator site role limit. Not included if the previous limit was the default cloud limit.
oldCreatorCapacityIsDefaultCloudLimit	bool	Previous Creator limit was set to the default cloud limit
oldExplorerCapacity	integer	Previous value for the Explorer site role limit. Not included if the previous limit was the default

		cloud limit.
oldExplorerCapacityIsDefaultCloudLimit	bool	Previous Explorer limit was set to the default cloud limit
oldViewerCapacity	integer	Previous value for the Viewer site role limit. Not included if the previous limit was the default cloud limit.
oldViewerCapacityIsDefaultCloudLimit	bool	Previous Viewer limit was set to the default cloud limit

suspend_site

The `suspend_site` event occurs when a site in a tenant is suspended.

Attribute Name	Type	Description
suspensionSource	string	Source for the site suspension

tcm_activity_log_access

The `tcm_activity_log_access` event occurs when Tableau Cloud Manager (TCM) Activity Log data is accessed.

Attribute Name	Type	Description
eventProcessedTimeEnd	string	End time (based on the events' processed timestamp) of the data accessed. If not included, assume all available data was accessed.
eventProcessedTimeStart	string	Start time (based on the events' processed timestamp) of the data accessed. If not included, assume all available data was accessed.
eventTypeAccessed	string	Type of events accessed. If not included, assume all available data was accessed.

track_private_connection_usage

The `track_private_connection_usage` event monitors private connection usage in a tenant, logging data every hour.

Attribute Name	Type	Description
endpointId	string	The virtual private cloud (VPC) endpoint ID of the private connection
endpointServiceName	string	AWS endpoint service name of the private connection
endpointServiceRegion	string	AWS endpoint service region of the private connection
usageQuantity	long	The amount of data transferred through a private connection, in bytes. This value reflects usage for the hour before the log entry.

update_personal_access_token

The `update_personal_access_token` event occurs when a personal access token (PAT) is updated.

Attribute Name	Type	Description
expiresAt	string	Timestamp when the PAT expires
tokenId	string	ID of the PAT created. Not included if the creation attempt failed.
tokenName	string	Name of the PAT

update_private_connection

The `update_private_connection` event occurs when a private connection is updated.

Attribute Name	Type	Description
newDescription	string	New description of the private connection
newSiteIds	string	Comma-separated list of new private connection site IDs.
oldDescription	string	Previous description of the private connection
oldSiteIds	string	Comma-separated list of previous private connection site IDs.
privateConnectionId	string	ID of the updated private connection

update_session

The `update_session` event occurs when the expiration time of a session is updated.

Attribute Name	Type	Description
expiresAt	string	New expiration time of the session

update_tenant

The `update_tenant` event occurs when the tenant name or status is updated.

Attribute Name	Type	Description
newStatus	string	Tenant status after the update
newTenantName	string	Tenant name after the update
newTenantOrg62Id	string	Tenant Org62 ID after the update
newTenantUri	string	Tenant Uniform Resource Identifier (URI) after the update
oldStatus	string	Tenant status before the update
oldTenantOrg62Id	string	Tenant Org62 ID before the update

update_user

The `update_user` event occurs when an existing user in the tenant is updated.

Attribute Name	Type	Description
newEmail	string	New email of the user
newLanguage	string	New language code of the user
newLocale	string	New locale code of the user
oldEmail	string	Previous email of the user
oldLanguage	string	Previous language code of the user
oldLocale	string	Previous locale code of the user
userId	string	Unique ID of the user added
userName	string	User name of the user added to the tenant

update_user_site_role

The `update_user_site_role` event occurs when a user’s access to a site is updated, either by adding, changing, or removing their site role.

Attribute Name	Type	Description
email	string	Email of the user added to the tenant
newIdp	string	New authentication method assigned to the site user, or null if the user is being removed from the site.
newRole	string	New role of the user on the site, or null if the user is being removed from the site.
oldIdp	string	Previous authentication method assigned to the site user, or null if the user didn't previously have a role on the site.
oldRole	string	Previous role of the user on the site, or null if the user didn’t

		previously have a role on the site.
userId	string	The unique identifier of the user
userName	string	User name of the user added to the site

update_user_tenant_role

The `update_user_tenant_role` event occurs when a user's access to a tenant is updated by adding, changing, or removing the cloud administrator role.

Attribute Name	Type	Description
email	string	Email of the user added to the tenant
newIdp	string	New authentication method assigned to the tenant user, or null if the user is being removed from the tenant.
newRole	string	New role of the user on the tenant, or null if the user is being removed from the tenant.
oldIdp	string	Previous authentication method assigned to the tenant user, or null if the user didn't previously have a role on the tenant.
oldRole	string	Previous role of the user on the tenant, or null if the user didn't previously have a role on the tenant.
userId	string	The unique identifier of the user
userName	string	User name of the user added to the tenant

user_login_create_session

The `user_login_create_session` event occurs when a user signs in to Tableau Cloud Manager (TCM) through the sign-in page or other interactive login.

Attribute Name	Type	Description
expiresAt	string	Timestamp when the session expires. Not included if the cre-

		ation attempt failed.
idpId	string	ID of the IdP, indicating how the user is authenticated.
idpName	string	Name of the IdP, indicating how the user is authenticated.
newSessionId	string	New ID of the session key. Not included if the creation attempt failed.

Activity Log Site Event Type Reference

This topic describes the Activity Log site event types and attributes. For information about tenant events, see Activity Log Tenant Event Type Reference.

Event type details

The following content describes site event types and attributes in Activity Log. Use the alphabetically sorted list of event types on the right, or **ctrl/cmd-f** to go directly to keywords you have in mind.

Note: Timestamps for events are recorded in ISO 8601 UTC.

Common attributes

The table contains common attributes for all Activity Log site events. For event-specific attributes, review the individual event tables in this topic.

Attribute Name	Type	Description
actorUserId	integer	ID of the user who performed the action that initiated the event
actorUserLuid	string	LUID of the user who performed the action that initiated the event
eventOutcome	string	Represents the final outcome of the operation.

		Possible values are: - **success:** The attempted operation completed successfully. - **unauthorized:** The initiating user wasn't authorized to perform the operation. - **client_error:** The operation failed due to a cause attributable to the client/caller. For example, invalid API request parameters, client connection timeout, or throttling. - **internal_error:** The operation failed due to an unexpected internal error.
eventOutcomeReason	string	Provides additional details about the event outcome
eventTime	string	Timestamp when the event occurred
initiatingUserId	integer	ID of the initiating user. For impersonation, it's the ID of the administrative user who initiated impersonation. For standard login, the value is the same as `userId`.
initiatingUserLuid	string	LUID of the initiating user. For impersonation, it's the LUID of the administrative user who initiated impersonation. For standard login, the value is the same as `userLuid`.
licensingRoleName	string	Name of the user's licensing role when the event occurred
siteLuid	string	LUID of the Tableau site where the event occurred
siteRoleId	integer	The user's site role ID. The value 0 = SiteAdministratorExplorer, 1 = SupportUser, 2 = ExplorerCanPublish, 3 = Explorer, 7 = Guest, 8 = Unlicensed, 9 = Viewer, 10 = Creator, and 11 = SiteAdministratorCreator.

systemAdminLevel	integer	Indicates if the user is a system administrator. The value 10 = System Admin and 0 = Not a system admin.

add_delete_group_to_group_set

The `add_delete_group_to_group_set` event is logged when a group is added or deleted from a group set.

Attribute Name	Type	Description
groupId	integer	The ID of the group
groupLuid	string	The LUID of the group
groupSetId	integer	The ID of the group set
groupSetLuid	string	The LUID of the group set
groupSetOperation	string	Group Set operation, either add or delete user to a group set
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error

add_delete_user_to_group

The `add_delete_user_to_group` event is logged when a user is added or removed from a group.

Attribute Name	Type	Description
groupId	integer	The ID of the group
groupLuid	string	The LUID of the group
groupOperation	string	Group operation, either add or delete user to a group
isError	boolean	Indicates if the audit scenario was completed suc-

		cessfully or failed with an error
userId	integer	The ID of the user
userLuid	string	The LUID of the user

activity_log_settings_change

The `activity_log_settings_change` event occurs when an administrator changes the Activity Log settings.

Attribute Name	**Type**	**Description**
errorCode	string	Error code generated when altering Activity Log settings
newAwsAccountNumber	string	New AWS account number where Activity Log events will be received
newKmsKeyArn	string	New AWS Key Management Service (KMS) single-region key for the Amazon S3 bucket
newS3BucketName	string	New AWS S3 bucket where Activity Log events will be received
oldAwsAccountNumber	string	Previous AWS account number where Activity Log events were received
oldKmsKeyArn	string	Previous AWS Key Management Service (KMS) single-region key for the Amazon S3 bucket
oldS3BucketName	string	Previous AWS S3 Bucket where Activity Log events were received
operationType	string	The type of operation, either create, update, or delete.
platform	string	The platform where changes are recorded, such as Tableau Cloud.

platformVersion	string	The version of the platform, such as 2024.3.0.

archive_content

The `archive_content` event occurs when content is permanently deleted from a site using the recycle bin.

Attribute Name	Type	Description
contentId	integer	The ID of the archived content
contentLuid	string	The LUID of the archived content
contentName	string	The name of the archived content
contentType	string	The type of content archived
isError	bool	Indicates if the audit scenario was completed successfully or failed with an error

background_job

The `background_job` event logs information about jobs run as background tasks. For each job, an event is created to record its various states, including initiation time, queueing, start time, and success or failure.

Attribute Name	Type	Description
args	string	Arguments of the job
duration	long	Duration of the job
eventInitiatedTime	string	Start time of the job
eventState	string	State of the job
isRunNow	bool	Indicates whether the job was initiated manually, by clicking the “Run Now” option on the site or using

		REST API, or if it was triggered by a schedule. **Note:** Starting in April 2024, jobs triggered by a schedule (`False`) include data for all attributes listed in the table. Attributes for jobs initiated manually (`True`) are under active development, and tentatively scheduled for inclusion in a future release.
jobId	integer	ID of the job
jobLuid	string	LUID of the job
jobType	string	Identifies the background job type associated with the event **Note:** Starting in April 2024, only the `IncrementExtracts`, `RefreshExtracts`, and `RefreshExtractsViaBridge` jobs include data for all attributes listed in the table. Attributes for other job types are under active development, and tentatively scheduled for inclusion in a future release.
notes	string	Notes of the job
objLuid	string	Some tasks are specific to a particular workbook or data source. In such cases, the object_luid is the primary key of the relevant item, in either the workbooks or data sources tables, as indicated by obj_type.
objName	string	Name of the associated object. Used in conjunction with obj_luid, as described there.
objOwnerLuid	string	A foreign key reference to the user who owns the job target object
objOwnerName	string	Name of the user who owns the job target object

objRepositoryUrl	string	Uniquely identifies a workbook or data source and is used when referencing the object in a URL. The value is derived from the ASCII characters in the workbook or data source name.
objRevision	string	The revision number. Starts with 1.0 and increments by 0.1 with each republication.
objSize	integer	The number of bytes used in storing the job target object information
objType	string	Either a workbook or data source. Used in conjunction with obj_luid.
podName	string	Name of the Tableau pod that handled the job
projectLuid	string	A foreign key reference to the project in which the job target object exists
projectName	string	Name of the project that contains the job target object
projectOwnerEmail	string	Email address of the user who owns the project containing the job target object
projectOwnerLuid	string	A foreign key reference to the user who owns the project containing the job target object
scheduleLuid	string	Schedule LUID of the task; may be null if the job was manually started
scheduleName	sring	Schedule name of the task; may be null if the job was manually started
siteId	integer	ID of the site
siteName	string	Name of the Tableau site
taskId	integer	ID of the task; may be null if the job was manually started.

taskLuid	string	LUID of the task; may be null if the job was manually started.
timeZone	integer	Time zone of the job

bridge_client_register

The `bridge_client_register` event occurs when registering a Tableau Bridge event.

Attribute Name	Type	Description
agentName	string	Name of the Bridge client associated with the event
deviceId	string	Device ID generated by the Bridge client
poolId	string	ID of the pool assigned to the Bridge client
siteId	string	ID of the site the Bridge client is registered to
timeZoneId	string	Time zone from which the Bridge client is registered
userName	string	Name of the user who registered the Bridge client

content_owner_change

The `content_owner_change` event is logged when the content owner changes.

Attribute Name	Type	Description
contentId	integer	The ID of the content that had the owner changed
contentLuid	string	LUID of the content that had the owner changed
contentName	string	Name of the content that had the owner changed
contentType	string	The type of content, such as data source, workbook, or view
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error

newOwnerId	integer	The ID of the new content owner
newOwnerLuid	string	The LUID of the new content owner
oldOwnerId	integer	The ID of the old content owner
oldOwnerLuid	string	The LUID of the old content owner

create_delete_group

The `create_delete_group` event is logged when a group is created or deleted.

Attribute Name	Type	Description
groupDomain	string	The domain of the group, such as local
groupId	integer	The ID of the group
groupLuid	string	The The LUID of the group
groupName	string	The name of the group that had its permissions changed
groupOperation	string	Group operation, either create or delete
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error

create_delete_group_set

The `create_delete_group_set` event is logged when a group set is created or deleted.

Attribute Name	Type	Description
groupSetId	integer	The ID of the group set
groupSetLuid	string	The LUID of the group set
groupSetName	string	The name of the group set that is created or deleted
groupSetOperation	string	Group Set operation, either create or delete

isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error

create_permissions

The `create_permissions` event is logged when a new explicit permission rule is created.

Note: Deprecated in October 2024. Use the set_permissions event instead.

Attribute Name	Type	Description
authorizableType	string	The type of content that had its permissions changed, such as a project or workbook
capabilityId	integer	The ID of the capability. A capability is the ability to perform actions on content, such as view, filter, download, or delete
capabilityValue	string	Description of the capability
contentId	integer	The ID of the content that had the permissions updated
contentLuid	string	The LUID of the content item
contentName	string	The name of the content that had the permissions updated
granteeId	integer	The ID of the grantee
granteeLuid	string	The LUID of the grantee
granteeType	string	The type of grantee, either user or group
granteeValue	string	The updated permissions value, such as 'user allow' or 'group allow'
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error

delete_all_permissions

The `delete_all_permissions` event is logged when all explicit permission rules for content are deleted, typically when content is deleted.

Attribute Name	Type	Description
authorizableType	string	The type of content that had its permissions changed, such as a project or workbook
contentId	integer	The ID of the content that had the permissions updated
contentLuid	string	The LUID of the content
contentName	string	The name of the content that had the permissions updated
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error

delete_permissions

The `delete_permissions` event is logged when an explicit permission rule is deleted on content.

Attribute Name	Type	Description
authorizableType	string	The type of content that had its permissions changed, such as a project or workbook
capabilityId	integer	The ID of the capability. A capability is the ability to perform actions on content, such as view, filter, download, or delete
capabilityValue	string	Description of the capability
contentId	integer	The ID of the content that had the permissions updated
contentLuid	string	The LUID of the content

contentName	string	The name of the content that had the permissions updated
granteeId	integer	The ID of the grantee
granteeLuid	string	The LUID of the grantee
granteeType	string	The type of grantee, either user or group
granteeValue	string	The updated permissions value, such as 'user allow' or 'group allow'
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error

delete_permissions_grantee

The `delete_permissions_grantee` event is logged when all explicit permission rules for a user are deleted, typically when the user is deleted.

Attribute Name	Type	Description
granteeId	integer	The ID of the grantee
granteeLuid	string	The LUID of the grantee
granteeType	string	The type of grantee, either user or group
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error

display_sheet_tabs

The `display_sheet_tabs` event is logged when the "Tabbed Views" value is updated on a workbook.

Attribute Name	Type	Description
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as

		tabs or not
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error
workbookId	integer	The ID of the workbook

hist_access_authoring_view

The `hist_access_authoring_view` event is logged when a user authors view.

Attribute Name	**Type**	**Description**
caption	string	The descriptive phrase constructed for the worksheet based on the workbook definition
description	string	Description of the view
fields	string	A list of fields extracted from the workbook .twb file
firstPublishedAt	string	Timestamp of when the view was first published. The value won't change when republishing the workbook containing the view.
index	integer	Each view has an index that is unique among views belonging to that workbook
name	string	Name of the view
ownerLuid	string	User LUID of the view owner
ownerName	string	Name of the view owner
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number of the view. Starts with 1.0 and increments by 0.1 each time a new version is published.
sheetId	string	The ID of the worksheet

sheetType	string	The type of worksheet. Either a story, dashboard, or view.
siteName	string	Name of the Tableau site
title	string	The worksheet title from the workbook .twb file
viewLuid	string	The LUID of the view
workbookLuid	string	The LUID of the workbook containing the view
workbookName	string	Name of the workbook containing the view

hist_access_datasource

The `hist_access_datasource` event is logged when a user accesses a data source.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source

repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_access_datasource_remotely

The `hist_access_datasource_remotely` event is logged when a user accesses a data source from Tableau Bridge.

Attribute Name	**Type**	**Description**
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source

projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_access_metric

The `hist_access_metric` event is logged when users interact with metrics on the site.

Note: Tableau's legacy metrics feature was retired in February 2024. As a result, this event no longer records user interaction with metrics on the site. For more information, see Set Up for Metrics.

Attribute Name	Type	Description
customizedViewLuid	string	Unique ID of the custom view from which the metric queries its data
description	string	Description of the metric

metricLuid	string	Unique ID of the metric
name	string	Name of the metric
projectLuid	string	Unique ID of the project that contains the metric
projectName	string	Name of the project that contains the metric
siteName	string	Name of the Tableau site
suspendState	integer	State of the metric. The value 0 = Not suspended, 1 = Auto-suspended, and 3 = Manually suspended.
viewLuid	string	Unique ID of the view from which the metric queries its data

hist_access_summary_data

The `hist_access_summary_data` event is logged when users access the Summary Data window.

Attribute Name	Type	Description
contentVersion	integer	The version of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred

extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't pub-

		lished.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
sheetName	string	Name of the sheet for which data was accessed
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views that are associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_access_underlying_data

The `hist_access_underlying_data` event is logged when users access the Underlying Data window.

Attribute Name	**Type**	**Description**
contentVersion	integer	The version of the workbook. Increments by 1 on each publish.

dataEngineExtracts	boolean	Indicates if this workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook

ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
sheetName	string	Name of the sheet for which data was accessed
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views that are associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_access_view

The `hist_access_view` event is logged when users access a view.

Attribute Name	Type	Description
actorExternalId	string	The external ID for the acting user. This is an opaque identifier dependent on the actor type, but could, for example, be a user email. Can also show the identifier of a user accessing content through on-demand access.
caption	string	The descriptive phrase constructed for the worksheet based on the workbook definition
description	string	Description of the view
fields	string	A list of fields extracted from the workbook .twb file
firstPublishedAt	string	Timestamp of when the view was first published. The value won't change when republishing the workbook containing the view.
index	integer	Each view has an index that is unique among views belonging to that workbook
name	string	Name of the view
ownerLuid	string	User LUID of the view owner
ownerName	string	Name of the view owner
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number of the view. Starts with 1.0 and increments by 0.1 each time a new version is published.
sheetId	string	The ID of the worksheet

sheetType	string	The type of worksheet. Either a story, dashboard, or view.
siteName	string	Name of the Tableau site
title	string	The worksheet title from the workbook .twb file
viewLuid	string	The LUID of the view
workbookLuid	string	The LUID of the workbook containing the view
workbookName	string	Name of the workbook containing the view

hist_activate_site

The `hist_activate_site event` is logged when a Tableau site is activated.

Attribute Name	Type	Description
name	string	Name of the Tableau site
siteEventLuid	string	Unique ID of the site affected by the event
siteName	string	Name of the Tableau site
urlNamespace	string	Used in the construction of URLs that target the site

hist_add_user_to_group

The `hist_add_user_to_group` event is logged when a user is added to a group.

Attribute Name	Type	Description
groupLuid	string	Unique ID of the group
name	string	Name of the group
siteName	string	Name of the site
userLuid	string	LUID of the user added to the group

userName	string	Name of the user added to the group

hist_append_to_datasource_extract

The `hist_append_to_datasource_extract` event is logged when data is added to a data extract.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
details	string	A message string
isCertified	boolean	Indicates whether the data source is certified
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.

revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
taskLuid	string	LUID of the associated task
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_bulk_delete_columns

The `hist_bulk_delete_columns` event is logged when columns are deleted from a data source.

Attribute Name	**Type**	**Description**
columnLuid	string	Unique ID of the column
description	string	Description of the published column
name	string	Name of the published column
ownerLuid	string	User LUID of the column owner
ownerName	string	The name of the column owner
projectLuid	string	LUID of the project that contains the column
projectName	string	Name of the project that contains the column
siteName	string	Name of the Tableau site

hist_change_collection_ownership

The `hist_change_collection_ownership` event is logged when the collection owner is changed.

Attribute Name	**Type**	**Description**
collectionLuid	string	Unique ID of the collection
description	string	Description of the collection
name	string	Name of the collection
newOwnerLuid	string	The LUID of the new collection owner
newOwnerName	string	The name of the new collection owner
oldOwnerLuid	string	The LUID of the previous collection owner
oldOwnerName	string	The name of previous collection owner
ownerLuid	string	User LUID of the collection owner
ownerName	string	Name of the collection owner
siteName	string	Name of the Tableau site

hist_change_data_role_ownership

The `hist_change_data_role_ownership` event is logged when data role ownership is changed.

Attribute Name	**Type**	**Description**
dataRoleLuid	string	Unique ID of the data role
description	string	Description of the data role
name	string	Name of the data role

newOwnerLuid	string	The LUID of the new data role owner
newOwnerName	string	Name of the new data role owner
oldOwnerLuid	string	The LUID of the previous data role owner
oldOwnerName	string	Name of the previous data role owner
ownerLuid	string	User LUID of the data role owner
ownerName	string	Name of the data role owner
projectLuid	string	LUID of the project that contains the data role
projectName	string	Name of the project that contains the data role
siteName	string	Name of the Tableau site

hist_change_database_contact

The `hist_change_database_contact` event is logged when changing the database contact.

Attribute Name	Type	Description
databaseLuid	string	Unique ID of the database
description	string	Description of the database
name	string	Name of the database
newContactLuid	string	LUID of the new contact
newContactName	string	Name of the new contact
oldContactLuid	string	LUID of the previous contact
oldContactName	string	Name of the previous contact
ownerLuid	string	User LUID of the database owner

ownerName	string	Name of the database owner
projectLuid	string	LUID of the project that contains the database
projectName	string	Name of the project that contains the database
siteName	string	Name of the Tableau site

hist_change_datasource_ownership

The `hist_change_datasource_ownership` event is logged when changing the data source owner.

Attribute Name	**Type**	**Description**
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
newOwnerLuid	string	LUID of the new data source owner
newOwnerName	string	Name of the new data source owner
oldOwnerLuid	string	LUID of the previous data source owner
oldOwnerName	string	Name of the previous data source owner
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source

		was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_change_flow_ownership

The `hist_change_flow_ownership` event is logged when changing the flow owner.

Attribute Name	**Type**	**Description**
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
newOwnerLuid	string	LUID of the new flow owner
newOwnerName	string	Name of the new flow owner

oldOwnerLuid	string	LUID of the previous flow owner
oldOwnerName	string	Name of previous flow owner
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_change_metric_ownership

The `hist_change_metric_ownership` event is logged when changing the metric owner.

Note: Tableau's legacy metrics feature was retired in February 2024. As a result, this event no longer records user interaction with metrics on the site. For more information, see Set Up for Metrics.

Attribute Name	Type	Description
customizedViewLuid	string	Unique ID of the custom view from which the metric queries its data
description	string	Description of the metric
metricLuid	string	Unique ID of the metric
name	string	Name of the metric
newOwnerLuid	string	LUID of the new metric owner
newOwnerName	string	Name of the new metric owner
oldOwnerLuid	string	LUID of the previous metric owner
oldOwnerName	string	Name of the previous metric owner
projectLuid	string	Unique ID of the project that contains the metric

projectName	string	Name of the project that contains the metric
siteName	string	Name of the Tableau site
suspendState	integer	State of the metric. The value 0 = Not suspended, 1 = Auto-suspended, and 3 = Manually suspended.
viewLuid	string	Unique ID of the view from which the metric queries its data

hist_change_project_ownership

The `hist_change_project_ownership` event is logged when project ownership is changed.

Attribute Name	**Type**	**Description**
description	string	Description of the project
name	string	Name of the project
newOwnerLuid	string	LUID of the new project owner
newOwnerName	string	Name of the new project owner
oldOwnerLuid	string	LUID of the previous project owner
oldOwnerName	string	Name of the previous project owner
ownerLuid	string	LUID of the project owner
ownerName	string	Name of the project owner
parentProjectLuid	string	LUID of the parent project. The value is Null for top-level projects.
projectLuid	string	Unique ID of the project
siteName	string	Name of the Tableau site

state	string	State of the project. The default value is active. Any other value indicates the project is inactive.

hist_change_published_connection_ownership

The `hist_change_published_connection_ownership` event is logged when published connection ownership is changed.

Attribute Name	Type	Description
activated	boolean	Indicates whether the published connection is available for use
description	string	Description of the published connection
name	string	Name of the published connection
newOwnerLuid	string	LUID of the new published connection owner
newOwnerName	string	Name of the new published connection owner
oldOwnerLuid	string	LUID of the previous published connection owner
oldOwnerName	string	Name of the previous published connection owner
ownerLuid	string	LUID of the published connection owner
ownerName	string	Name of the published connection owner
projectLuid	string	LUID of the project that contains the published connection
projectName	string	Name of the project that contains the published connection
publishedConnectionLuid	string	Unique ID of the published connection
siteName	string	Name of the Tableau site

hist_change_site_extract_encryption_mode

The legacy change site extract encryption mode event from historical_events.

Attribute Name	Type	Description
name	string	Name of the Tableau site
siteEventLuid	string	Unique ID of the site affected by the event
siteName	string	Name of the Tableau site
urlNamespace	string	Used in the construction of URLs that target the site

hist_change_table_contact

The `hist_change_table_contact` event is logged when the table contact is changed.

Attribute Name	Type	Description
description	string	Description of the table
name	string	Name of the table
newContactLuid	string	LUID of the new contact
newContactName	string	Name of the new contact
oldContactLuid	string	LUID of the previous contact
oldContactName	string	Name of the previous contact
ownerLuid	string	User LUID of the table owner
ownerName	string	Name of the table owner
projectLuid	string	LUID of the project that contains the table
projectName	string	Name of the project that contains the table
siteName	string	Name of the Tableau site

tableLuid	string	Unique ID of the table

hist_change_workbook_ownership

The `hist_change_workbook_ownership` event is logged when workbook ownership is changed.

Attribute Name	Type	Description
contentVersion	integer	The version of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if this workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not

		private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
newOwnerLuid	string	LUID of the new project owner
newOwnerName	string	Name of the new project owner
oldOwnerLuid	string	LUID of the previous project owner
oldOwnerName	string	Name of the previous project owner
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the workbook owner
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed

repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_create_collection

The `hist_create_collection` event is logged when a user creates a collection.

Attribute Name	**Type**	**Description**
collectionLuid	string	Unique ID of the collection
description	string	Description of the collection
name	string	Name of the collection
ownerLuid	string	User LUID of the collection owner
ownerName	string	Name of the collection owner
siteName	string	Name of the Tableau site

hist_create_column

The `hist_create_column` event is logged when a user creates a column.

Attribute Name	Type	Description
columnLuid	string	Unique ID of the column
description	string	Description of the column
name	string	Name of the column
ownerLuid	string	User LUID of the column owner
ownerName	string	Name of the column owner
projectLuid	string	LUID of the project that contains the column
projectName	string	Name of the project that contains the column
siteName	string	Name of the Tableau site

hist_create_data_quality_indicator

The `hist_create_data_quality_indicator` event is logged when users create data quality warnings.

Attribute Name	Type	Description
dataQualityIndicatorLuid	string	Unique ID of the data quality indicator
dataQualityType	string	The type of data quality indicator Either warning, deprecated, stale data, under maintenance, sensitive data, or a custom value.
isActive	boolean	Indicates whether the data quality indicator is active or not
isSevere	boolean	Indicates whether the data quality indicator is severe or not

message	string	Message of data quality indicator
siteName	string	Name of the Tableau site
userDisplayName	string	Display name of user who created or modified the data quality indicator
userLuid	string	LUID of user who created or modified the data quality indicator

hist_create_database

The `hist_create_database` event is logged when a user creates a database.

Attribute Name	Type	Description
databaseLuid	string	Unique ID of the database
description	string	Description of the database
name	string	Name of the database
ownerLuid	string	User LUID of the database owner
ownerName	string	Name of the database owner
projectLuid	string	LUID of the project that contains the database
projectName	string	Name of the project that contains the database
siteName	string	Name of the Tableau site

hist_create_datasource_extracts

The `hist_create_datasource_extracts` event is logged when a new data source extract is created.

Attribute Name	Type	Description

certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
details	string	Message that includes details about the data source
isCertified	boolean	Indicates whether the data source is certified
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project that contains the data source
projectName	string	Name of the project that contains the data source
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes

taskLuid	string	LUID of the associated task
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_create_datasource_task

The `hist_create_datasource_task` event is logged when a new data source task is created.

Attribute Name	Type	Description
active	boolean	Indicates whether the task is active or not. If the task is inactive, it will not run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.

objType	string	The type of object. Either a workbook or data source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Task title. Provides additional information about the task.
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_create_datasource_trigger

The `hist_create_datasource_trigger` event specifies what caused the data source to be created.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source

isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_create_flow_task

The `hist_create_flow_task` event is logged when a new flow task is created.

Attribute Name	**Type**	**Description**
active	boolean	Indicates whether the task is active or not. If

		the task is inactive, it will not run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.

subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Task title. Provides additional information about the task.
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_create_flow_trigger

The `hist_create_flow_trigger` event specifies what caused the flow to be created.

Attribute Name	Type	Description
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_create_group

The `hist_create_group` event is logged when creating a group.

Attribute Name	Type	Description
groupLuid	string	Unique ID of the group
name	string	Name of the group

siteName	string	Name of the Tableau site

hist_create_linked_task

The `hist_create_linked_task` event is logged when creating linked tasks that run sequentially.

Attribute Name	Type	Description
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.

priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Task title. Provides additional information about the task.
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_create_materialized_views

The `hist_create_materialized_views` event logs the successful creation of materialized views on a workbook.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	Details of the action (why were the materialized views created or deleted).

displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
eventType	string	The type of the event. Either Create, Delete, Encrypt, Decrypt, or Rekey Materialized Views.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a for-

		eign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_create_metric

The `hist_create_metric` event is logged when users create metrics on the site.

Note: Tableau's legacy metrics feature was retired in February 2024. As a result, this event no longer records user interaction with metrics on the site. For more information, see Set Up for Metrics.

Attribute Name	Type	Description
customizedViewLuid	string	The view from which the metric queries its data
description	string	Description of the metric
metricLuid	string	Unique ID of the metric
name	string	Name of the metric
projectLuid	string	Unique ID of the associated project
projectName	string	Name of the associated project
siteName	string	Name of the Tableau site
suspendState	integer	State of the metric. The value 0 = Not suspended, 1 = Auto-suspended, and 3 = Manually suspended.
viewLuid	string	The view from which the metric queries its data

hist_create_project

The `hist_create_project` event is logged when users create projects on the site.

Attribute Name	Type	Description
description	string	Description of the project
name	string	Name of the project
ownerLuid	string	Unique ID of the project owner
ownerName	string	Name of the project owner

parentProjectLuid	string	LUID of the parent project. The value is Null for top-level projects.
projectLuid	string	Unique identifier for the project
siteName	string	Name of the Tableau site
state	string	State of the project. The default value is active. Any other value indicates the project is inactive.

hist_create_schedule

The `hist_create_schedule` event is logged when users create schedules on the site.

Attribute Name	Type	Description
active	boolean	Indicates whether the schedule is active or not. If set to False, no tasks will run when the schedule is triggered.
dayOfMonthMask	integer	Indicates which day of the month the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the month correspond to 1st = 1, 2nd = 10, 3rd = 100, 4th = 1000, 5th = 10000, etc.
dayOfWeekMask	integer	Indicates which day of the week the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the week correspond to Sunday = 1, Monday = 10, Tuesday = 100, Wednesday = 1000, Thursday = 10000, Friday = 100000, and Saturday = 1000000.
endAtMinute	integer	The minute after the specified schedule_type period begins, indicating when the schedule should stop triggering.

endScheduleAt	string	Timestamp when the schedule should stop triggering
isSerial	boolean	Indicates whether the schedule is run serially or not
minuteInterval	integer	Once triggered, the schedule will repeat at this interval until it ends as per the schedule_type, end_at_minute, or end_schedule_at.
name	string	Name of the schedule
priority	integer	Priority ranges from 1 to 100, with lower values corresponding to a higher priority.
scheduleLuid	string	Unique ID of the schedule
scheduleType	integer	The type of schedule. The value 0 = Hourly, 1 = Daily, 2 = Weekly, and 3 = Monthly.
scheduledAction	integer	Category of the scheduled action. The value 0 = Extracts and 1 = Subscriptions.
siteName	string	Name of the Tableau site
startAtMinute	integer	The minute after the scheduled start time per the schedule_type. For example, in a daily schedule, it's minutes past midnight; for hourly, it's minutes past the hour.

hist_create_site

The legacy create site from historical_events

Attribute Name	**Type**	**Description**
name	string	Name of the Tableau site
siteEventLuid	string	Unique ID of the site affected by the event
siteName	string	Name of the Tableau site

urlNamespace	string	Used in the construction of URLs that target the site

hist_create_subscription_task

The `hist_create_subscription_task` event is logged when subscription tasks are created.

Attribute Name	Type	Description
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to

		0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Provides additional information about the task
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_create_system_user

The `hist_create_system_user` event is logged when adding a system user.

Attribute Name	Type	Description
email	string	Email address of the user
name	string	Name of the user
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_create_table

The `hist_create_table` event is logged when creating a database table on the site.

Attribute Name	Type	Description
description	string	Description of the table
name	string	Name of the table
ownerLuid	string	Unique ID of the table owner
ownerName	string	Name of the table owner
projectLuid	string	Unique ID of the project that contains the table
projectName	string	Name of the project that contains the table
siteName	string	Name of the Tableau site
tableLuid	string	Unique ID of the table

hist_create_user

The `hist_create_user event` is logged when adding a user to the site.

Attribute Name	Type	Description
email	string	Email address of the user
name	string	Name of the user
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_create_workbook_extracts

The `hist_create_workbook_extracts` event is logged when changes are made to workbooks containing extracts.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	A message string
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isFailure	boolean	Indicates whether the action failed or not
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.

modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
taskLuid	string	LUID of the associated task

thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_create_workbook_task

The `hist_create_workbook_task` event is logged for workbook related tasks.

Attribute Name	Type	Description
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.

objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Provides additional information about the task
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_decrypt_datasource_extracts

The legacy decrypt datasource extracts event from historical_events.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	Unique ID of the data source
description	string	Description of the data source

details	string	A message string
isCertified	boolean	Indicates whether the data source is certified
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the data source
ownerLuid	string	Unique ID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	Unique ID of the project that contains the data source
projectName	string	Name of the project that contains the data source
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_decrypt_datasource_extracts_request

The legacy decrypt datasource extracts request event from historical_events.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	Unique ID of the data source
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	Unique ID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	Unique ID of the project that contains the data source
projectName	string	Name of the project that contains the data source
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_decrypt_flow_draft_extracts

The legacy decrypt flow draft extracts event from historical_events.

Attribute Name	Type	Description
createdAt	string	Timestamp when the record was created
details	string	A message string
flowDraftLuid	string	Unique ID of the flow draft
flowLuid	string	Unique ID of the flow. The value is Null if the flow draft isn't connected to a published flow.
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the flow draft
ownerLuid	string	Unique ID of the flow draft owner. The owner of the flow draft may be different than the flow owner.
ownerName	string	Name of the flow draft owner. The owner of the flow draft may be different than the flow owner.
projectLuid	string	Unique ID of the project that contains the flow draft
projectName	string	Name of the project that contains the flow draft
publishedAt	string	Timestamp when the flow draft was last published
siteName	string	Name of the Tableau site
size	long	Size of the flow draft in bytes
updatedAt	string	Timestamp when the record was last updated

hist_decrypt_flow_draft_extracts_request

The legacy decrypt flow draft extracts request event from historical_events.

Attribute Name	Type	Description
createdAt	string	Timestamp when the record was created
flowDraftLuid	string	Unique ID of the flow draft
flowLuid	string	Unique ID of the flow. The value is Null if the flow draft isn't connected to a published flow.
name	string	Name of the flow draft
ownerLuid	string	Unique ID of the flow draft owner. The owner of the flow draft may be different than the flow owner.
ownerName	string	Name of the flow draft owner. The owner of the flow draft may be different than the flow owner.
projectLuid	string	Unique ID of the project that contains the flow draft
projectName	string	Name of the project that contains the flow draft
publishedAt	string	Timestamp when the flow draft was last published
siteName	string	Name of the Tableau site
size	long	Size of the flow draft in bytes
updatedAt	string	Timestamp when the record was last updated

hist_decrypt_flow_extracts

The legacy decrypt flow extracts event from historical_events.

Attribute Name	Type	Description
contentVersion	string	Version of the flow file, increments by 1 on each publish.
description	string	Description of the flow
details	string	A message string

flowLuid	string	Unique ID of the flow
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_decrypt_flow_extracts_request

The legacy decrypt flow extracts request event from historical_events.

Attribute Name	**Type**	**Description**
contentVersion	string	Version of the flow file, increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_decrypt_materialized_views

The hist_decrypt_materialized_views event logs the successful decrypting of materialized views on a workbook.

Attribute Name	**Type**	**Description**
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data

		engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	Details of the action (why were the materialized views created or deleted).
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
eventType	string	The type of the event. Either Create, Delete, Encrypt, Decrypt, or Rekey Materialized Views.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published

		before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook

workbookLuid	string	Unique ID of the workbook

hist_decrypt_site_extracts_request

The legacy decrypt site extracts request event from historical_events.

Attribute Name	Type	Description
name	string	Name of the Tableau site
siteEventLuid	string	Unique ID of the site affected by the event
siteName	string	Name of the Tableau site
urlNamespace	string	Used in the construction of URLs that target the site

hist_decrypt_workbook_extracts

The legacy decrypt workbook extracts event from historical_events.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	A message string
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract

		refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isFailure	boolean	Indicates whether the action failed or not
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook

publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_decrypt_workbook_extracts_request

The legacy decrypt workbook extracts request event from historical_events.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data

		engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook

ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_delete_access_token

The `hist_delete_access_token` event is logged when a user deltes an access token.

Attribute Name	Type	Description
siteName	string	Name of the Tableau site where the access token is deleted.

hist_delete_collection

The `hist_delete_collection` event is logged when a collection is deleted.

Attribute Name	Type	Description
collectionLuid	string	Unique identifier
description	string	Description of the collection
name	string	Name of the collection
ownerLuid	string	Unique ID of the user who owns the collection
ownerName	string	Name of the user who owns the collection
siteName	string	Name of the Tableau site

hist_delete_column

The `hist_delete_column` event is logged when deleting a database column.

Attribute Name	Type	Description
columnLuid	string	Unique identifier
description	string	Description of the column
name	string	Name of the column
ownerLuid	string	Unique ID of the user who owns the column

ownerName	string	Name of the user who owns the column
projectLuid	string	Unique ID of the project that contains the column
projectName	string	Name of the project that contains the column
siteName	string	Name of the Tableau site

hist_delete_data_quality_indicator

The `hist_delete_data_quality_indicator` event is logged when a data quality warning is deleted.

Attribute Name	Type	Description
dataQualityIndicatorLuid	string	Unique identifier
dataQualityType	string	The type of data quality indicator
isActive	boolean	Indicates whether the data quality indicator is active or not
isSevere	boolean	Indicates whether the data quality indicator is severe or not
message	string	Data quality filter message
siteName	string	Name of the Tableau site
userDisplayName	string	Name of user who created or modified the data quality indicator
userLuid	string	Unique ID of the user who created or modified the data quality indicator

hist_delete_data_role

The `hist_delete_data_role` event is logged when deleting a data role.

Attribute Name	Type	Description
dataRoleLuid	string	Unique identifier
description	string	Description of the data role
name	string	Name of the data role
ownerLuid	string	Unique ID of the data role owner
ownerName	string	Name of the data role owner
projectLuid	string	Unique ID of the project that contains the data role
projectName	string	Name of the project that contains the data role
siteName	string	Name of the Tableau site

hist_delete_database

The `hist_delete_database` event is logged when a database is deleted.

Attribute Name	Type	Description
databaseLuid	string	Unique identifier
description	string	Description of the database
name	string	Name of the database
ownerLuid	string	Unique ID of the database owner
ownerName	string	Name of the database owner
projectLuid	string	Unique ID of the project that contains the database
projectName	string	Name of the project that contains the database
siteName	string	Name of the Tableau site

hist_delete_datasource

The `hist_delete_datasource` event is logged when deleting a data source.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes

usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_delete_datasource_task

The `hist_delete_datasource_task` event is logged when a data source related task is deleted.

Attribute Name	**Type**	**Description**
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.

priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Provides additional information about the task
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_delete_datasource_trigger

The `hist_delete_datasource_trigger` event specifies what caused the data source to be deleted.

Attribute Name	**Type**	**Description**
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner

ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_delete_expired_refresh_token

The `hist_delete_expired_refresh_token` event is logged when an expired refresh token is deleted by the Backgrounder process.

Attribute Name	Type	Description
deviceName	string	Name of the device associated with the refresh token
refreshTokenGuid	string	Unique ID of the refresh token
siteName	string	Name of the Tableau site

hist_delete_flow

The `hist_delete_flow` event is logged when a flow is deleted.

Attribute Name	Type	Description
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_delete_flow_draft

The `hist_delete_flow_draft` event is logged when a flow draft is deleted.

Attribute Name	Type	Description
createdAt	string	Timestamp when the record was created
flowDraftLuid	string	Unique ID of the flow draft
flowLuid	string	Unique ID of the flow. The value is Null if the flow draft isn't connected to a published flow.
name	string	Name of the flow draft
ownerLuid	string	Unique ID of the flow draft owner. The owner of the flow draft may be different than the flow owner.
ownerName	string	Name of the flow draft owner. The owner of the flow draft may be different than the flow owner.

projectLuid	string	Unique ID of the project that contains the flow draft
projectName	string	Name of the project that contains the flow draft
publishedAt	string	Timestamp when the flow draft was last published
siteName	string	Name of the Tableau site
size	long	Size of the flow draft in bytes
updatedAt	string	Timestamp when the record was last updated

hist_delete_flow_task

The `hist_delete_flow_task` event is logged when deleting flow related tasks.

Attribute Name	Type	Description
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary

		key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Provides additional information about the task
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_delete_flow_trigger

The `hist_delete_flow_trigger` event specifies what caused the flow to be deleted.

Attribute Name	Type	Description
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow

flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_delete_group

The `hist_delete_group` event is logged when a group is deleted.

Attribute Name	Type	Description
groupLuid	string	Unique ID of the group
name	string	Name of the group
siteName	string	Name of the Tableau site

hist_delete_linked_task

The `hist_delete_linked_task` event is logged when deleting tasks that are linked and scheduled to run serially.

Attribute Name	Type	Description
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in his-

		torical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Provides additional information about the task
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_delete_materialized_views

The `hist_delete_materialized_views` event logs the successful deletion of materialized views on a workbook

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	Details of the action (why were the materialized views created or deleted).
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
eventType	string	The type of the event. Either Create, Delete, Encrypt, Decrypt, or Rekey Materialized Views.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not.

		The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is pub-

		lished.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_delete_metric

The `hist_delete_metric` event is logged when a metric is deleted.

Note: Tableau's legacy metrics feature was retired in February 2024. As a result, this event no longer records user interaction with metrics on the site. For more information, see Set Up for Metrics.

Attribute Name	Type	Description
customizedViewLuid	string	The view from which the metric queries its data
description	string	Description of the metric
metricLuid	string	Unique ID of the metric
name	string	Name of the metric
projectLuid	string	Unique ID of the associated project
projectName	string	Name of the associated project
siteName	string	Name of the Tableau site

suspendState	integer	State of the metric. The value 0 = Not suspended, 1 = Auto-suspended, and 3 = Manually suspended.
viewLuid	string	The view from which the metric queries its data

hist_delete_project

The `hist_delete_project` event is logged when a project is deleted.

Attribute Name	Type	Description
description	string	Description of the project
name	string	Name of the project
ownerLuid	string	Unique ID of the project owner
ownerName	string	Name of the project owner
parentProjectLuid	string	LUID of the parent project. The value is Null for top-level projects.
projectLuid	string	Unique identifier for the project
siteName	string	Name of the Tableau site
state	string	State of the project. The default value is active. Any other value indicates the project is inactive.

hist_delete_refresh_token_session

The `hist_delete_refresh_token_session` event is logged when a session created by refresh token is deleted.

Attribute Name	Type	Description
deviceName	string	Name of the device associated with the refresh token

refreshTokenGuid	string	Unique ID of the refresh token
sessionId	string	ID of the session
siteName	string	Name of the Tableau site

hist_delete_schedule

The `hist_delete_schedule` event is logged when a schedule is deleted.

Attribute Name	Type	Description
active	boolean	Indicates whether the schedule is active or not. If set to False, no tasks will run when the schedule is triggered.
dayOfMonthMask	integer	Indicates which day of the month the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the month correspond to 1st = 1, 2nd = 10, 3rd = 100, 4th = 1000, 5th = 10000, etc.
dayOfWeekMask	integer	Indicates which day of the week the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the week correspond to Sunday = 1, Monday = 10, Tuesday = 100, Wednesday = 1000, Thursday = 10000, Friday = 100000, and Saturday = 1000000.
endAtMinute	integer	The minute after the specified schedule_type period begins, indicating when the schedule should stop triggering.
endScheduleAt	string	Timestamp when the schedule should stop triggering
isSerial	boolean	Indicates whether the schedule is run serially or not
minuteInterval	integer	Once triggered, the schedule will repeat at this interval until it ends as per the schedule_type, end_at_minute,

		or end_schedule_at.
name	string	Name of the schedule
priority	integer	Priority ranges from 1 to 100, with lower values corresponding to a higher priority.
scheduleLuid	string	Unique ID of the schedule
scheduleType	integer	The type of schedule. The value 0 = Hourly, 1 = Daily, 2 = Weekly, and 3 = Monthly.
scheduledAction	integer	Category of the scheduled action. The value 0 = Extracts and 1 = Subscriptions.
siteName	string	Name of the Tableau site
startAtMinute	integer	The minute after the scheduled start time per the schedule_type. For example, in a daily schedule, it's minutes past midnight; for hourly, it's minutes past the hour.

hist_delete_site

The `hist_delete_site` event is logged when a site is deleted.

Attribute Name	Type	Description
name	string	Name of the Tableau site
siteEventLuid	string	Unique ID of the site affected by the event
siteName	string	Name of the Tableau site
urlNamespace	string	Used in the construction of URLs that target the site

hist_delete_system_user

The `hist_delete_system_user` event is logged when a system user is deleted.

Attribute Name	Type	Description
email	string	Email address of the user
name	string	Name of the user
siteAdminLevel	integer	Indicates whether the user is a site admin. The value 5 = site admin and 0 = not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	The unique identifier of the user

hist_delete_table

The `hist_delete_table` event is logged when a table is deleted.

Attribute Name	Type	Description
description	string	Description of the table
name	string	Name of the table
ownerLuid	string	Unique ID of the table owner
ownerName	string	Name of the table owner
projectLuid	string	Unique ID of the project that contains the table
projectName	string	Name of the project that contains the table
siteName	string	Name of the Tableau site
tableLuid	string	Unique identifier

hist_delete_user

The `hist_delete_user` event is logged when a user is deleted from the site.

Attribute Name	Type	Description

email	string	Email address of the user
name	string	Name of the user
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_delete_user_from_group

The `hist_delete_user_from_group` event is logged when a user is removed from a group.

Attribute Name	Type	Description
groupLuid	string	Unique ID of the group
name	string	Name of the group
siteName	string	Name of the Tableau site
userLuid	string	LUID of the user deleted from the group
userName	string	The name of the user deleted from the group

hist_delete_view

The `hist_delete_view` event is logged when a view is deleted from the site.

Attribute Name	Type	Description
caption	string	The descriptive phrase constructed for the worksheet based on the workbook definition
description	string	Description of the view

fields	string	A list of fields extracted from the workbook .twb file
firstPublishedAt	string	Timestamp of when the view was first published. The value won't change when republishing the workbook containing the view.
index	integer	Each view has an index that is unique among views belonging to that workbook
name	string	Name of the view
ownerLuid	string	User LUID of the view owner
ownerName	string	Name of the view owner
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number of the view. Starts with 1.0 and increments by 0.1 each time a new version is published.
sheetId	string	The ID of the worksheet
sheetType	string	The type of worksheet. Either a story, dashboard, or view.
siteName	string	Name of the Tableau site
title	string	The worksheet title from the workbook .twb file
viewLuid	string	The LUID of the view
workbookLuid	string	The LUID of the workbook containing the view
workbookName	string	Name of the workbook containing the view

hist_delete_workbook

The `hist_delete_workbook` event is logged when a workbook is deleted.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web

		authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.

viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_delete_workbook_task

The `hist_delete_workbook_task` event is logged when a workbook related task is deleted.

Attribute Name	Type	Description
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data

		source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Provides additional information about the task
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_disable_linked_task_schedule

The `hist_disable_linked_task_schedule` event is logged when a linked task schedule is turned off.

Attribute Name	**Type**	**Description**
active	boolean	Indicates whether the schedule is active or not. If set to False, no tasks will run when the schedule is triggered.
dayOfMonthMask	integer	Indicates which day of the month the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the month correspond to 1st = 1, 2nd = 10, 3rd = 100, 4th = 1000, 5th = 10000, etc.

dayOfWeekMask	integer	Indicates which day of the week the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the week correspond to Sunday = 1, Monday = 10, Tuesday = 100, Wednesday = 1000, Thursday = 10000, Friday = 100000, and Saturday = 1000000.
endAtMinute	integer	The minute after the specified schedule_type period begins, indicating when the schedule should stop triggering.
endScheduleAt	string	Timestamp when the schedule should stop triggering
isSerial	boolean	Indicates whether the schedule is run serially or not
minuteInterval	integer	Once triggered, the schedule will repeat at this interval until it ends as per the schedule_type, end_at_minute, or end_schedule_at.
name	string	Name of the schedule
priority	integer	Priority ranges from 1 to 100, with lower values corresponding to a higher priority.
scheduleLuid	string	Unique ID of the schedule
scheduleType	integer	The type of schedule. The value 0 = Hourly, 1 = Daily, 2 = Weekly, and 3 = Monthly.
scheduledAction	integer	Category of the scheduled action. The value 0 = Extracts and 1 = Subscriptions.
siteName	string	Name of the Tableau site
startAtMinute	integer	The minute after the scheduled start time per the schedule_type. For example, in a daily schedule, it's minutes past midnight; for hourly, it's minutes past the hour.

hist_disable_schedule

The `hist_disable_schedule` event is logged when a schedule is turned off.

Attribute Name	Type	Description
active	boolean	Indicates whether the schedule is active or not. If set to False, no tasks will run when the schedule is triggered.
dayOfMonthMask	integer	Indicates which day of the month the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the month correspond to 1st = 1, 2nd = 10, 3rd = 100, 4th = 1000, 5th = 10000, etc.
dayOfWeekMask	integer	Indicates which day of the week the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the week correspond to Sunday = 1, Monday = 10, Tuesday = 100, Wednesday = 1000, Thursday = 10000, Friday = 100000, and Saturday = 1000000.
endAtMinute	integer	The minute after the specified schedule_type period begins, indicating when the schedule should stop triggering.
endScheduleAt	string	Timestamp when the schedule should stop triggering
isSerial	boolean	Indicates whether the schedule is run serially or not
minuteInterval	integer	Once triggered, the schedule will repeat at this interval until it ends as per the schedule_type, end_at_minute, or end_schedule_at.
name	string	Name of the schedule
priority	integer	Priority ranges from 1 to 100, with lower values corresponding to a higher priority.

scheduleLuid	string	Unique ID of the schedule
scheduleType	integer	The type of schedule. The value 0 = Hourly, 1 = Daily, 2 = Weekly, and 3 = Monthly.
scheduledAction	integer	Category of the scheduled action. The value 0 = Extracts and 1 = Subscriptions.
siteName	string	Name of the Tableau site
startAtMinute	integer	The minute after the scheduled start time per the schedule_type. For example, in a daily schedule, it's minutes past midnight; for hourly, it's minutes past the hour.

hist_download_datasource

The `hist_download_datasource` event is logged when a data source is downloaded from the site.

Attribute Name	**Type**	**Description**
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published

remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_download_flow

The `hist_download_flow` event is logged when a flow is downloaded from the site.

Attribute Name	**Type**	**Description**
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_download_flow_draft

The `hist_download_flow_draft` event is logged when a flow draft is downloaded from the site.

Attribute Name	Type	Description
createdAt	string	Timestamp when the record was created
flowDraftLuid	string	Unique ID of the flow draft
flowLuid	string	Unique ID of the flow. The value is Null if the flow draft isn't connected to a published flow.
name	string	Name of the flow draft
ownerLuid	string	Unique ID of the flow draft owner. The owner of the flow draft may be different than the flow owner.
ownerName	string	Name of the flow draft owner. The owner of the flow draft may be different than the flow owner.
projectLuid	string	Unique ID of the project that contains the flow draft
projectName	string	Name of the project that contains the flow draft
publishedAt	string	Timestamp when the flow draft was last published
siteName	string	Name of the Tableau site
size	long	Size of the flow draft in bytes
updatedAt	string	Timestamp when the record was last updated

hist_download_workbook

The `hist_download_workbook` event is logged when downloading a workbook from the site.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published

		before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the

		workbook
workbookLuid	string	Unique ID of the workbook

hist_enable_linked_task_schedule

The `hist_enable_linked_task_schedule` event is logged when a linked task scheduled is turned on.

Attribute Name	**Type**	**Description**
active	boolean	Indicates whether the schedule is active or not. If set to False, no tasks will run when the schedule is triggered.
dayOfMonthMask	integer	Indicates which day of the month the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the month correspond to 1st = 1, 2nd = 10, 3rd = 100, 4th = 1000, 5th = 10000, etc.
dayOfWeekMask	integer	Indicates which day of the week the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the week correspond to Sunday = 1, Monday = 10, Tuesday = 100, Wednesday = 1000, Thursday = 10000, Friday = 100000, and Saturday = 1000000.
endAtMinute	integer	The minute after the specified schedule_type period begins, indicating when the schedule should stop triggering.
endScheduleAt	string	Timestamp when the schedule should stop triggering
isSerial	boolean	Indicates whether the schedule is run serially or not
minuteInterval	integer	Once triggered, the schedule will repeat at this interval until it ends as per the schedule_type, end_at_minute, or end_schedule_at.

name	string	Name of the schedule
priority	integer	Priority ranges from 1 to 100, with lower values corresponding to a higher priority.
scheduleLuid	string	Unique ID of the schedule
scheduleType	integer	The type of schedule. The value 0 = Hourly, 1 = Daily, 2 = Weekly, and 3 = Monthly.
scheduledAction	integer	Category of the scheduled action. The value 0 = Extracts and 1 = Subscriptions.
siteName	string	Name of the Tableau site
startAtMinute	integer	The minute after the scheduled start time per the schedule_type. For example, in a daily schedule, it's minutes past midnight; for hourly, it's minutes past the hour.

hist_enable_schedule

The `hist_enable_schedule` event is logged when a schedule is turned on.

Attribute Name	**Type**	**Description**
active	boolean	Indicates whether the schedule is active or not. If set to False, no tasks will run when the schedule is triggered.
dayOfMonthMask	integer	Indicates which day of the month the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the month correspond to 1st = 1, 2nd = 10, 3rd = 100, 4th = 1000, 5th = 10000, etc.
dayOfWeekMask	integer	Indicates which day of the week the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of

		the week correspond to Sunday = 1, Monday = 10, Tuesday = 100, Wednesday = 1000, Thursday = 10000, Friday = 100000, and Saturday = 1000000.
endAtMinute	integer	The minute after the specified schedule_type period begins, indicating when the schedule should stop triggering.
endScheduleAt	string	Timestamp when the schedule should stop triggering
isSerial	boolean	Indicates whether the schedule is run serially or not
minuteInterval	integer	Once triggered, the schedule will repeat at this interval until it ends as per the schedule_type, end_at_minute, or end_schedule_at.
name	string	Name of the schedule
priority	integer	Priority ranges from 1 to 100, with lower values corresponding to a higher priority.
scheduleLuid	string	Unique ID of the schedule
scheduleType	integer	The type of schedule. The value 0 = Hourly, 1 = Daily, 2 = Weekly, and 3 = Monthly.
scheduledAction	integer	Category of the scheduled action. The value 0 = Extracts and 1 = Subscriptions.
siteName	string	Name of the Tableau site
startAtMinute	integer	The minute after the scheduled start time per the schedule_type. For example, in a daily schedule, it's minutes past midnight; for hourly, it's minutes past the hour.

hist_encrypt_datasource_extracts

The legacy encrypt datasource extracts event from historical_events.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	Unique identifier
description	string	Description of the data source
details	string	A message string
isCertified	boolean	Indicates whether the data source is certified
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the data source
ownerLuid	string	Unique ID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	Unique ID of the project that contains the data source
projectName	string	Name of the project that contains the data source
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site

size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_encrypt_datasource_extracts_request

The legacy encrypt datasource extracts request event from historical_events.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	Unique identifier
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	Unique ID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	Unique ID of the project that contains the data source
projectName	string	Name of the project that contains the data source
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.

revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_encrypt_flow_draft_extracts

The legacy encrypt flow draft extracts event from historical_events.

Attribute Name	**Type**	**Description**
createdAt	string	Timestamp when the record was created
details	string	A message string
flowDraftLuid	string	Unique ID of the flow draft
flowLuid	string	Unique ID of the flow. The value is Null if the flow draft isn't connected to a published flow.
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the flow draft
ownerLuid	string	Unique ID of the flow draft owner. The owner of the flow draft may be different than the flow owner.
ownerName	string	Name of the flow draft owner. The owner of the flow draft may be different than the flow owner.
projectLuid	string	Unique ID of the project that contains the flow draft
projectName	string	Name of the project that contains the flow draft

publishedAt	string	Timestamp when the flow draft was last published
siteName	string	Name of the Tableau site
size	long	Size of the flow draft in bytes
updatedAt	string	Timestamp when the record was last updated

hist_encrypt_flow_draft_extracts_request

The legacy encrypt flow draft extracts request event from historical_events.

Attribute Name	Type	Description
createdAt	string	Timestamp when the record was created
flowDraftLuid	string	Unique ID of the flow draft
flowLuid	string	Unique ID of the flow. The value is Null if the flow draft isn't connected to a published flow.
name	string	Name of the flow draft
ownerLuid	string	Unique ID of the flow draft owner. The owner of the flow draft may be different than the flow owner.
ownerName	string	Name of the flow draft owner. The owner of the flow draft may be different than the flow owner.
projectLuid	string	Unique ID of the project that contains the flow draft
projectName	string	Name of the project that contains the flow draft
publishedAt	string	Timestamp when the flow draft was last published
siteName	string	Name of the Tableau site
size	long	Size of the flow draft in bytes
updatedAt	string	Timestamp when the record was last updated

hist_encrypt_flow_extracts

The legacy encrypt flow extracts event from historical_events.

Attribute Name	Type	Description
contentVersion	string	Version of the flow file, increments by 1 on each publish.
description	string	Description of the flow
details	string	A message string
flowLuid	string	Unique ID of the flow
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_encrypt_flow_extracts_request

The legacy encrypt flow extracts request event from historical_events.

Attribute Name	Type	Description
contentVersion	string	Version of the flow file, increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_encrypt_materialized_views

The `hist_encrypt_materialized_views` event logs the successful encrypting of materialized views on a workbook.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	Details of the action (why were the materialized views created or deleted).
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
eventType	string	The type of the event. Either Create, Delete, Encrypt, Decrypt, or Rekey Materialized Views.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not.

		The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is pub-

		lished.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_encrypt_site_extracts_request

The legacy encrypt site extracts request event from historical_events.

Attribute Name	Type	Description
name	string	Name of the Tableau site
siteEventLuid	string	Unique ID of the site affected by the event
siteName	string	Name of the Tableau site
urlNamespace	string	Used in the construction of URLs that target the site

hist_encrypt_workbook_extracts

The legacy encrypt workbook extracts event from historical_events.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts

defaultViewIndex	integer	Indicates which view will be shown by default
details	string	A message string
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isFailure	boolean	Indicates whether the action failed or not
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook

ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_encrypt_workbook_extracts_request

The legacy encrypt workbook extracts request event from historical_events.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed,

		the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes

thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_export_summary_data

The `hist_export_summary_data` event is logged when summary data is exported from a view.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.

incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is

		derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
sheetName	string	Name of the sheet for which data was accessed.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_export_underlying_data

The `hist_export_underlying_data` event is logged when underlying data is exported from a view.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not

documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.

projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
sheetName	string	Name of the sheet for which data was accessed.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_hyper_data_update_job

The legacy Hyper data update job event from historical_events.

Attribute Name	Type	Description

certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	Unique identifier
description	string	Description of the data source
details	string	Details of the action (why was the data updated).
isCertified	boolean	Indicates whether the data source is certified
isFailure	boolean	Whether the action succeeded or failed.
name	string	Name of the data source
ownerLuid	string	Unique ID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	Unique ID of the project that contains the data source
projectName	string	Name of the project that contains the data source
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes

usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_impersonate_user

The `hist_impersonate_user` event logs when a user ID has been impersonated.

Attribute Name	Type	Description
email	string	Email address of the user
name	string	Name of the user
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_increment_datasource_extract

The `hist_increment_datasource_extract` event is logged when a data source extract is incrementally refreshed.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	Unique identifier
description	string	Description of the data source
details	string	A message string
isCertified	boolean	Indicates whether the data source is certified

isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the data source
ownerLuid	string	Unique ID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	Unique ID of the project that contains the data source
projectName	string	Name of the project that contains the data source
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
taskLuid	string	LUID of the associated task
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_increment_workbook_extracts

The `hist_increment_workbook_extracts` event is logged when extracts in a workbook are incrementally refreshed.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	A message string
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isFailure	boolean	Indicates whether the action failed or not
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.

modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
taskLuid	string	LUID of the associated task

thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_issue_refresh_token

The `hist_issue_refresh_token` event is logged when a refresh token or personal access token (PAT) is issued.

Attribute Name	Type	Description
refreshTokenGuid	string	The unique ID of the refresh token or PAT
siteName	string	Name of the Tableau site

hist_lock_site

The `hist_lock_site` event is logged when a site is locked.

Attribute Name	Type	Description
name	string	Name of the Tableau site
siteEventLuid	string	Unique ID of the site affected by the event
siteName	string	Name of the Tableau site
urlNamespace	string	Used in the construction of URLs that target the site

hist_login

The `hist_login` event is logged when a user signed in to the site.

Attribute Name	Type	Description
actorExternalId	string	The external ID for the acting user. This is an opaque identifier dependent on the actor type, but could, for example, be a user email. Can also show the identifier of a user accessing content through on-demand access.
groupNames	string	The list of group names assigned to the user with on-demand access during sign-in
siteName	string	Name of the Tableau site

hist_login_with_pat

The `hist_login_with_pat` event is logged when a user signed in with a personal access token (PAT).

Attribute Name	Type	Description
clientId	string	Used for PATs. The client ID is typically the PAT name displayed in the Tableau UI.
createdAt	string	The timestamp when the PAT was first created
expiresAt	string	The timestamp when the PAT expires
lastUsedAt	string	The timestamp when the PAT was last used
refreshTokenGuid	string	The unique ID of the PAT
siteName	string	Name of the Tableau site

hist_logout

The `hist_logout event` is logged when a user logged out of the site.

Attribute Name	Type	Description
siteName	string	Name of the Tableau site

hist_move_data_role

The `hist_move_data_role` event is logged when a data role is moved to a new project.

Attribute Name	Type	Description
dataRoleLuid	string	Unique identifier
description	string	Description of the data role
destinationProjectLuid	string	Unique ID of the destination project
destinationProjectName	string	Name of the destination project
name	string	Name of the data role
ownerLuid	string	Unique ID of the data role owner
ownerName	string	Name of the data role owner
projectLuid	string	Unique ID of the project that contains the data role
projectName	string	Name of the project that contains the data role
siteName	string	Name of the Tableau site
sourceProjectLuid	string	Unique ID of the source project
sourceProjectName	string	Name of the source project

hist_move_database

The `hist_move_database` event is logged when a database is moved to a new project.

Attribute Name	Type	Description
databaseLuid	string	Unique identifier
description	string	Description of the database
destinationProjectLuid	string	Unique ID of the destination project

destinationProjectName	string	Name of the destination project
name	string	Name of the database
ownerLuid	string	Unique ID of the database owner
ownerName	string	Name of the database owner
projectLuid	string	Unique ID of the project that contains the database
projectName	string	Name of the project that contains the database
siteName	string	Name of the Tableau site
sourceProjectLuid	string	Unique ID of the source project
sourceProjectName	string	Name of the source project

hist_move_datasource

The `hist_move_datasource` event is logged when a published data source is moved to a new project.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
destinationProjectLuid	string	Unique ID of the destination project
destinationProjectName	string	Name of the destination project
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source

ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
sourceProjectLuid	string	Unique ID of the source project
sourceProjectName	string	Name of the source project
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_move_flow

The `hist_move_flow` event is logged when a flow is moved to a new project.

Attribute Name	Type	Description
contentVersion	string	The version of the flow file. Increments by 1 on

		each publish.
description	string	Description of the flow
destinationProjectLuid	string	Unique ID of the destination project
destinationProjectName	string	Name of the destination project
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes
sourceProjectLuid	string	Unique ID of the source project
sourceProjectName	string	Name of the source project

hist_move_flow_draft

The `hist_move_flow_draft` event is logged when a flow draft is moved to a new project.

Attribute Name	Type	Description
createdAt	string	Timestamp when the record was created
destinationProjectLuid	string	Unique ID of the destination project
destinationProjectName	string	Name of the destination project
flowDraftLuid	string	Unique ID of the flow draft
flowLuid	string	Unique ID of the flow. The value is Null if the flow draft isn't connected to a published flow.
name	string	Name of the flow draft
ownerLuid	string	Unique ID of the flow draft owner. The owner of the flow draft may be different than the flow owner.

ownerName	string	Name of the flow draft owner. The owner of the flow draft may be different than the flow owner.
projectLuid	string	Unique ID of the project that contains the flow draft
projectName	string	Name of the project that contains the flow draft
publishedAt	string	Timestamp when the flow draft was last published
siteName	string	Name of the Tableau site
size	long	Size of the flow draft in bytes
sourceProjectLuid	string	Unique ID of the source project
sourceProjectName	string	Name of the source project
updatedAt	string	Timestamp when the record was last updated

hist_move_metric

The `hist_move_metric` event is logged when a metric is moved to a new project.

Note: Tableau's legacy metrics feature was retired in February 2024. As a result, this event no longer records user interaction with metrics on the site. For more information, see Set Up for Metrics.

Attribute Name	Type	Description
customizedViewLuid	string	The view from which the metric queries its data
description	string	Description of the metric
destinationProjectLuid	string	Unique ID of the destination project
destinationProjectName	string	Name of the destination project

metricLuid	string	Unique ID of the metric
name	string	Name of the metric
projectLuid	string	Unique ID of the associated project
projectName	string	Name of the associated project
siteName	string	Name of the Tableau site
sourceProjectLuid	string	Unique ID of the source project
sourceProjectName	string	Name of the source project
suspendState	integer	State of the metric. The value 0 = Not suspended, 1 = Auto-suspended, and 3 = Manually suspended.
viewLuid	string	The view from which the metric queries its data

hist_move_project

The `hist_move_project` event is logged when a project is moved.

Attribute Name	Type	Description
description	string	Description of the project
destinationProjectLuid	string	Unique ID of the destination project
destinationProjectName	string	Name of the destination project
name	string	Name of the project
ownerLuid	string	Unique ID of the project owner
ownerName	string	Name of the project owner
parentProjectLuid	string	LUID of the parent project. The value is Null for top-level projects.

projectLuid	string	Unique identifier for the project
siteName	string	Name of the Tableau site
sourceProjectLuid	string	Unique ID of the source project
sourceProjectName	string	Name of the source project
state	string	State of the project. The default value is active. Any other value indicates the project is inactive.

hist_move_published_connection

The `hist_move_published_connection` event is logged when a published connection is moved to a new project.

Attribute Name	Type	Description
activated	boolean	Whether this published connection was ever made available for consumption
description	string	Description of the published connection
destinationProjectLuid	string	Unique ID of the destination project
destinationProjectName	string	Name of the destination project
name	string	Name of the published connection
ownerLuid	string	Unique ID of the user that owns the published connection
ownerName	string	Name of the user who owns the published connection
projectLuid	string	The associated project
projectName	string	The name of the associated project

publishedConnectionLuid	string	Unique ID of the published connection
siteName	string	Name of the Tableau site
sourceProjectLuid	string	Unique ID of the source project
sourceProjectName	string	Name of the source project

hist_move_table

The `hist_move_table` event is logged when a table is moved to a new project.

Attribute Name	Type	Description
description	string	Description of the table
destinationProjectLuid	string	Unique ID of the destination project
destinationProjectName	string	Name of the destination project
name	string	Name of the table
ownerLuid	string	Unique ID of the table owner
ownerName	string	Name of the table owner
projectLuid	string	Unique ID of the project that contains the table
projectName	string	Name of the project that contains the table
siteName	string	Name of the Tableau site
sourceProjectLuid	string	Unique ID of the source project
sourceProjectName	string	Name of the source project
tableLuid	string	Unique identifier

hist_move_workbook

The `hist_move_workbook` event is logged when a workbook is moved to a new project.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
destinationProjectLuid	string	Unique ID of the destination project
destinationProjectName	string	Name of the destination project
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed,

		the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes

sourceProjectLuid	string	Unique ID of the source project
sourceProjectName	string	Name of the source project
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_pause_datasource_extract_refresh

The `hist_pause_datasource_extract_refresh` event is logged when a data source extract refresh is paused.

Attribute Name	**Type**	**Description**
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	Unique identifier
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	Unique ID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	Unique ID of the project that contains the data source
projectName	string	Name of the project that contains the data source

remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
taskLuid	string	LUID of the associated task
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_pause_workbook_extract_refresh

The `hist_pause_workbook_extract_refresh` event is logged when a workbook extract refresh is paused.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not

documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.

projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
taskLuid	string	LUID of the associated task
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_publish_data_role

The `hist_publish_data_role` event is logged when a data role is published.

Attribute Name	**Type**	**Description**

dataRoleLuid	string	Unique identifier
description	string	Description of the data role
name	string	Name of the data role
ownerLuid	string	Unique ID of the data role owner
ownerName	string	Name of the data role owner
projectLuid	string	Unique ID of the project that contains the data role
projectName	string	Name of the project that contains the data role
siteName	string	Name of the Tableau site

hist_publish_datasource

The `hist_publish_datasource` event is logged when a data source is published on the site.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source

		was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_publish_flow

The `hist_publish_flow` event is logged when a flow is published on the site.

Attribute Name	Type	Description
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_publish_view

The `hist_publish_view` event is logged when a view is published on the site.

Attribute Name	Type	Description
caption	string	The descriptive phrase constructed for the worksheet based on the workbook definition
description	string	Description of the view
fields	string	A list of fields extracted from the workbook .twb file
firstPublishedAt	string	Timestamp of when the view was first published. The value won't change when republishing the workbook containing the view.
index	integer	Each view has an index that is unique among views belonging to that workbook
name	string	Name of the view
ownerLuid	string	User LUID of the view owner
ownerName	string	Name of the view owner
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number of the view. Starts with 1.0 and increments by 0.1 each time a new version is published.
sheetId	string	The ID of the worksheet
sheetType	string	The type of worksheet. Either a story, dashboard, or view.
siteName	string	Name of the Tableau site
title	string	The worksheet title from the workbook .twb file

viewLuid	string	The LUID of the view
workbookLuid	string	The LUID of the workbook containing the view
workbookName	string	Name of the workbook containing the view

hist_publish_workbook

The `hist_publish_workbook` event is logged when a workbook is published.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not.

		The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and incre-

		ments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_redeem_refresh_token

The `hist_redeem_refresh_token` event is logged when a refresh token or personal access token (PAT) is redeemed.

Attribute Name	Type	Description
refreshTokenGuid	string	The unique ID of the refresh token or PAT
siteName	string	Name of the Tableau site

hist_refresh_datasource_extract

The `hist_refresh_datasource_extract` event is logged when a data extract is refreshed.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source

description	string	Description of the data source
details	string	A message string
isCertified	boolean	Indicates whether the data source is certified
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
taskLuid	string	LUID of the associated task
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_refresh_workbook_extracts

The `hist_refresh_workbook_extracts` event is logged when extracts in a workbook are refreshed.

Attribute Name	**Type**	**Description**
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	A message string
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isFailure	boolean	Indicates whether the action failed or not
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.

lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.

siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
taskLuid	string	LUID of the associated task
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_rekey_datasource_extracts

The legacy rekey datasource extracts event from historical_events.

Attribute Name	**Type**	**Description**
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	Unique identifier
description	string	Description of the data source
details	string	A message string
isCertified	boolean	Indicates whether the data source is certified
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the data source
ownerLuid	string	Unique ID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	Unique ID of the project that contains the data

		source
projectName	string	Name of the project that contains the data source
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_rekey_flow_draft_extracts

The legacy rekey flow draft extracts event from historical_events.

Attribute Name	**Type**	**Description**
createdAt	string	Timestamp when the record was created
details	string	A message string
flowDraftLuid	string	Unique ID of the flow draft
flowLuid	string	Unique ID of the flow. The value is Null if the flow draft isn't connected to a published flow.

isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the flow draft
ownerLuid	string	Unique ID of the flow draft owner. The owner of the flow draft may be different than the flow owner.
ownerName	string	Name of the flow draft owner. The owner of the flow draft may be different than the flow owner.
projectLuid	string	Unique ID of the project that contains the flow draft
projectName	string	Name of the project that contains the flow draft
publishedAt	string	Timestamp when the flow draft was last published
siteName	string	Name of the Tableau site
size	long	Size of the flow draft in bytes
updatedAt	string	Timestamp when the record was last updated

hist_rekey_flow_extracts

The legacy rekey flow extracts event from historical_events.

Attribute Name	**Type**	**Description**
contentVersion	string	Version of the flow file, increments by 1 on each publish.
description	string	Description of the flow
details	string	A message string
flowLuid	string	Unique ID of the flow
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the flow

siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_rekey_materialized_views

The hist_rekey_materialized_views event logs the successful rekeying of materialized views on a workbook.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	Details of the action (why were the materialized views created or deleted).
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
eventType	string	The type of the event. Either Create, Delete, Encrypt, Decrypt, or Rekey Materialized Views.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when repub-

		lishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed

repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_rekey_site_extracts_request

The legacy change rekey site extracts request event from historical_events.

Attribute Name	**Type**	**Description**
name	string	Name of the Tableau site
siteEventLuid	string	Unique ID of the site affected by the event
siteName	string	Name of the Tableau site
urlNamespace	string	Used in the construction of URLs that target the site

hist_rekey_workbook_extracts

The legacy rekey workbook extracts event from historical_events.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	A message string
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isFailure	boolean	Indicates whether the action failed or not
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.

modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail

		image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_rename_collection

The `hist_rename_collection` event is logged when a collection is renamed.

Attribute Name	Type	Description
collectionLuid	string	Unique identifier
description	string	Description of the collection
formerName	string	The former name of the collection
name	string	Name of the collection
ownerLuid	string	Unique ID of the user who owns the collection
ownerName	string	Name of the user who owns the collection
siteName	string	Name of the Tableau site

hist_rename_data_role

The `hist_rename_data_role` event is logged when a data role is renamed.

Attribute Name	Type	Description
dataRoleLuid	string	Unique identifier
description	string	Description of the data role
formerName	string	The former name of the data role

name	string	Name of the data role
ownerLuid	string	Unique ID of the data role owner
ownerName	string	Name of the data role owner
projectLuid	string	Unique ID of the project that contains the data role
projectName	string	Name of the project that contains the data role
siteName	string	Name of the Tableau site

hist_rename_datasource

The `hist_rename_datasource` event is logged when a data source is renamed.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
formerName	string	The former name of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the

		data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_rename_flow

The `hist_rename_flow` event is logged when a flow is renamed.

Attribute Name	**Type**	**Description**
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
formerName	string	The former name of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_rename_flow_draft

The `hist_rename_flow_draft` event is logged when a flow draft is renamed.

Attribute Name	Type	Description
createdAt	string	Timestamp when the record was created
flowDraftLuid	string	Unique ID of the flow draft
flowLuid	string	Unique ID of the flow. The value is Null if the flow draft isn't connected to a published flow.
formerName	string	The former name of the flow draft
name	string	Name of the flow draft
ownerLuid	string	Unique ID of the flow draft owner. The owner of the flow draft may be different than the flow owner.
ownerName	string	Name of the flow draft owner. The owner of the flow draft may be different than the flow owner.
projectLuid	string	Unique ID of the project that contains the flow draft
projectName	string	Name of the project that contains the flow draft
publishedAt	string	Timestamp when the flow draft was last published
siteName	string	Name of the Tableau site
size	long	Size of the flow draft in bytes
updatedAt	string	Timestamp when the record was last updated

hist_rename_group

The `hist_rename_group` event is logged when a group is renamed.

Attribute Name	Type	Description

formerName	string	The former name of the group
groupLuid	string	Unique ID of the group
name	string	Name of the group
siteName	string	Name of the Tableau site

hist_rename_metric

The `hist_rename_metric` event is logged when a metric is renamed.

> **Note:** Tableau's legacy metrics feature was retired in February 2024. As a result, this event no longer records user interaction with metrics on the site. For more information, see Set Up for Metrics.

Attribute Name	Type	Description
customizedViewLuid	string	The view from which the metric queries its data
description	string	Description of the metric
formerName	string	The former name of the metric
metricLuid	string	Unique ID of the metric
name	string	Name of the metric
projectLuid	string	Unique ID of the associated project
projectName	string	Name of the associated project
siteName	string	Name of the Tableau site
suspendState	integer	State of the metric. The value 0 = Not suspended, 1 = Auto-suspended, and 3 = Manually suspended.
viewLuid	string	The view from which the metric queries its data

hist_rename_published_connection

The `hist_rename_published_connection` event is logged when a published connection is renamed.

Attribute Name	Type	Description
activated	boolean	Whether this published connection was ever made available for consumption
description	string	Description of the published connection
formerName	string	The former name of the published connection
name	string	Name of the published connection
ownerLuid	string	Unique ID of the user that owns the published connection
ownerName	string	Name of the user who owns the published connection
projectLuid	string	The associated project
projectName	string	The name of the associated project
publishedConnectionLuid	string	Unique ID of the published connection
siteName	string	Name of the Tableau site

hist_rename_workbook

The `hist_rename_workbook` event is logged when a workbook is renamed.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data

		engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
formerName	string	The former name of the workbook
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.

name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_replace_datasource_extract

The `hist_replace_datasource_extract` event is logged when a data extract is replaced.

Attribute Name	**Type**	**Description**
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
details	string	A message string
isCertified	boolean	Indicates whether the data source is certified
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new

		version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
taskLuid	string	LUID of the associated task
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_revoke_refresh_token

The `hist_revoke_refresh_token` event is logged when a refresh token or personal access token (PAT) is revoked.

Attribute Name	Type	Description
refreshTokenGuid	string	The unique ID of the refresh token or PAT
siteName	string	Name of the Tableau site

hist_run_flow

The `hist_run_flow` event is logged when a flow is run manually.

Attribute Name	Type	Description
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site

size	integer	Size of the flow in bytes

hist_run_flow_scheduled

The `hist_run_flow_scheduled` event is logged when a flow is run from a schedule.

Attribute Name	Type	Description
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes
taskLuid	string	LUID of the associated task

hist_save_flow

The `hist_save_flow` event is logged when a flow is saved.

Attribute Name	Type	Description
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site

size	integer	Size of the flow in bytes

hist_save_flow_draft

The `hist_save_flow_draft` event is logged when a flow draft is saved.

Attribute Name	Type	Description
createdAt	string	Timestamp when the record was created
flowDraftLuid	string	Unique ID of the flow draft
flowLuid	string	Unique ID of the flow. The value is Null if the flow draft isn't connected to a published flow.
name	string	Name of the flow draft
ownerLuid	string	Unique ID of the flow draft owner. The owner of the flow draft may be different than the flow owner.
ownerName	string	Name of the flow draft owner. The owner of the flow draft may be different than the flow owner.
projectLuid	string	Unique ID of the project that contains the flow draft
projectName	string	Name of the project that contains the flow draft
publishedAt	string	Timestamp when the flow draft was last published
siteName	string	Name of the Tableau site
size	long	Size of the flow draft in bytes
updatedAt	string	Timestamp when the record was last updated

hist_send_data_driven_alert_email

The `hist_send_data_driven_alert_email` event is logged when a data-driven alert email or notification is sent successfully.

Attribute Name	Type	Description
caption	string	The descriptive phrase constructed for the worksheet based on the workbook definition
description	string	Description of the view
fields	string	A list of fields extracted from the workbook .twb file
firstPublishedAt	string	Timestamp of when the view was first published. The value won't change when republishing the workbook containing the view.
index	integer	Each view has an index that is unique among views belonging to that workbook
name	string	Name of the view
ownerLuid	string	User LUID of the view owner
ownerName	string	Name of the view owner
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number of the view. Starts with 1.0 and increments by 0.1 each time a new version is published.
sheetId	string	The ID of the worksheet
sheetType	string	The type of worksheet. Either a story, dashboard, or view.
siteName	string	Name of the Tableau site
title	string	The worksheet title from the workbook .twb file
viewLuid	string	The LUID of the view
workbookLuid	string	The LUID of the workbook containing the view
workbookName	string	Name of the workbook containing the view

hist_send_failing_data_alert_email

The `hist_send_failing_data_alert_email` event is logged when a data-driven alert email or notification fails.

Attribute Name	Type	Description
caption	string	The descriptive phrase constructed for the worksheet based on the workbook definition
description	string	Description of the view
fields	string	A list of fields extracted from the workbook .twb file
firstPublishedAt	string	Timestamp of when the view was first published. The value won't change when republishing the workbook containing the view.
index	integer	Each view has an index that is unique among views belonging to that workbook
name	string	Name of the view
ownerLuid	string	User LUID of the view owner
ownerName	string	Name of the view owner
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number of the view. Starts with 1.0 and increments by 0.1 each time a new version is published.
sheetId	string	The ID of the worksheet
sheetType	string	The type of worksheet. Either a story, dashboard, or view.
siteName	string	Name of the Tableau site
title	string	The worksheet title from the workbook .twb file

viewLuid	string	The LUID of the view
workbookLuid	string	The LUID of the workbook containing the view
workbookName	string	Name of the workbook containing the view

hist_send_refresh_pre_pause_email_for_content

The `hist_send_refresh_pre_pause_email_for_content` event logs when a refresh pre-pause email is sent.

Attribute Name	**Type**	**Description**
contentLuid	string	LUID of the content item for which the refresh pre-pause email was sent
contentName	string	Name of the content item for which the refresh pre-pause email was sent
email	string	Email address of the user
name	string	Name of the user
ownerLuid	string	LUID of the content owner
ownerName	string	Name of the content owner
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_send_subscription_email_for_view

The `hist_send_subscription_email_for_view event` event is logged when a view subscription email is sent successfully.

Attribute Name	Type	Description
caption	string	The descriptive phrase constructed for the worksheet based on the workbook definition
description	string	Description of the view
fields	string	A list of fields extracted from the workbook .twb file
firstPublishedAt	string	Timestamp of when the view was first published. The value won't change when republishing the workbook containing the view.
index	integer	Each view has an index that is unique among views belonging to that workbook
name	string	Name of the view
ownerLuid	string	User LUID of the view owner
ownerName	string	Name of the view owner
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number of the view. Starts with 1.0 and increments by 0.1 each time a new version is published.
scheduleLuid	string	The UUID of the schedule. Used in REST API.
scheduleName	string	Name of the schedule
sheetId	string	The ID of the worksheet
sheetType	string	The type of worksheet. Either a story, dashboard, or view.
siteName	string	Name of the Tableau site
title	string	The worksheet title from the workbook .twb file
viewLuid	string	The LUID of the view

workbookLuid	string	The LUID of the workbook containing the view
workbookName	string	Name of the workbook containing the view

hist_send_subscription_email_for_workbook

The `hist_send_subscription_email_for_workbook` event is logged when a workbook subscription email is sent successfully.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not

		private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is pub-

		lished.
scheduleLuid	string	The UUID of the schedule. Used in REST API.
scheduleName	string	A schedule can be given a name, which is stored here.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_send_suspended_data_alert_email

The `hist_send_suspended_data_alert_email` event is logged when a data-driven alert is suspended.

Attribute Name	Type	Description
caption	string	The descriptive phrase constructed for the worksheet based on the workbook definition
description	string	Description of the view
fields	string	A list of fields extracted from the workbook .twb file
firstPublishedAt	string	Timestamp of when the view was first published. The value won't change when republishing the workbook containing the view.
index	integer	Each view has an index that is unique among views belonging to that workbook

name	string	Name of the view
ownerLuid	string	User LUID of the view owner
ownerName	string	Name of the view owner
repositoryUrl	string	Uniquely identifies a view and is used when referencing the view in a URL. The value is derived from the ASCII characters in the view name.
revision	string	The revision number of the view. Starts with 1.0 and increments by 0.1 each time a new version is published.
sheetId	string	The ID of the worksheet
sheetType	string	The type of worksheet. Either a story, dashboard, or view.
siteName	string	Name of the Tableau site
title	string	The worksheet title from the workbook .twb file
viewLuid	string	The LUID of the view
workbookLuid	string	The LUID of the workbook containing the view
workbookName	string	Name of the workbook containing the view

hist_suspend_site

The `hist_suspend_site` event is logged when a site is suspended.

Attribute Name	Type	Description
name	string	Name of the Tableau site
siteEventLuid	string	Unique ID of the site affected by the event
siteName	string	Name of the Tableau site
urlNamespace	string	Used in the construction of URLs that target the site

hist_update_collection

The `hist_update_collection` event is logged when a collection is updated.

Attribute Name	**Type**	**Description**
collectionLuid	string	Unique identifier
description	string	Description of the collection
name	string	Name of the collection
ownerLuid	string	Unique ID of the user who owns the collection
ownerName	string	Name of the user who owns the collection
siteName	string	Name of the Tableau site

hist_update_column

The `hist_update_column` event is logged when a column is updated.

Attribute Name	**Type**	**Description**
columnLuid	string	Unique identifier
description	string	Description of the column
name	string	Name of the column
ownerLuid	string	Unique ID of the user who owns the column
ownerName	string	Name of the user who owns the column
projectLuid	string	Unique ID of the project that contains the column
projectName	string	Name of the project that contains the column
siteName	string	Name of the Tableau site

hist_update_data_quality_indicator

The `hist_update_data_quality_indicator` event is logged when a data quality indicator is updated.

Attribute Name	Type	Description
dataQualityIndicatorLuid	string	Unique identifier
dataQualityType	string	The type of data quality indicator
isActive	boolean	Indicates whether the data quality indicator is active or not
isSevere	boolean	Indicates whether the data quality indicator is severe or not
message	string	Data quality filter message
siteName	string	Name of the Tableau site
userDisplayName	string	Name of user who created or modified the data quality indicator
userLuid	string	Unique ID of the user who created or modified the data quality indicator

hist_update_data_role

The `hist_update_data_role` event is logged when a data role is updated.

Attribute Name	Type	Description
dataRoleLuid	string	Unique identifier
description	string	Description of the data role
name	string	Name of the data role

ownerLuid	string	Unique ID of the data role owner
ownerName	string	Name of the data role owner
projectLuid	string	Unique ID of the project that contains the data role
projectName	string	Name of the project that contains the data role
siteName	string	Name of the Tableau site

hist_update_database

The `hist_update_database` event is logged when a database is updated.

Attribute Name	Type	Description
databaseLuid	string	Unique identifier
description	string	Description of the database
name	string	Name of the database
ownerLuid	string	Unique ID of the database owner
ownerName	string	Name of the database owner
projectLuid	string	Unique ID of the project that contains the database
projectName	string	Name of the project that contains the database
siteName	string	Name of the Tableau site

hist_update_datasource

The `hist_update_datasource` event is logged when a data source is updated.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source

datasourceLuid	string	LUID of the data source
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_update_datasource_task

The `hist_update_datasource_task` event is logged when data source related tasks are updated.

Attribute Name	Type	Description
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.

scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Provides additional information about the task
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_update_datasource_trigger

The `hist_update_datasource_trigger` event specifies what caused the data source to be updated.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	LUID of the data source
description	string	Description of the data source
isCertified	boolean	Indicates whether the data source is certified
name	string	Name of the data source
ownerLuid	string	User LUID of the data source owner
ownerName	string	Name of the data source owner

projectLuid	string	LUID of the project containing the data source
projectName	string	Name of the project where the data source was published
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_update_flow

The `hist_update_flow` event is logged when a flow is updated.

Attribute Name	Type	Description
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow

siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_update_flow_draft

The `hist_update_flow_draft` event is logged when a flow draft is updated.

Attribute Name	Type	Description
createdAt	string	Timestamp when the record was created
flowDraftLuid	string	Unique ID of the flow draft
flowLuid	string	Unique ID of the flow. The value is Null if the flow draft isn't connected to a published flow.
name	string	Name of the flow draft
ownerLuid	string	Unique ID of the flow draft owner. The owner of the flow draft may be different than the flow owner.
ownerName	string	Name of the flow draft owner. The owner of the flow draft may be different than the flow owner.
projectLuid	string	Unique ID of the project that contains the flow draft
projectName	string	Name of the project that contains the flow draft
publishedAt	string	Timestamp when the flow draft was last published
siteName	string	Name of the Tableau site
size	long	Size of the flow draft in bytes
updatedAt	string	Timestamp when the record was last updated

hist_update_flow_task

The `hist_update_flow_task` event is logged when a flow update task is run.

Attribute Name	Type	Description
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Sus-

		pended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Provides additional information about the task
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_update_flow_trigger

The `hist_update_flow_trigger` event specifies what caused the flow to update.

Attribute Name	Type	Description
contentVersion	string	The version of the flow file. Increments by 1 on each publish.
description	string	Description of the flow
flowLuid	string	Unique ID of the flow
name	string	Name of the flow
siteName	string	Name of the Tableau site
size	integer	Size of the flow in bytes

hist_update_linked_task

The `hist_update_linked_task` event is logged when a linked update task is run.

Attribute Name	Type	Description
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.

consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.

title	string	Provides additional information about the task
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_update_metric

The `hist_update_metric` event is logged when a metric is updated.

> **Note:** Tableau's legacy metrics feature was retired in February 2024. As a result, this event no longer records user interaction with metrics on the site. For more information, see Set Up for Metrics.

Attribute Name	Type	Description
customizedViewLuid	string	The view from which the metric queries its data
description	string	Description of the metric
metricLuid	string	Unique ID of the metric
name	string	Name of the metric
projectLuid	string	Unique ID of the associated project
projectName	string	Name of the associated project
siteName	string	Name of the Tableau site
suspendState	integer	State of the metric. The value 0 = Not suspended, 1 = Auto-suspended, and 3 = Manually suspended.
viewLuid	string	The view from which the metric queries its data

hist_update_project

The `hist_update_project` event is logged when a project is updated.

Attribute Name	Type	Description
description	string	Description of the project
name	string	Name of the project
ownerLuid	string	Unique ID of the project owner
ownerName	string	Name of the project owner
parentProjectLuid	string	LUID of the parent project. The value is Null for top-level projects.
projectLuid	string	Unique identifier for the project
siteName	string	Name of the Tableau site
state	string	State of the project. The default value is active. Any other value indicates the project is inactive.

hist_update_schedule

The `hist_update_schedule` event is logged when a scheduled is updated.

Attribute Name	Type	Description
active	boolean	Indicates whether the schedule is active or not. If set to False, no tasks will run when the schedule is triggered.
dayOfMonthMask	integer	Indicates which day of the month the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the month correspond to 1st = 1, 2nd = 10, 3rd = 100, 4th = 1000, 5th = 10000, etc.
dayOfWeekMask	integer	Indicates which day of the week the schedule will run. The information is encoded in the given integer. To interpret it, convert the integer to binary. The days of the week correspond to Sunday = 1, Monday = 10,

		Tuesday = 100, Wednesday = 1000, Thursday = 10000, Friday = 100000, and Saturday = 1000000.
endAtMinute	integer	The minute after the specified schedule_type period begins, indicating when the schedule should stop triggering.
endScheduleAt	string	Timestamp when the schedule should stop triggering
isSerial	boolean	Indicates whether the schedule is run serially or not
minuteInterval	integer	Once triggered, the schedule will repeat at this interval until it ends as per the schedule_type, end_at_minute, or end_schedule_at.
name	string	Name of the schedule
priority	integer	Priority ranges from 1 to 100, with lower values corresponding to a higher priority.
scheduleLuid	string	Unique ID of the schedule
scheduleType	integer	The type of schedule. The value 0 = Hourly, 1 = Daily, 2 = Weekly, and 3 = Monthly.
scheduledAction	integer	Category of the scheduled action. The value 0 = Extracts and 1 = Subscriptions.
siteName	string	Name of the Tableau site
startAtMinute	integer	The minute after the scheduled start time per the schedule_type. For example, in a daily schedule, it's minutes past midnight; for hourly, it's minutes past the hour.

hist_update_site

The `hist_update_site` event is logged when a site is updated.

Attribute Name	Type	Description
name	string	Name of the Tableau site
siteEventLuid	string	Unique ID of the site affected by the event
siteName	string	Name of the Tableau site
urlNamespace	string	Used in the construction of URLs that target the site

hist_update_system_user_email

The `hist_update_system_user_email` event is logged when a system user's email is changed.

Attribute Name	Type	Description
email	string	Email address of the user
formerEmail	string	The former Email address of the user.
name	string	Name of the user
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_update_system_user_force_password_update

The `hist_update_system_user_force_password_update` event logs a successful invocation that forces a password update.

Attribute Name	Type	Description
email	string	Email address of the user

name	string	Name of the user
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_update_system_user_image

The `hist_update_system_user_image` event is logged when a system user updates their profile image.

Attribute Name	Type	Description
email	string	Email address of the user
name	string	Name of the user
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_update_system_user_name

The `hist_update_system_user_name` event is logged when a system user updates their name.

Attribute Name	Type	Description
email	string	Email address of the user
formerName	string	The former friendly name of the user.

name	string	Name of the user
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_update_system_user_password

The `hist_update_system_user_password` event is logged when a system user updates their password.

Attribute Name	Type	Description
email	string	Email address of the user
name	string	Name of the user
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_update_system_user_reset_login_rate_limiting

The `hist_update_system_user_reset_login_rate_limiting` event logs a successful invocation that resets the login rate limiting values

Attribute Name	Type	Description
email	string	Email address of the user
name	string	Name of the user
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site

		Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_update_table

The `hist_update_table` event is logged when a table is updated.

Attribute Name	**Type**	**Description**
description	string	Description of the table
name	string	Name of the table
ownerLuid	string	Unique ID of the table owner
ownerName	string	Name of the table owner
projectLuid	string	Unique ID of the project that contains the table
projectName	string	Name of the project that contains the table
siteName	string	Name of the Tableau site
tableLuid	string	Unique identifier

hist_update_task_state

The `hist_update_task_state` event is logged when the state of a task is changed.

Attribute Name	**Type**	**Description**
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.
consecutiveFailureCount	integer	Number of times the task has failed

creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.
title	string	Provides additional information about the task

type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_update_user_site_role

The `hist_update_user_site_role` event is logged when a user's site role is changed.

Attribute Name	Type	Description
email	string	Email address of the user
name	string	Name of the user
siteAdminLevel	integer	Indicates if the user is a site admin. The value 5 = Site Admin and 0 = Not a site admin.
siteName	string	Name of the Tableau site
userLuid	string	Unique ID of the user

hist_update_workbook

The `hist_update_workbook` event is logged when a workbook is updated.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.

extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook

publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

hist_update_workbook_task

The `hist_update_workbook_task` event is logged when a workbook update task is run.

Attribute Name	Type	Description
active	boolean	Indicates whether the task is active or not. If set to False, the task won't run when the schedule is triggered.

consecutiveFailureCount	integer	Number of times the task has failed
creatorLuid	string	User ID of the user who created the task
creatorName	string	Name of the user who created the task
historicalQueueTime	integer	Amount of time the task was queued in seconds. Used to compare the difference in historical queue times.
historicalRunTime	integer	Amount of time running after the task was started in seconds. Used to compare the difference in historical run times.
lastSuccessCompletedAt	string	Timestamp of the last successful task completion
objLuid	string	Unique ID of the object. Used as the primary key in workbook or data source tables.
objName	string	Name of the object. Used with objLuid.
objType	string	The type of object. Either a workbook or data source. Used with objLuid.
priority	integer	Priority of the task, ranging from 10 (default) to 0 (highest). Jobs with higher priority will be processed earlier.
scheduleLuid	string	Unique ID of the associated schedule. Tasks will run at the scheduled start time.
siteName	string	Name of the Tableau site
state	integer	State of the task. The value 0 = Active, 1 = Suspended, and 2 = Disabled.
subtitle	string	Provides additional information about the task
taskLuid	string	The UUID of the task. Used in the REST API.

title	string	Provides additional information about the task
type	string	The type of task. Either an extract, subscription, flow, encryption, or system.

hist_upgrade_datasource_extract_storage

The legacy upgrade data source extract storage event from historical_events.

Attribute Name	Type	Description
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	Unique identifier
description	string	Description of the data source
details	string	A message string
isCertified	boolean	Indicates whether the data source is certified
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the data source
ownerLuid	string	Unique ID of the data source owner
ownerName	string	Name of the data source owner
projectLuid	string	Unique ID of the project that contains the data source
projectName	string	Name of the project that contains the data source
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used

		when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
taskLuid	string	LUID of the associated task
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_upgrade_datasource_tde_extract

The legacy upgrade data source tde extract event from historical_events.

Attribute Name	**Type**	**Description**
certificationNote	string	Reason for the certification status of the data source
datasourceLuid	string	Unique identifier
description	string	Description of the data source
details	string	A message string
isCertified	boolean	Indicates whether the data source is certified
isFailure	boolean	Indicates whether the action failed or not
name	string	Name of the data source
ownerLuid	string	Unique ID of the data source owner

ownerName	string	Name of the data source owner
projectLuid	string	Unique ID of the project that contains the data source
projectName	string	Name of the project that contains the data source
remoteQueryAgentName	string	Name of the remote query agent used by the data source
repositoryUrl	string	Uniquely identifies a data source and is used when referencing the data source in a URL. The value is derived from the ASCII characters in the data source name.
revision	string	The revision number of the data source. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the data source in bytes
taskLuid	string	LUID of the associated task
usingRemoteQueryAgent	boolean	Indicates whether the data source uses remote query agent

hist_upgrade_workbook_extract_storage

The legacy upgrade workbook extract storage event from historical_events.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data

		engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	A message string
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isFailure	boolean	Indicates whether the action failed or not
isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will

		be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.
revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
taskLuid	string	LUID of the associated task
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the

		workbook
workbookLuid	string	Unique ID of the workbook

hist_upgrade_workbook_tde_extract

The legacy upgrade workbook tde extract event from historical_events.

Attribute Name	Type	Description
contentVersion	integer	Version number of the workbook. Increments by 1 on each publish.
dataEngineExtracts	boolean	Indicates if the workbook has associated data engine extracts
defaultViewIndex	integer	Indicates which view will be shown by default
details	string	A message string
displayTabs	boolean	Indicates whether sheets of the workbook are displayed as tabs or not
documentVersion	string	Version number of the document description. The description is entered when saving the workbook.
extractsIncrementedAt	string	Timestamp when the last incremental extract refresh occurred
extractsRefreshedAt	string	Timestamp when the last extract refresh occurred
firstPublishedAt	string	Timestamp when the workbook was first published. The value won't change when republishing the workbook containing the view.
incrementableExtracts	boolean	Indicates whether it's possible to perform an incremental extract refresh
isFailure	boolean	Indicates whether the action failed or not

isPrivate	boolean	Indicates whether the workbook is private or not. The value True = Private and Null or False = Not private.
lastPublishedAt	string	Timestamp when the workbook was last published or saved while web authoring. For workbooks last published before this column existed, the value will be Null.
modifiedByUserLuid	string	The user who last modified and published the workbook or saved the workbook while web authoring. For workbooks that were last published before this column existed, the value will be the same as owner_id.
name	string	Name of the workbook
ownerLuid	string	Unique ID of the workbook owner. Used as a foreign key.
ownerName	string	Name of the user who owns the workbook
projectLuid	string	Unique ID of the project that contains the workbook. Used as a foreign key.
projectName	string	Name of the project that contains the workbook
publishedAllSheets	boolean	Indicates whether all sheets in the workbook were published. The value True = All sheets published and False = One or more sheets weren't published.
refreshableExtracts	boolean	Indicates whether extracts in the workbook can be refreshed
repositoryUrl	string	Uniquely identifies a workbook and is used when referencing the workbook in a URL. The value is derived from the ASCII characters in the workbook name.

revision	string	The revision number. Starts with 1.0 and increments by 0.1 each time a new version is published.
siteName	string	Name of the Tableau site
size	integer	Size of the workbook in bytes
taskLuid	string	LUID of the associated task
thumbUserLuid	string	Unique ID of the user for generating the thumbnail image. Null unless specified.
viewCount	integer	Counts the number of views associated with the workbook
workbookLuid	string	Unique ID of the workbook

login_authentication

The `login_authentication` event logs authentication events (including default, SAML, OIDC, and Tab ID + MFA).

Attribute Name	**Type**	**Description**
acceptLanguage	string	The browser `Accept-Language` request HTTP header
logRecordType	string	The record type associated with the event, either verification or authentication.
loginKey	string	Unique login tracking value. Used to associate user activity with the authentication event.
loginType	string	The authentication type used to log in, either DEFAULT, SAML, OIDC, or TABID_WITH_MFA.
loginUrl	string	URL to which the user sent the login request, including the protocol, hostname, and, if applicable, the site path prefix.

reason	string	The failure reason if login is unsuccessful
sourceIp	string	Source IP of the login request. Uses XFF or webRTC to identify the originating IP address of the client.
status	string	The authentication result, either success or failure.
tenantId	string	The ID of the tenant or organization
timestamp	string	Timestamp of the event
userAgent	string	Name of the agent or browser that initiated login
userId	string	The ID of the user
userType	string	The type of user accessing Tableau, either through the user interface or API.
username	string	Username used for login
uuid	string	Unique ID for the request

metric_subscription_change

The `metric_subscription_change` event is logged when a user adds or removes a subscription to a Pulse metric.

Attribute Name	**Type**	**Description**
actorGroupLuid	string	Group LUID of the group that followed or unfollowed the metric. If a user changes the scoped metric, the `actorGroupLuid` value will be empty, and `actorUserLuid` will be populated instead.
scopedMetricId	string	The ID of the scoped metric that had a subscription change
subscriptionOperation	string	Subscription operation, such as 'metric followed' or 'metric unfollowed'

move_content

The `move_content` event is logged when content is moved, for example, moving a workbook between projects.

Attribute Name	**Type**	**Description**
contentId	integer	The ID of the content that had the owner changed
contentLuid	string	LUID of the content that had the owner changed
contentName	string	Name of the content that had the owner changed
contentType	string	The type of content, such as data source, workbook, or view
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error
newContainerLuid	string	LUID of the new container
newContainerType	string	The new container type, such as a project
oldContainerLuid	string	LUID of the previous container
oldContainerType	string	The previous container type, such as a project

oauth_settings_change

The `oauth_settings_change` event occurs when the OAuth Clients Registry setting is updated on the General tab.

Attribute Name	**Type**	**Description**
clientId	string	Client ID registered with the data provider
connectionType	string	The type of connection
errorCode	string	Error code generated when altering OAuth settings

openAuthInstanceUrl	string	OAuth instance URL
openAuthProvider	string	OAuth provider
operationType	string	The type of operation, either create or delete.
platform	string	The platform where changes are recorded, such as Tableau Cloud.
platformVersion	string	The version of the platform, such as 2024.3.0.
uploadedFile	string	Name of the file uploaded to change OAuth settings

platform_configuration_change

The `platform_configuration_change` event occurs when the outbound connection allowlist for Tableau Prep endpoints is updated.

Attribute Name	**Type**	**Description**
errorCode	string	Error code generated when altering Tableau Prep settings
newSettingValue	string	A structured JSON string describing the new value of allowlist endpoints
platform	string	The platform where changes are recorded, such as Tableau Cloud.
platformVersion	string	The version of the platform, such as 2024.3.0.
previousSettingValue	string	A structured JSON string describing the previous value of allowlist endpoints
settingIdentifier	string	The setting identifier for the feature, such `prep_endpoint_control`.
siteName	string	Name of site where the operation occurred
userAgent	string	The client software used by the `actorUser` to make

		the change

platform_settings_change

The `platform_settings_change` event occurs when security and access configurations are changed on the Settings page.

Attribute Name	Type	Description
errorCode	string	Error code generated when altering the configuration setting
ipAddress	string	The IP address of the machine that initiated the request
isSecretUpdated	bool	Indicates whether the secret has been updated. The actual secret value isn't recorded. This attribute helps admins track changes in their organization, such as those affecting system functionality or ensuring scheduled secret rotations are carried out properly.
newSettingsValue	string	New settings value
oldSettingsValue	string	Previous settings value
platform	string	The platform where changes are recorded, such as Tableau Cloud.
platformVersion	string	The version of the platform, such as 2024.3.0.
settingDescription	string	Description of the setting that is being affected
settingIdentifier	string	The setting identifier for this feature, such as `prep_endpoint_control`.
siteName	string	Name of site where the operation occurred
tenantName	string	Name of the tenant where the operation occurred
userAgent	string	The client software used by the `actorUser` to make the change

prep_flowruns

The `prep_flowruns` event occurs when flow runs from the Tableau Flow Processor are recorded.

Attribute Name	**Type**	**Description**
connectionEndpoints	string	The list of input and output endpoints in a Tableau Prep flow run
errorCode	string	Error code generated when altering Tableau Prep settings
flowId	string	The ID of the Tableau Prep flow
flowName	string	The name of the Tableau Prep flow
flowOwnerId	integer	The ID of the user who authored the flow
flowRunLuid	string	The LUID of the Tableau Prep flow run
platform	string	The platform where changes are recorded, such as Tableau Cloud.
platformVersion	string	The version of the platform, such as 2024.3.0.
userName	string	The user name of the user

project_lock_unlock

The `project_lock_unlock` event is logged when project permissions are locked or unlocked.

Attribute Name	**Type**	**Description**
controllingProjectLuid	string	LUID of the project that controls permissions for the nested project
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error

projectLuid	string	LUID of the project
projectOperation	string	Project operation, either lock or unlock

restore_content

The `restore_content` event occurs when content is restored from the recycle bin.

Attribute Name	Type	Description
contentId	integer	The ID of the restored content
contentLuid	string	The LUID of the restored content
contentName	string	The name of the restored content
contentType	string	The type of content archived
isError	bool	Indicates if the audit scenario was completed successfully or failed with an error

set_permissions

The `set_permissions` event is logged when an explicit permissions rule is created or updated for a content item.

Attribute Name	Type	Description
authorizableType	string	The type of content that had its permissions changed, such as project or workbook
capabilityId	integer	The ID of the capability. A capability is the ability to perform a certain action on a particular piece of content, such as view, filter, download or delete.
capabilityValue	string	Description of the capability
contentId	integer	The ID of the content that had the permissions set

contentLuid	string	The LUID of the content item
contentName	string	The name of the content that had the permissions set
granteeId	integer	The ID of the grantee
granteeLuid	string	The LUID of the grantee
granteeType	string	The type of grantee, either user or group
granteeValue	string	The set permissions value, such as 'user allow' or 'group allow'
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error
permissionType	string	The permission type, either explicit or unspecified

site_storage_usage

The `site_storage_usage` event logs the total storage capacity of the site in bytes, the amount of storage used, and the percentage of the total consumed. Administrators can use this data to proactively monitor storage consumption and take action before reaching the site's storage limit.

Attribute Name	**Type**	**Description**
actorUsername	string	Username of the user who performed the action that initiated the event
initiatingUsername	string	Username of the initiating user
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error
totalPercentageStorageQuotaUsed	float	Total percentage of storage usage

totalStorageQuotaLimit	long	Total storage capacity in bytes
totalStorageQuotaUsed	long	Total storage used in bytes

tabgpt_registration_event

The `tabgpt_registration_event` records Tableau Agent settings changes.

Attribute Name	Type	Description
domain	string	Domain of the Salesforce org
errorCode	string	Error code generated when altering Tableau Agent settings
instanceName	string	Instance name of the Salesforce org
operationType	string	Type of operation, either create or delete.
orgId	string	Salesforce Organization ID for the registration
platform	string	Platform where changes are recorded, such as Tableau Cloud.
platformVersion	string	Version of the platform, such as 2025.1.0.
pod	string	Name of the Tableau pod where the action is performed, such as 10ay.
siteName	string	Name of the site where the operation occurred
username	string	Username of the user in the Salesforce org

update_permissions

The `update_permissions` event is logged when an explicit permission rule is updated for a content item.

Note: Deprecated in October 2024. Use the set_permissions event instead.

Attribute Name	Type	Description
authorizableType	string	The type of content that had its permissions changed, such as a project or workbook
capabilityId	integer	The ID of the capability. A capability is the ability to perform actions on content, such as view, filter, download, or delete
capabilityValue	string	Description of the capability
contentId	integer	The ID of the content that had the permissions updated
contentLuid	string	The LUID of the content
contentName	string	The name of the content that had the permissions updated
granteeId	integer	The ID of the grantee
granteeLuid	string	The LUID of the grantee
granteeType	string	The type of grantee, either user or group
granteeValue	string	The updated permissions value, such as 'user allow' or 'group allow'
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error
permissionType	string	The permission type, either explicit or unspecified

update_permissions_template

The `update_permissions_template` event is logged when a permission template for a project is updated.

Attribute Name	Type	Description
authorizableType	string	The type of content that had its permissions changed, such as a project or workbook

capabilityId	integer	The ID of the capability. A capability is the ability to perform actions on content, such as view, filter, download, or delete
capabilityValue	string	Description of the capability
contentId	integer	The ID of the content that had the permissions updated
contentLuid	string	The LUID of the content
contentName	string	The name of the content that had the permissions updated
granteeId	integer	The ID of the grantee
granteeLuid	string	The LUID of the grantee
granteeType	string	The type of grantee, either user or group
granteeValue	string	The updated permissions value, such as 'user allow' or 'group allow'
isError	boolean	Indicates if the audit scenario was completed successfully or failed with an error
permissionType	string	The permission type, either explicit or unspecified
templateType	string	The type of permission template used to change permissions, such as workbook or data source

user_create_delete

The `user_create_delete` event is logged when a user is created or deleted.

Attribute Name	Type	Description
forUserName	string	The name of the user whose account was either created, updated or deleted
isError	boolean	Indicates if the audit scenario was completed successfully

		or failed with an error
siteRole	string	Site role of the user. Determines the maximum level of access a user can have on the site
targetUserId	integer	The ID of the user whose account was either created, updated, or deleted
targetUserLuid	string	The LUID of the user whose account was either created, updated, or deleted
userOperation	string	The action performed on a user, either create, delete, or site role change

vizql_http_request

The `vizql_http_request` event, also called View Interaction Events, records how users interact with published content. This event is useful for monitoring dashboard performance, improving data security, and analyzing user engagement. For more information, see Monitor Data Exports Using the Activity Log and Monitor View Load Times Using the Activity Log.

Attribute Name	Type	Description
duration	long	Amount of time taken to handle the request, in milliseconds.
endpointName	string	The name of the called endpoint
ipAddress	string	IP address that initiated the request
method	string	The request method used, such as GET, POST, PUT, or DELETE.
referrer	string	HTTP referrer, or source of the request.
requestId	string	The request ID
requestUri	string	The requested URI for the HTTP request
sessionId	string	New ID of the session key. Omitted if the creation

		attempt failed.
siteName	string	Name of the site where the operation occurred
siteUri	string	URI token of the site where the operation occurred
userAgent	string	The client software that initiated the request, such as the application, operating system, or version.
viewLuid	string	The LUID of the view
viewName	string	The name of the view
viewRepoUrl	string	The repository URL of the view
vizqlSessionId	string	The VizQL session ID
workbookLuid	string	The LUID of the workbook
workbookName	string	The name of the workbook
workbookRevision	integer	The revision number of the workbook. Starts with 1.0 and increments by 0.1 each time a new version is published.

Monitor Data Exports Using the Activity Log

Monitoring how your company’s data is being used is an important part of being an admin. Using the Activity Log, you can see data exports in real time to maintain data security and compliance.

This topic describes how admins can use different event types to see which users have exported data, including:

- **Downloading published content:** This refers to the download of workbooks, data sources, and flows published on your Tableau Cloud site.

- **Accessing or exporting data from published content:** This refers to the export of data from published views or dashboards. For example, downloading an image of the view in .png format or exporting data as a comma-separated value (.csv) file.

Prerequisites

To monitor data exports, your Activity Log data must be in a structured and queryable format. Make sure that these prerequisites are met before you continue:

- **Activity Log configuration:** Set up Activity Log to write log files to your AWS S3 bucket.

- **Data import:** Import the log files generated by Activity Log into a monitoring tool, such as Splunk or Amazon EventBridge. Alternatively, you can import them into a cloud data warehouse like Snowflake or Google BigQuery. The goal is to get your data into a format that you can easily query and analyze.

Note: The process of importing your Activity Log data into a data store isn't covered in this topic. For detailed instructions, refer to Set Up Activity Log and the documentation for your chosen data platform.

Reasons to monitor data exports

You can use Activity Log to monitor data exports for these scenarios:

- **Enhanced security and compliance:** Identify if sensitive information was exported without authorization. This helps make sure internal security policies and external regulatory compliance requirements are met, such as GxP, GDPR, or HIPAA.

- **Data governance:** Knowing who's exporting what data helps you control your data assets. With more visibility, you can find cases of data replication, misuse, or unintended data sprawl. This helps make sure your data governance policies are followed.

- **Understanding user behavior:** Analyzing data export patterns can show how users interact with your data. This can help you decide on data access policies, identify areas for additional training, or ways to make data easier to find.

Understanding export events in Activity Log

We've covered why monitoring data exports is important, but let’s discuss how user actions appear in Activity Log. This section helps you identify the specific actions users take on a site and their corresponding Activity Log events.

Depending on how data was exported, you may need an endpoint filter for the event type.

Download from action menus

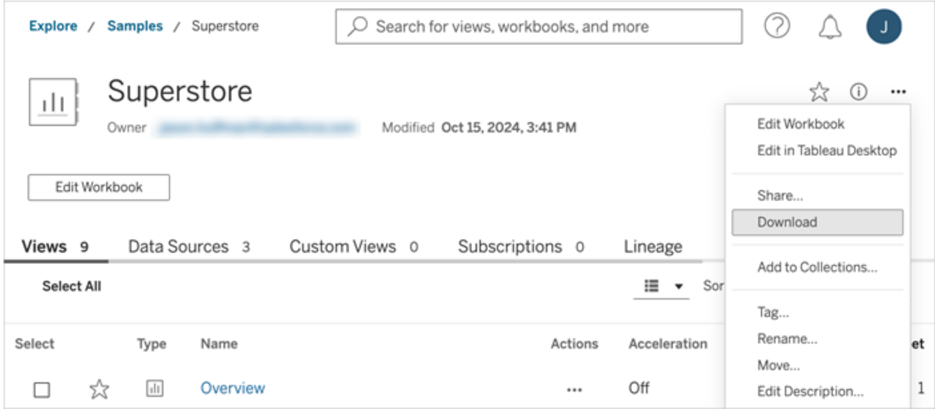
This table shows how download actions taken on Tableau Cloud content menus appear in Activity Log.

User Interaction	Activity Log Event Name	Endpoint Name (endpointName)
Download Workbook	hist_download_workbook	N/A
Download Data Source	hist_download_datasource	N/A
Download Flow	hist_download_flow	N/A

Example

To see which users have exported a workbook:

1. Open the monitoring tool you’ve set up, such as Splunk or Amazon EventBridge.
2. Filter on `endpointName = hist_download_workbook`.


Explore / Samples / Superstore
Search for views, workbooks, and more
J
Superstore
Owner [redacted]
Modified Oct 15, 2024, 3:41 PM
Edit Workbook
Views 9
Data Sources 3
Custom Views 0
Subscriptions 0
Lineage
Select All
Sor
Select
Type
Name
Actions
Acceleration
et
Overview
...
Off
1
Edit Workbook
Edit in Tableau Desktop
Share...
Download
Add to Collections...
Tag...
Rename...
Move...
Edit Description...

Export from views

This table shows how export actions taken on views appear in the Activity Log. For more information about specific export formats, see Download Views and Workbooks in Tableau Desktop and Web Authoring Help.

User Interaction	Activity Log Event Name	Endpoint Name (endpointName)
Export Summary Data	hist_export_summary_data	N/A
Export Underlying Data	hist_export_underlying_data	N/A
Export Workbook*	hist_download_workbook	N/A
Export to Image	vizql_http_request	executeCommand.tabsrv.export-image-server
Export to Crosstab*	vizql_http_request	executeCommand.tabsrv.export-crosstab-to-excel-server
Export to CSV*	vizql_http_request	executeCommand.tabsrv.export-crosstab-to-csvserver
Export to PDF*	vizql_http_request	executeCommand.tabsrv.export-pdf-

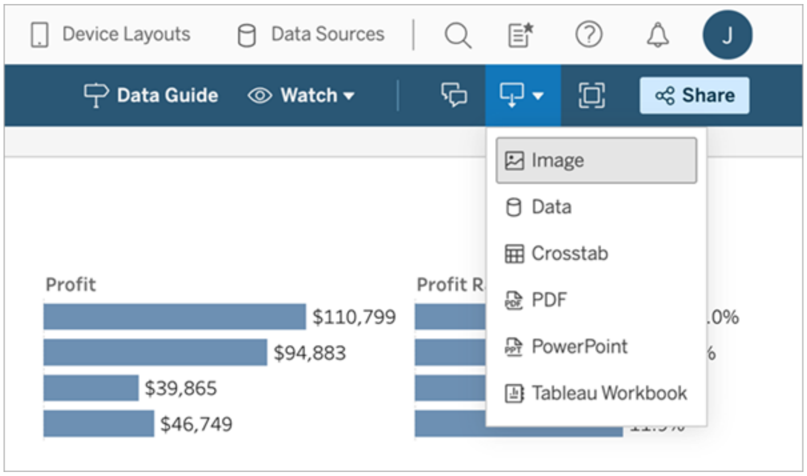
		server
Export to PowerPoint*	vizql_http_request	executeCommand.tabsrv.power-point-export-server

*A confirmation dialog is displayed for this download format. If users proceed, a `getSessionTempFile` endpoint is recorded in the logs. No value is recorded if users close the dialog without confirming.

Example

To find users who have exported to CSV:

1. Open the monitoring tool you've set up, such as Splunk or Amazon EventBridge.
2. Filter on these values:
   a. `eventType = vizql_http_request.`
   b. `endpointName = executeCommand.tabsrv.export-crosstab-to-csvserver.`
   c. `endpointName = getSessionTempFile.`


Device Layouts
Data Sources
J
Data Guide
Watch
Share
Image
Data
Crosstab
PDF
PowerPoint
Tableau Workbook
Profit
$110,799
$94,883
$39,865
$46,749
Profit R
.0%

Monitor View Load Times Using the Activity Log

Making sure that views render optimally for users is an important part of being an admin. Using the Activity Log, you can identify performance concerns in real time and address issues that come up to keep the site operating smoothly.

This topic describes how admins can use the `vizql_http_request` event type to understand view load times and troubleshoot performance bottlenecks.

Prerequisites

To monitor view load times, your Activity Log data must be in a structured and queryable format. Make sure that these prerequisites are met before you continue:

- **Activity Log configuration:** Set up Activity Log to write log files to your AWS S3 bucket.
- **Data import:** Import the log files generated by Activity Log into a monitoring tool, such as Splunk or Amazon EventBridge. Alternatively, you can import them into a cloud data warehouse like Snowflake or Google BigQuery. The goal is to get your data into a format that you can easily query and analyze.

> **Note:** The process of importing your Activity Log data into a data store isn't covered in this topic. For detailed instructions, refer to Set Up Activity Log and the documentation for your chosen data platform.

Getting started

So where do we begin? You can monitor view performance by focusing on the initial load of a dashboard or view, known as the “bootstrap session” event. This event typically captures the bulk of the time required to render the view, giving you a clear indication of how long it took to load.

To monitor bootstrap events:

1. Open the monitoring tool you’ve set up, such as Splunk or Amazon EventBridge.
2. Filter on the these values:
   1. `eventType = vizql_http_request`.
   2. `endpointName = bootstrapSession`.
   3. `eventOutcome = success`.
3. In the results, find the `duration` field.

The duration field for vizql_http_request events represents the amount of time the operation took to complete, in milliseconds. This helps you track and analyze the initial load times of your Tableau views.

Tip: Not sure where to start? Use the “Dashboard Load Times” dashboard included in the Admin Insights Starter workbook. This dashboard displays load times and performance ratings for content, helping you identify problematic views. You can then use Activity Log to see which users are experiencing issues in real time and how workbook revisions might be impacting performance. For more information, see Use Admin Insights to Create Custom Views.

Monitor for errors

In addition to performance, you can use bootstrap session data to see if users encounter errors while viewing content. To see these errors, search for the eventOutcome and eventOutcomeReason fields. These fields are useful for setting up monitoring alerts and providing a starting point for investigations. For example, if users report an error when viewing a dashboard, you can look at the bootstrap session to see historical user interactions. This helps you pinpoint what triggered the error and determine when the issue started. Knowing this information is important for troubleshooting the root cause of problems.

- **eventOutcome:** This field records the high-level success or failure category of each operation (success, failure, client_error, or internal_error).

- **eventOutcomeReason:** This field provides more detailed information about what went wrong, often recording the HTTP status code that describes the error.

To monitor for errors:

1. Open the monitoring tool you've set up, such as Splunk or Amazon EventBridge.
2. Filter on these values:
    a. `eventType = vizql_http_request`.
    b. `endpointName = bootstrapSession`.
    c. `eventOutcome != success`.
3. In the results, review the `eventOutcomeReason` for more details about the error.

Troubleshoot performance issues

There are many factors that can contribute to performance issues, making them difficult to investigate. However, you can take a few approaches to simplify the process. This section provides an overview of common ways to troubleshoot workbook performance using the bootstrap session. To get started, determine if the issue is isolated to one workbook or a few. Then, follow the instructions in the related section.

Troubleshoot a single workbook

Use these steps if the performance concern is with a single workbook.

1. **Identify the workbook revisions:**

    Check if the performance issue was introduced with a new workbook revision. You can do this by reviewing the `workbookRevision` attribute in the bootstrap session. This process may require comparing user visits to previous versions of the workbook.

    If a new revision is causing the performance issue, contact the workbook owner and work with them to improve the design.

2. **Check for user-specific issues:**

If the performance issue isn't specific to a workbook revision, determine if it affects only certain users. You can do this by looking at the `requestUri` and `actorUserLuid` attributes in the bootstrap session. The `requestUri` attribute provides the URL of the workbook or view being accessed, and the `actorUserLuid` attribute provides the user accessing the view. Using both can help you distinguish individual user sessions.

If the issue is user-specific, look for similarities across users. For example, it may be due to a customized view those users are accessing or certain ways they interact with the view. You will need to parse the `requestURI` attribute to identify the specific views.

3. **Review row-level security:**

   If some users have trouble with performance, and custom views aren't the cause, the problem might be related to row-level security (RLS) implemented in the workbook. RLS can significantly impact performance, especially if the security rules are complex or if the dataset is large. For more information, see Overview of Row-Level Security Options in Tableau.

Troubleshoot a subset of workbooks

Use these steps if the performance concern is with a subset of workbooks.

1. **Identify common data sources:**

   Look for commonalities in the data sources used by the affected workbooks.

   If the affected workbooks are using live connections to a database server or cloud data warehouse, the performance issue might be with the live connection.

   If the affected workbooks are using data extracts, check if there were recent updates to them. You can use the `hist_publish_datasource` event type in Activity Log or the TS Events data source in Admin Insights to identify recent changes.

2. **Review data source performance:**

For live connections, monitor the performance of the database server or cloud data warehouse. Check for any recent changes or issues on the server side. This step is performed outside of Tableau.

For extracted data sources, review the extraction process and any recent updates. Make sure that the extraction is optimized and that the data is not excessively large or complex. For more information, see Create Extracts on the Web .

Important considerations

Using Activity Log to monitor view load times is a great way to stay on top of dashboard performance and user engagement. However, not every dashboard or view rendering operation generates a bootstrap session event. Here are some scenarios where a bootstrap session event won’t be required:

- **Cached dashboards:** If the dashboard or view is retrieved from a previous cache.
- **Tab switching:** If a user switches tabs within the same workbook, and the content for the new tab is loaded or cached.

By using the `vizql_http_request` event type and focusing on `bootstrapSession` events, you can gain valuable insights into view performance and proactively address issues.

Customer-Managed Encryption Keys

Customer-Managed Encryption Keys gives you an extra level of security by allowing you to encrypt your site data extracts with a customer managed site-specific key. The Salesforce Key Management System (KMS) instance stores the default site-specific encryption key for anyone who enables encryption on a site.

Encryption process

The encryption process follows a key hierarchy. First, Tableau Cloud encrypts an extract. Next, Tableau Cloud KMS checks its key caches for a suitable data key. If a key isn’t found, one is generated by the KMS GenerateDataKey API, using the permission granted by the key policy that's associated with the key. KMS uses the CMK to generate a data key and returns a plaintext copy and encrypted copy to Tableau Cloud. Tableau Cloud uses the plaintext copy of the data key to encrypt the data and stores the encrypted copy of the key along with the encrypted data.

Enable encryption

After you enable encryption, Tableau Cloud will create a job for every extract on your site to get encrypted. These jobs are the lowest priority. Any previously set extract job runs before the encrypted extracts job. When there are extra resources, these jobs run encryption on all extracts without needing to be refreshed.

To enable encryption complete the following steps.

1. Select the **General** tab.
2. Under **Extract Encryption**, select the check box next to **Enable encryption of extract refreshes**.
3. Read the confirmation message and select **OK** to continue.
4. Select **Save**. A confirmation message or an error message appears.

Note: To turn off extract encryption, contact your account manager.

Generate and rotate a key

You can rotate a key on your company’s schedule for extra security. Rotating a key creates a key based on the original key.

Note: If there’s a long refresh rate or if the extract isn’t refreshed, the extract is encrypted with the last active key instead of the new key.

To rotate a key complete the following steps.

1. Select the **General** tab.
2. Under **Extract Encryption**, in **Actions**, select **Generate and Rotate Key**.

3. Select **Generate and Rotate Key** or Cancel. A confirmation message appears.

Disable encryption

You can turn off encryption by contacting your account manager. If your Advanced Management license is inactive, your extracts remain decrypted until it’s reactivated.

Delete a key (non-recoverable data extracts)

Warning: If you delete a key, there isn't a way to regain access to the data extracts.

Delete the key only if there’s a dire security incident. You can’t access your data extracts after you’ve deleted the key. Any data extracts tied to the deleted key are permanently unavailable.

Note: If you want to disable the encryption and keep your key see Disable Encryption.

To delete a key complete the following steps.

1. Select the **General** tab.
2. Under **Extract Encryption**, in **Actions**, select **Delete**.
3. In the text field, enter **Delete Key**.

Warning: You can’t access your data extracts after you’ve deleted the key. Delete the key only if there’s a dire security incident.

4. Choose **Delete Encryption Key** or **Cancel**. A confirmation or error message appears.

Audit logs

You can download audit logs to review operations performed on your keys including creation, rotation, deletion, decryption, and downloading logs. The audit log also includes the following information.

- Date and Time
- Event Type
- Success or Failure

- Authenticated Identity of calling service
- User
- Key name

Frequently asked questions (FAQ)

Question:

What happens if I don’t renew my Advanced Management license?

Answer:

If you don’t renew the Advanced Management license, the Customer-Managed Encryption Keys feature automatically changes to a disabled state.

Question:

What happens to my key data if I stop being a Tableau Cloud customer?

Answer:

Per the Tableau Cloud data policy, there’s a 90-day wait period before your key data gets deleted.

Question:

What happens if I move to a different Tableau Cloud region?

Answer:

The key data is in the Salesforce (KMS) instance that’s in the same region as your Tableau Cloud pod. If you want to move to another region, you must turn off the feature and run your extracts first.

About Tableau Content Migration Tool

This set of articles guides you through setting up, using, and maintaining the Tableau Content Migration Tool.

> **Note**: The Tableau Content Migration Tool is not recommended for migrations when moving from Tableau Server to Tableau Cloud. To migrate from Tableau Server to Tableau Cloud, use the Tableau Migration SDK. For Tableau Content Migration Tool recommended use cases, see Tableau Content Migration Tool Use Cases

What is Content Migration Tool?

The Content Migration Tool provides an easy way to copy or migrate content between projects. The Content Migration Tool user interface walks you through the steps necessary to build a "migration plan" that you can use once or as a template for multiple migrations.

> **Note:** If you have a Tableau Server deployment, you can migrate content between projects on a Tableau Server installation and a Tableau Cloud site. Both deployments must have a valid Advanced Management license.

Before migrating content, we recommend reviewing the Content Governance section in Tableau Blueprint.

Help and Support

If you have problems that you cannot solve with this documentation, contact Tableau Technical Support.

Getting Started with Tableau Content Migration Tool

This article will help you get started with the Tableau Content Migration Tool. It contains links to other articles about information you need to prepare before installing the Content Migration Tool, and steps to design a migration plan and upgrade existing installations.

Pre-installation

Installation requirements

The Content Migration Tool can only be installed on Windows operating systems. Before installing, you must be able to connect to the Tableau source site (the site you are migrating from) and the destination site (the site you are migrating to) from the computer where Content Migration Tool is installed. Both the source and destination sites must have a valid Advanced Management license. For more information about installing and upgrading Content Migration Tool, see Install Tableau Content Migration Tool.

Compatibility with Tableau Cloud

Content Migration Tool version 2022.2.1 and later support content migration for all Tableau Cloud deployments. We recommend installing the most recent version from the Tableau Advanced Management downloads page to take advantage of the latest features and fixes.

Compatibility with Tableau Server

The Content Migration Tool supports content migration for Tableau Server versions 2019.3 and later.

The table lists compatible versions of Tableau Server based on the installed version of Content Migration Tool.

CMT Version	Tableau Server Version
2025.2x	2023.3x - 2025.1.x
2025.1x	2023.3x - 2025.1.x

CMT Version	Tableau Server Version
2024.3x	2022.3x - 2024.2.x
2024.2x	2022.3x - 2024.2.x
2024.1x	2022.1x - 2024.1.x
2023.3.x	2021.4.x - 2023.3.x
2023.2.x	2021.3.x - 2023.2.x
2023.1.x	2021.2.x - 2023.1.x
2022.4.x	2021.1.x - 2022.4.x
2022.3.x	2020.4.x - 2022.3.x
2022.2.x	2020.3.x - 2022.2.x
2022.1.x	2020.2.x - 2022.1.x
2021.4.x	2020.1.x - 2021.4.x
2021.3.x	2019.4.x - 2021.3.x
2021.2.x	2019.3.x - 2021.2.x
2021.1.x	2019.3.x - 2021.1.x
2020.4.x	2019.3.x - 2020.4.x
2020.3.x	2019.3.x - 2020.3.x

Note: If you have a Tableau Server deployment, you can migrate content between projects on a Tableau Server installation and a Tableau Cloud site. Both sites must have a valid Advanced Management license.

Compatibility with Tableau content

The Content Migration Tool supports migrating workbooks and published data sources saved in the eight most recent versions of Tableau. While you can migrate existing data sources, only data sources that use the connection types in the table below can be changed and modified during migration. For more information, see Data Source Transformations in Migration Plans: Workbooks and Migration Plans: Published Data Sources.

- Actian Matrix
- Actian Vectorwise
- Amazon Athena
- Amazon Aurora
- Amazon EMR
- Amazon Redshift
- Apache Drill
- Aster Database
- Box
- Cloudera Hadoop
- Delimited Text File
- EXASOL
- Firebird
- Google Analytics
- Google BigQuery
- Google Cloud SQL
- Google Drive
- HortonWorks Hadoop Hive
- HP Vertica
- IBM DB2
- IBM Netezza
- Map R Hadoop Hive
- Microsoft Access
- Microsoft Analysis Services
- Microsoft Excel
- Microsoft Excel Direct
- Microsoft OneDrive
- Microsoft SQL Server
- MySQL
- OData
- Oracle
- Oracle Essbase
- Pivotal Greenplum Database
- PostgreSQL
- Progress OpenEdge
- Salesforce
- SAP HANA
- SAP Sybase ASE
- SAP Sybase IQ
- Snowflake
- Spark SQL
- Statistical File
- Tableau Extract
- Tableau Published Data Source
- Teradata
- Text File
- Web Data Connector
- Other Databases (ODBC)

Post-installation

Limitations when migrating content

Before you start, make sure you understand the limitations when migrating content using the Content Migration Tool. For more information, see Migration Limitations.

Create a migration plan

The Content Migration Tool walks you through migrating content across projects on a single site, to a new site on the same Tableau Server instance, and to sites that exist on different Tableau Server instances. The plan you create can be saved and used again for future migrations. For more information, see Migration Plan Overview.

Install Tableau Content Migration Tool

Installing Tableau Content Migration Tool is straightforward and easy.

Installation requirements

The Content Migration Tool tool is run from a Windows computer and can connect to Tableau Cloud sites and Tableau Server 19.3 and later with a valid Advanced Management license. For more information about compatible versions, see Getting Started with Tableau Content Migration Tool.

The computer that you install Content Migration Tool on must meet the requirements below:

- Microsoft Windows 10 or newer (x64)
- Intel Core i3 or AMD Ryzen 3 (Dual Core)
- 4 GB memory or larger
- Can connect to the source and destination sites. Both sites must have a valid Advanced Management license to migrate content.
- 2 GB HDD or larger. The drive where the `\temp` folder resides must have enough disk space to hold a copy of all content being migrated in a single migration. All content is stored locally on the disk and deleted when the migration is complete.
- Have enough free disk space to hold the application and its logs.

In addition, confirm that the REST API is enabled on Tableau Server (this is the default). Use the `tsm configuration get -k api.server.enabled` command to confirm this. A return value of `true` means the REST API is enabled. To enable the REST API, use the `tsm configuration set` command. For more information, see api.server.enabled in Tableau Server help.

Install Content Migration Tool

To install the Content Migration Tool:

1. Download the Content Migration Tool installer (`Tabcmt-64bit-<version>.exe`) from the Tableau Advanced Management downloads page.
2. Run the Content Migration Tool Setup program.

> **Note:** Running the Content Migration Tool Setup program overwrites the previous version.

3. After reading the EULA, select **I agree to the license terms and conditions**, and click **Install**.
4. If the User Account Control dialog opens, click **Yes** to allow the installer to make changes.

Upgrade Content Migration Tool

Upgrading to the latest version of Content Migration Tool ensures that you can take advantage of the latest features and fixes included with each new version.

Important:

- Running the Content Migration Tool Setup program overwrites the previous version.
- Content Migration Tool doesn’t support side-by-side installation of previous versions.

To upgrade Content Migration Tool:

1. Log on to the machine where Content Migration Tool is installed. If there are instances of Content Migration Tool open, save your migration plan and exit the application.

2. Follow the steps listed in Install Content Migration Tool to download the latest installer and complete the upgrade.

Install Content Migration Tool from the command line

You can install Content Migration Tool from the command line if you're a local administrator on the machine.

Install switches

Specify one or more switches in the command line for the installer. For example:

```
Tabcmt-64bit-2022-3-0.exe /quiet /norestart
```

Switch	Description	Comments
`/install` | `/repair` | `/uninstall` | `/layout` "`<directory>`"	Run Setup to either install, repair, or uninstall Content Migration Tool, or with `/layout`, create a complete local copy of the installation bundle in the directory specified.	Default is to install, displaying UI and all prompts. If no directory is specified on a fresh install, `C:\Program Files\Tableau\Tableau Content Migration Tool` is assumed. If Content Migration Tool is already installed, Setup assumes the same location as the current installation.
`/passive`	Run Setup with minimal UI and no prompts.	Content Migration Tool doesn’t start automatically when installed in `/passive` mode. To start Content Migration Tool, open the application manually.
`/quiet` | `/silent`	Run Setup in unattended, fully silent mode. No UI or prompts are displayed.	Content Migration Tool doesn’t start automatically when installed in `/silent` or `/quiet` mode. To start Content Migration Tool, open the application manually.

		Note: Use either `/silent` or `/quiet`, not both.
`/norestart`	Run Setup without restarting Windows, even if a restart is necessary.	**Note:** In certain rare cases, a restart cannot be suppressed, even when this option is used. This is most likely when an earlier system restart was skipped, for example, during installation of other software.

Who can do this

A user with Administrator access on the machine.

Using Tableau Content Migration Tool

The following steps are designed to guide you through using the Tableau Content Migration Tool:

- Migration Plan Overview
    - Migration Plans: Sites
    - Migration Plans: Source Projects
    - Migration Plans: Workbooks
    - Migration Plans: Published Data Sources
    - Migration Plans: Permissions and Ownership
    - Migration Plans: Migration Scripts
    - Migration Plans: Plan Options
- Using the Tableau Content Migration Tool Console Runner

Tableau Content Migration Tool Use Cases

Tableau Content Migration Tool as the name suggests, is primarily used for moving Tableau Cloud content from one project to another. However, there are many features in the tool that makes it ideal for accomplishing several tasks related to content migration and maintenance.

> **Note:** In many of the use cases we use the term migration to describe moving content from one environment, site, or project to another. However, technically the Content Migration Tool copies content and does not automatically delete or archive the original or source content.

The information below describes some common use cases where you can leverage the Content Migration Tool.

Content promotion

You can use the Content Migration Tool to create content for development projects and then perform routine migrations to promote content to staging or production projects on your site.

Use the following steps to migrate content to production projects:

1. **Create a plan** and select the site to use as your source. In this example, we describe a migration between projects on the same site, so choose the same Tableau site as your destination. For more information, see Create a Plan in Migration Plan Overview topic.

   When migrating workbooks between two projects on the same site, your sign-in credentials for the source and destination may be similar or identical. In this scenario, we recommend using personal access tokens for a more reusable connection. For more information, see Personal Access Tokens.

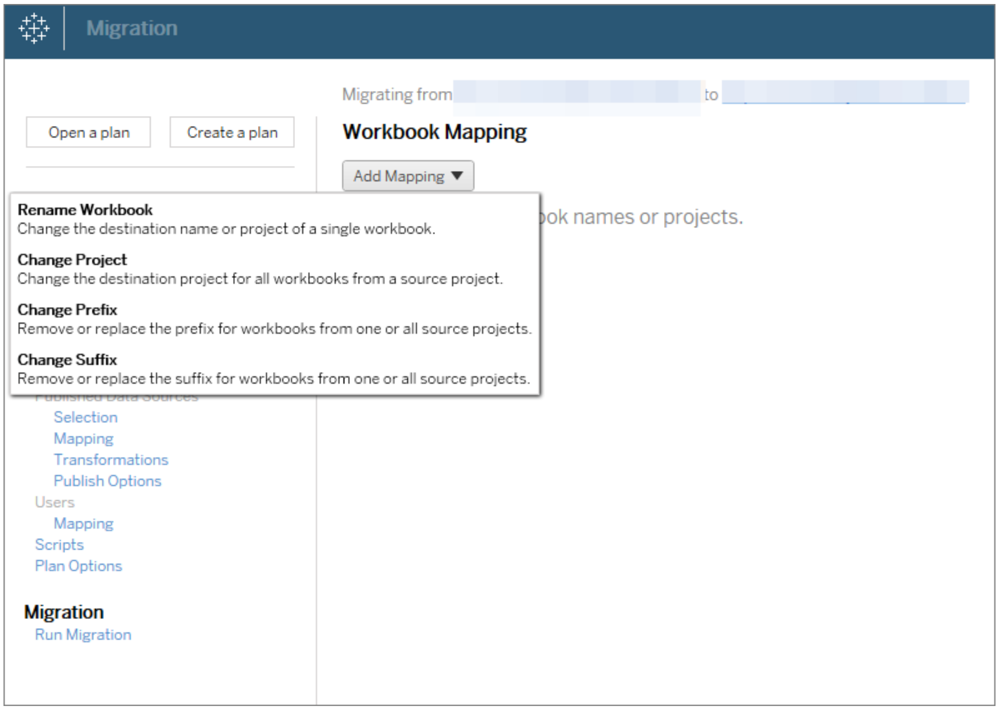
2. **Select the development project** with the content you want to migrate. You can select entire projects, specific workbooks and data sources, and user permissions. For more information, see Planning in Migration Plan Overview topic.

If you need to make any **changes or transformations** to the content during this migration, you can configure that in the plan as well. This is referred to as **Mapping**.

3. Select **Change Project** from the **Add Mapping** menu to add a project mapping. Select your development project as the source and production project as the destination, or click **Add New** to create a new project.

   Other types of mapping include:

   - **Changes to workbooks:** Includes renaming workbooks and changing the destination project. For a full list of workbook transformations, see Migration Plans: Workbooks.

     
     Migration
Open a plan
Create a plan
Migrating from
to
Workbook Mapping
Add Mapping ▼
ok names or projects.
Selection
Mapping
Transformations
Publish Options
Users
Mapping
Scripts
Plan Options
Migration
Run Migration

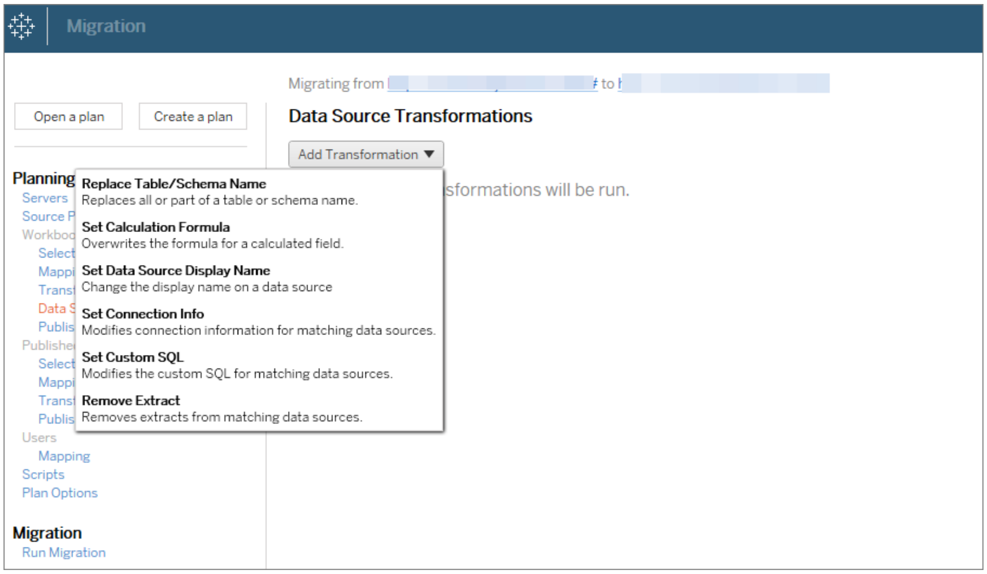
     Rename Workbook
     Change the destination name or project of a single workbook.

     Change Project
     Change the destination project for all workbooks from a source project.

     Change Prefix
     Remove or replace the prefix for workbooks from one or all source projects.

     Change Suffix
     Remove or replace the suffix for workbooks from one or all source projects.

   - **Changes to data sources:** Includes replacing table or schema names, settings calculation formulas, and setting connection information. For a full list of data source transformations, see Migration Plans: Workbooks (embedded data sources) and Migration Plans: Published Data Sources (published data sources).


Migration
Migrating from … to …
Open a plan
Create a plan
Data Source Transformations
Add Transformation ▼
Planning
Servers
Source P
Workboo
Select
Mappi
Transf
Data S
Publis
Publishe
Select
Mappi
Transf
Publis
Users
Mapping
Scripts
Plan Options
Migration
Run Migration
Replace Table/Schema Name
Replaces all or part of a table or schema name.
Set Calculation Formula
Overwrites the formula for a calculated field.
Set Data Source Display Name
Change the display name on a data source
Set Connection Info
Modifies connection information for matching data sources.
Set Custom SQL
Modifies the custom SQL for matching data sources.
Remove Extract
Removes extracts from matching data sources.
sformations will be run.

- **Changes to Users:** Includes domain, user, and group name changes in the destination.

4. When you are ready, click **Run Migration** to end the Planning phase and prepare to run your plan.

5. **To schedule** this to run regularly, you can script this as a job using the Content Migration Tool Runner and schedule it. For more information on using the Content Migration Tool Runner, see Using the Tableau Content Migration Tool Console Runner.

Tailoring content for customers

When working in a consulting scenario, you can customize content for each of your customers using the Content Migration Tool. Each workbook functions as a template for your migration plan, allowing you to apply styling (text, images, etc.) and replace data sources for specific customers.

In this example, we describe a migration between projects; an internal project where you store templates, and an external project you share with customers.

Use the following steps to customize content for your customers:

1. **Create a plan** and select the site to use as your source. Choose the same Tableau site as your destination. For more information, see Create a Plan in Migration Plan Overview topic.

   When migrating workbooks between two projects on the same site, your sign-in credentials for the source and destination may be similar or identical. In this scenario, we recommend using personal access tokens for a more reusable connection. For more information, see Personal Access Tokens.

2. **Select the internal project** that contains the template content you want to migrate. You can select entire projects, specific workbooks and data sources, and user permissions. For more information, see Planning in the Migration Plan Overview.

   If you need to make any **changes or transformations** to the content during this migration, you can configure that in the plan as well. This is referred to as **Mapping**.

3. Select **Change Project** from the **Add Mapping** menu to add a project mapping. Select your internal project as the source and production project as the destination, or click **Add New** to create a new project.

4. **In the Workbooks** step of the Migration Plan, use workbook mappings and transformations to customize your content. Below are two examples of frequently used transformations. For a full list of workbook transformations, see Migration Plans: Workbooks.

   - To personalize content, you can use the **Replace Image** and **Replace Text** transformations to update the workbook with a customer's company name and logo.

   - When it comes to data sources, you can use the **Replace Table/Schema Name** or **Set Custom SQL** transformations to modify content for your customer.

5. **Verify and run** the plan. When you are ready, click **Run Migration** to end the Planning phase and prepare to run your plan.

Environment migration

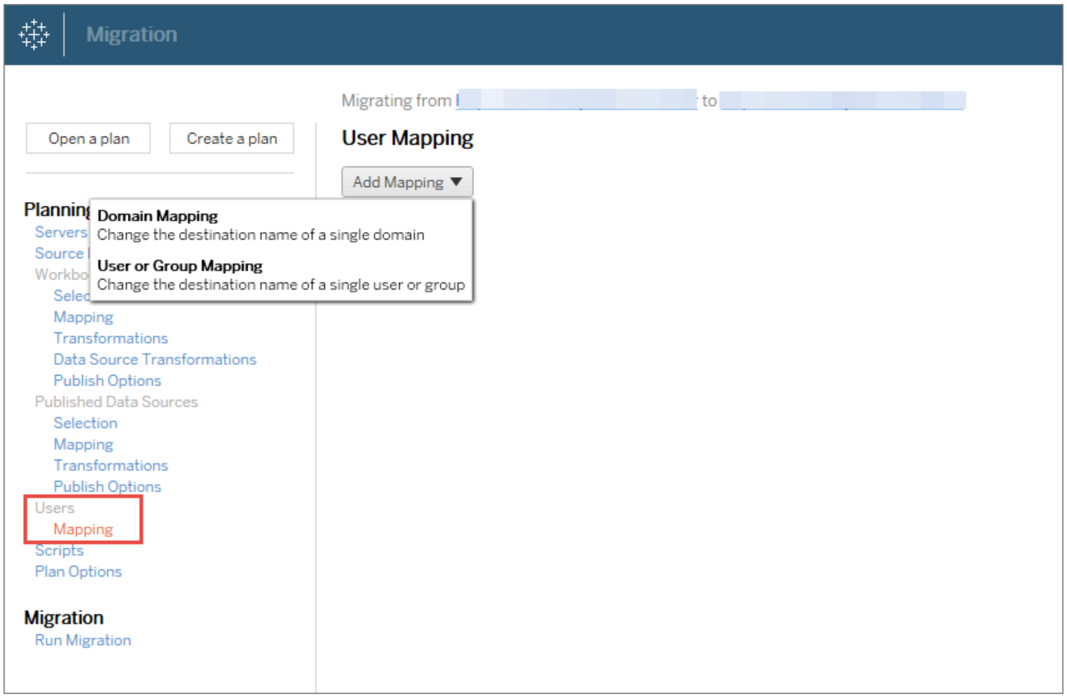
You can use the Content Migration Tool to migrate content between Tableau Cloud and Tableau Server environments with a valid Advanced Management license.

Use the following steps to migrate content between Tableau deployments:

1. **Create a plan** and **select the site** you want to migrate from as your source. For more information, see Create a Plan in Migration Plan Overview topic.

2. **Select the content** you want to migrate from your source site. You can select entire projects, specific workbooks and data sources, and user permissions.

3. **Create user permissions mappings** to customize and secure content. For more information, see Migration Plans: Permissions and Ownership.


Migration
Migrating from [redacted] to [redacted]
Open a plan
Create a plan
User Mapping
Add Mapping ▼
Planning
Servers
Source
Workbo
Selec
Mapping
Transformations
Data Source Transformations
Publish Options
Published Data Sources
Selection
Mapping
Transformations
Publish Options
Users
Mapping
Scripts
Plan Options
Migration
Run Migration
Domain Mapping
Change the destination name of a single domain
User or Group Mapping
Change the destination name of a single user or group

4. **Verify and run** the plan. When you are ready, click **Run Migration** to end the Planning phase and prepare to run your plan.

Tips
- Before you perform an environment migration, make sure you understand the Migration Limitations when using the Content Migration Tool.
- You can migrate your content in stages, test and validate content iteratively before final migration is complete.
- Content Migration Tool migration does not handle embedded credentials, subscriptions, and custom views. These will have to be migrated manually.

External content sharing

You can use the Content Migration Tool to share internal content with external collaborators, without allowing access to your project. This keeps your data secure and allows you to publish only select workbooks and data sources. Once content has been shared, collaborators sign in to their Tableau Cloud site to view and make changes, without affecting content stored on your internal project.

Before you continue, make sure the content you are sharing is compatible between the internal and external projects.

Use the following steps to share content externally:

1. **Prepare internal content**. As a best practice, we recommend separating content on the internal project, with locked permissions and strict governance rules. Workbooks and data sources should be clearly labeled to indicate the content is for external use. For more information, see Use Projects to Manage Content Access.

   > **Note:** Content shared with external projects must use data extracts unless the data source is publicly accessible. For information about creating extracts and replacing

data sources, see Extract Your Data and Replace Data Sources in Tableau Desktop help.

If you have implemented row level security, those data sources must be updated to reflect user filters and other details for the external project. For more information about row level security, see Restrict Access at the Data Row Level in Tableau Desktop help.

2. **Create a plan** and select the site to use as your source. Choose the same Tableau site as your destination. For more information, see Create a Plan in Migration Plan Overview topic.

   When migrating workbooks between two projects on the same site, your sign-in credentials for the source and destination may be similar or identical. In this scenario, we recommend using personal access tokens for a more reusable connection. For more information, see Personal Access Tokens.

3. **Select the internal project** that contains the template content you want to migrate. You can select entire projects, specific workbooks and data sources, and user permissions. For more information, see Planning in the Migration Plan Overview.

   If you need to make any **changes or transformations** to the content during this migration, you can configure that in the plan as well. This is referred to as **Mapping**.

4. Select **Change Project** from the **Add Mapping** menu to add a project mapping. Select your internal project as the source and external project as the destination, or click **Add New** to create a new project.

5. **Verify and run** the plan. When you are ready, click **Run Migration** to end the Planning phase and prepare to run your plan.

Validating database migrations

This use case is when you intend to validate content after a migration of the underlying databases. One example of database migration is moving from SQL Server to Snowflake. CMT can help you validate the content built from both data sources is the same before you finalize your migration, but it cannot perform the actual database migration.

Use the following steps to validate database migrations:

1. **Create a plan** and select the site to use as your source. Choose the same Tableau site as your destination. For more information, see Create a Plan in Migration Plan Overview topic.
2. **Select the content** you want to change the data source or database connections.
3. **Configure the migration** to copy your content to a new project. Let's call the **source** project as **Project A**, and the new or the **destination** project as **Project B**.
    - Changes to workbooks: Create a workbook mapping to change Project A to Project B. For a full list of workbook transformations, see Migration Plans: Workbooks.
    - Changes to data sources: Create a data source mapping to change the Project A to Project B. For a full list of data source transformations, see Migration Plans: Published Data Sources.
4. **Verify and run** the plan. When you are ready, click **Run Migration** to end the Planning phase and prepare to run your plan.
5. **Update the content** in **Project B** with the new database connections or replace the data sources. This needs to be done manually by authoring.
6. **Test each workbook** in **Project A** with the copy in **Project B** and review for any inconsistencies in the data due to the change in data source.
7. Once you have confirmed everything is working as expected, **overwrite the content** in Project A with the updated content in Project B.

Note: If the content already exists in the destination project and you do not select the **Overwrite Newer Workbooks** and **Overwrite Newer Data Sources** publish options, the content will not be copied to the destination project.

Maintenance tasks

You can use the Content Migration Tool to perform a variety of maintenance tasks.

Tagging stale content

Using the Content Migration Tool, you can manage archiving stale content. For example, you can build a plan that runs on a regular schedule that can automatically pick up content tagged as Stale Content and move it to an Archive project. After a certain amount of time, the content in this project can be purged from the system. For more information see, Migration Plans: Workbooks.

Restoring content

You can use the Content Migration Tool to restore content removed (accidentally or purposefully) from a project with content from a backup project.

Use the following steps to restore content from a backup project:

1. **Create a plan** and select the site to use as your source. Choose the same Tableau site as your destination. For more information, see Create a Plan in Migration Plan Overview topic.
2. **Select the content** you want to restore from the backup project.
3. **Configure the migration** to restore content from your backup project. Let’s call the backup project **Project A** and the project you want to restore to **Project B**.
    - Changes to workbooks: Create a workbook mapping to change Project A to Project B. For a full list of transformations, see Migration Plans: Workbooks.

   - Changes to data sources: Create a data source mapping to change Project A to Project B. For a full list of data source transformations, see Migration Plans: Published Data Sources.

4. **Verify and run** the plan. When you are ready, click **Run Migration** to end the Planning phase and prepare to run your plan.

5. **Review the content** on the production site.

Partial backup

Once you have a backup project, you can use the Content Migration Tool to transfer new content from production to the backup project.

Notes:
- Before you perform a partial backup, make sure you understand the Migration Limitations when using the Content Migration Tool.
- The Content Migration Tool shouldn't be used to backup your entire site. We recommend prioritizing the content you need most.

Use the following steps to perform a partial backup of your content:

1. **Create a plan** and select the site to use as your source. Choose the same Tableau site as your destination. For more information, see Create a Plan in Migration Plan Overview topic.

2. **Select the content** you want to backup from the production project. You can select entire projects, specific workbooks and data sources, and user permissions. To migrate only new content, make sure the publish options **Overwrite Newer Workbooks** and **Overwrite Newer Data Sources** are not selected. For more information, see Migration Plans: Workbooks.

3. **Configure the migration** to copy content to your backup project. Let’s call the source project **Project A** and the backup project **Project B**.

   - Changes to workbooks: Create a workbook mapping to change Project A to Project B. For a full list of transformations, see Migration Plans: Workbooks.
   - Changes to data sources: Create a data source mapping to change Project A to Project B. For a full list of data source transformations, see Migration Plans: Published Data Sources.

4. **Verify and run** the plan. When you are ready, click **Run Migration** to end the Planning phase and prepare to run your plan.
5. **To schedule** this to run on a regular basis, you can script this as a job using the Content Migration Tool Runner and schedule it. For more information on using the Content Migration Tool Runner, see Using the Tableau Content Migration Tool Console Runner.

Migration Plan Overview

Tableau Content Migration Tool creates a streamlined process for migrating Tableau content between projects. The easy-to-follow plan can be audited, is repeatable, and works via a batch process so any number of workbooks and data sources can be migrated in a simple and efficient process.

The Content Migration Tool will display contextual tips to walk you through creating or editing a migration plan. Once you select the source and destination sites, a summary of your migration will be displayed at the top of the screen as follows:

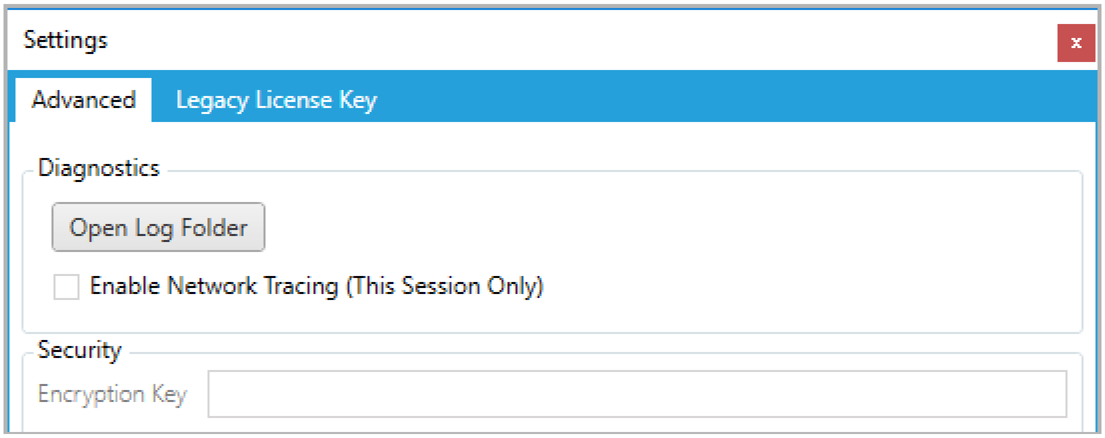
Migrating from http://admin@win-vj23dhvudie:80/#/site/Accounting-sandbox to http://admin@win-vj23dhvudie:80/#/site/Accounting

Limitations when migrating content

Before you start, make sure you understand the limitations when migrating content using the Content Migration Tool. For more information, see Migration Limitations.

Encryption keys

Each migration plan file is generated with an encryption key unique to the application that created the plan. Encryption keys can be shared if the migration plan needs to be run through an application that did not originally generate the file. When sharing encryption keys, you will need to overwrite the existing key in the application to run the migration plan. To view your encryption key, select **Help** > **Settings**.


Settings
x
Advanced
Legacy License Key
Diagnostics
Open Log Folder
☐ Enable Network Tracing (This Session Only)
Security
Encryption Key

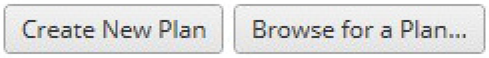
If you will be using the Content Migration Tool Console Runner for migration plans, you must specify the encryption key using the `tabcmt-runner encryption` command before running the plan. For more information, see Using the Tableau Content Migration Tool Console Runner.

Migration process

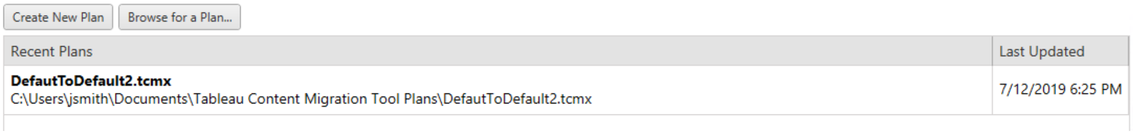
Step 1: Start

The core of the migration process is creating a plan, which you can save and re-use for future migrations or modify and update as needed. The first step is choosing whether to create a new plan, or select a previously saved plan.

To create a new plan, click **Create New Plan**. If you already created a migration plan and want to use it, click **Browse for a Plan**.



By default, all of your saved migration plans will be stored in the `Tableau Content Migration Tool Plans` folder in your My Documents folder. All migration plans are saved with a `.tcmx` extension, with recently accessed plans listed separately to make them easy to select:



Recent Plans	Last Updated
DefautToDefault2.tcmx C:\Users\jsmith\Documents\Tableau Content Migration Tool Plans\DefautToDefault2.tcmx	7/12/2019 6:25 PM

You can select a recently accessed plan and duplicate it to modify the plan and save it as a new plan. Select the plan you want to copy and click **Duplicate**.

Step 2: Planning

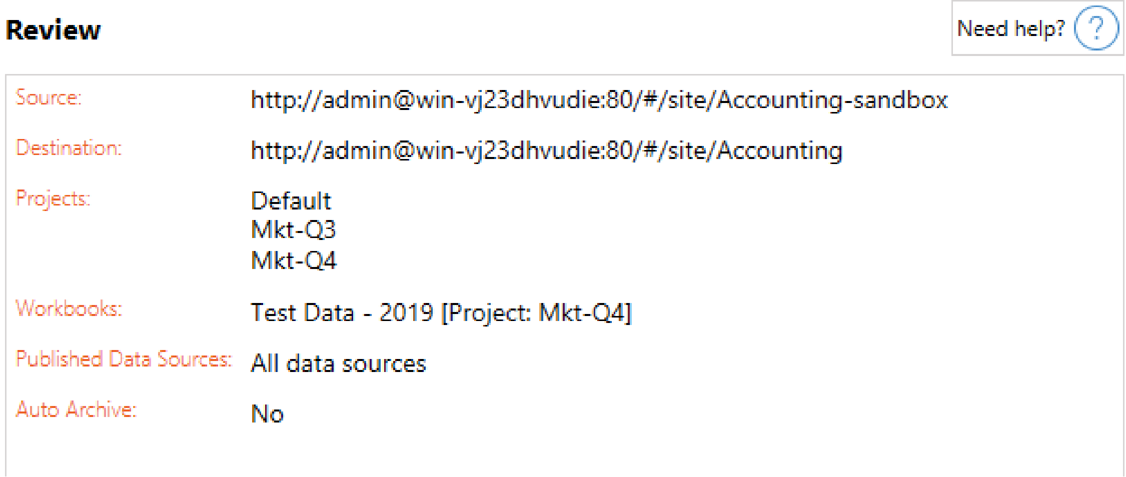
The Content Migration Tool guides you through building or editing your migration plan in six steps.

Click on each step for detailed instructions:

- Migration Plans: Sites
- Migration Plans: Source Projects
- Migration Plans: Workbooks
- Migration Plans: Published Data Sources
- Migration Plans: Permissions and Ownership
- Migration Plans: Migration Scripts
- Migration Plans: Plan Options

Step 3: Migration

Once you have completed your plan, you are now ready to run the batch process for migration. When you reach the final step of the migration, a plan summary displays for your verification:

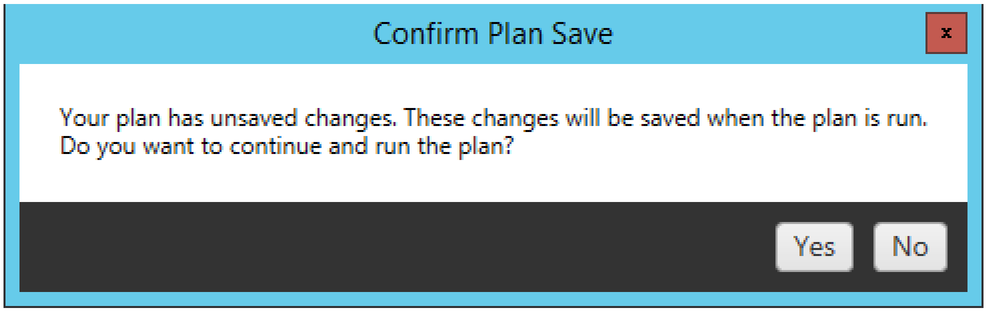


Review

Source:	http://admin@win-vj23dhvudie:80/#/site/Accounting-sandbox
Destination:	http://admin@win-vj23dhvudie:80/#/site/Accounting
Projects:	Default Mkt-Q3 Mkt-Q4
Workbooks:	Test Data - 2019 [Project: Mkt-Q4]
Published Data Sources:	All data sources
Auto Archive:	No

If you want to change any aspects of your plan, you can click on a section in the left sidebar to go directly to that phase. When you are ready, click **Run** to begin your migration.

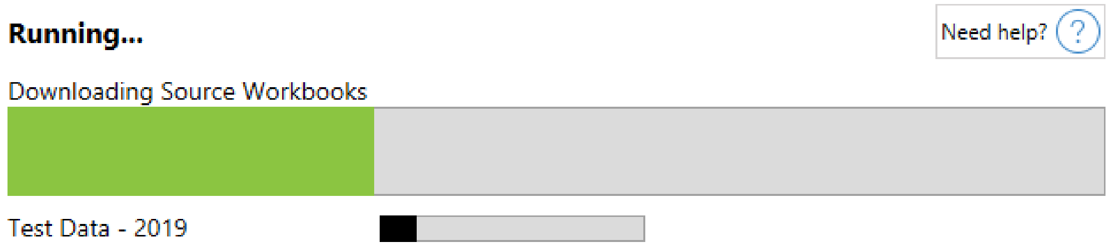
When you click **Run**, the migration tool will prompt you about any unsaved elements of your plan. By default, any unsaved elements will be saved when you click **Yes**. Remember you can always keep your previous plan without making any changes by duplicating it during the Start phase of the migration process.



Confirm Plan Save

Your plan has unsaved changes. These changes will be saved when the plan is run. Do you want to continue and run the plan?

Your migration plan will run and a status bar displays for the overall plan progress and each workbook being sent to the destination server.



Running...

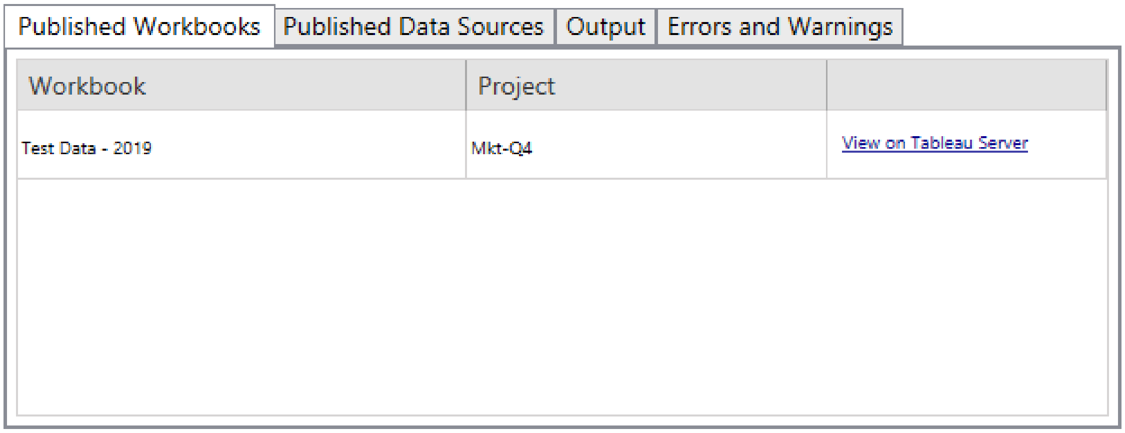
Downloading Source Workbooks

Test Data - 2019

When the plan finishes running, you can click the tabs at the bottom of the screen for more information about the migration.

Published workbooks

Published Workbooks details the newly published workbooks and the projects where they were migrated.



Published Workbooks
Published Data Sources
Output
Errors and Warnings

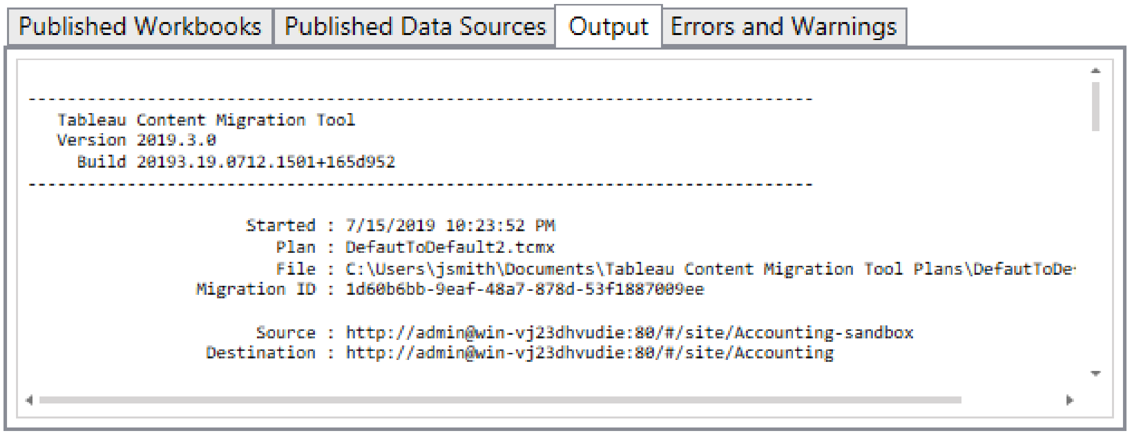
Workbook	Project	
Test Data - 2019	Mkt-Q4	View on Tableau Server

Published data sources

Published Data Sources details the newly published data sources and the projects where they were migrated.

Output

The **Output** tab details the migration log of your plan.



Published Workbooks
Published Data Sources
Output
Errors and Warnings

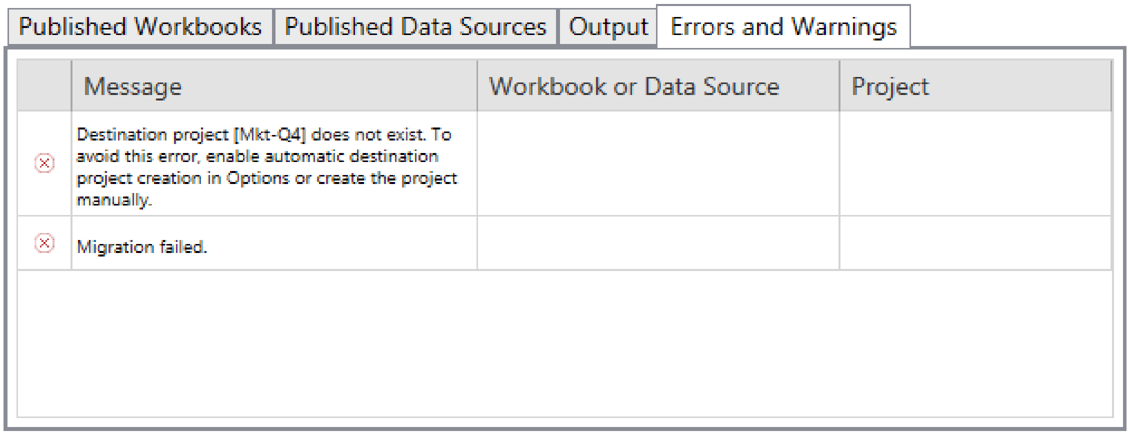
```
-------------------------------------------------------------------------------
   Tableau Content Migration Tool
   Version 2019.3.0
     Build 20193.19.0712.1501+165d952
-------------------------------------------------------------------------------

                      Started : 7/15/2019 10:23:52 PM
                         Plan : DefautToDefault2.tcmx
                         File : C:\Users\jsmith\Documents\Tableau Content Migration Tool Plans\DefautToDe
                 Migration ID : 1d60b6bb-9eaf-48a7-878d-53f1887009ee

                       Source : http://admin@win-vj23dhvudie:80/#/site/Accounting-sandbox
                  Destination : http://admin@win-vj23dhvudie:80/#/site/Accounting
```

You can save this log by clicking **Save Log**.

Save Log

Errors and warnings

The **Errors and Warnings** tab highlights any problems that occurred during the migration.



Published Workbooks
Published Data Sources
Output
Errors and Warnings

	Message	Workbook or Data Source	Project
⊗	Destination project [Mkt-Q4] does not exist. To avoid this error, enable automatic destination project creation in Options or create the project manually.		
⊗	Migration failed.		

You can correct these and rerun your plan. When you have completed your migration and saved your plan, click **Done** to finish.

Who can do this

Tableau site user with an Explorer role or higher. To migrate content, you must have **View** and **Download/Save a Copy** capabilities for workbooks on the source site and **View** and **Publish** capabilities for target projects on the destination site. For more information, see Permissions.

Migration Limitations

There are certain limitations to migrations when using the Tableau Content Migration Tool. Before creating your migration plan, review the sections below to learn about version compatibility and content that will not be migrated.

Compatibility with Tableau content

The Content Migration Tool supports migrating workbooks and published data sources saved in the eight most recent versions of Tableau. Workbooks and published data sources saved before version 2018.1.x are not supported by CMT. For more information, see Getting Started with Tableau Content Migration Tool.

Migrating content to previous Tableau versions can fail if the content includes features or formats not recognized by the previous version. The Content Migration Tool will tell you if incompatibilities are found, and the migration will fail.

Configurations

The following configurations are not migrated to the destination site when using the Content Migration Tool.

- Users
- Groups
- Site settings (custom logos, view recommendations, etc.)

Data connections

While you can migrate existing data sources, only data sources that use the connection types in the table below can be changed and modified during migration. For more information, see Data Source Transformations in Migration Plans: Workbooks and Migration Plans: Published Data Sources.

Actian Matrix
Actian Vectorwise
Amazon Athena
Amazon Aurora
Amazon EMR
Amazon Redshift
Apache Drill
Aster Database
Box
Cloudera Hadoop
Delimited Text File
EXASOL
Firebird
Google Analytics
Google BigQuery
Google Cloud SQL
Google Drive
HortonWorks Hadoop Hive
HP Vertica
IBM DB2
IBM Netezza
Map R Hadoop Hive
Microsoft Access
Microsoft Analysis Services
Microsoft Excel
Microsoft Excel Direct
Microsoft OneDrive
Microsoft SQL Server
MySQL
OData
Oracle
Oracle Essbase
Pivotal Greenplum Database
PostgreSQL
Progress OpenEdge
Salesforce
SAP HANA
SAP Sybase ASE
SAP Sybase IQ
Snowflake
Spark SQL
Statistical File
Tableau Extracts
Tableau Server Data Sources
Teradata
Text File
Web Data Connector
Other Databases (ODBC)

Unsupported content

The following content is not migrated to the destination site when using the Content Migration Tool and will require additional configuration.

Content	**Action required**
Ask Data lenses	Users must recreate Ask Data lenses on the destination site. For more information, see Create Lenses that Focus Ask Data for Specific Audiences.
Collections	Users must recreate collections on the destination site. For more information, see Collections in Tableau Desktop help.
Comments	Users must re-add comments to views on the destination site. For more information, see Comment on Views in Tableau Desktop help.
Custom views	Users must recreate custom views on the destination site. For more information, see Use Custom Views in Tableau Desktop help.
Data roles	Users must recreate data roles on the destination site. For more information see Use Data Roles to Validate your Data in Tableau Prep Builder help.
Data source certifications	If you have the following site roles and capabilities, you can certify data sources on the destination site. • Site Administrator Creator • Creator or Explorer (can publish) with Project Leader capability on the project containing the data source For more information, see Use Certification to Help Users Find Trusted Data.
Data-driven alerts	Users must recreate data-driven alerts for dashboards and views on the destination site. After data-driven alerts are created, anyone with access to the view can add themselves to existing alerts.

	For more information, see Send Data-Driven Alerts from Tableau Cloud or Tableau Server in Tableau Desktop help.
Descriptions for workbooks and data sources	If you own the content item or have the appropriate permissions, you can edit the item's description on the destination site. For more information, see Add or edit descriptions in Tableau Desktop help.
Embedded credentials	For security purposes, Tableau Server removes embedded credentials from data sources during the download process. • To include embedded credentials when migrating from Tableau Server to Tableau Cloud, use the Migrate Embedded Credentials for Workbooks and Migrate Embedded Credentials for Data Source publish options. For more information, see Migrate Workbooks and Data Sources with Embedded Credentials. • To include embedded credentials when publishing to Tableau Server sites, use the Set Connection Info data source transformation. For more information, see Migration Plans: Published Data Sources. **Note:** CMT does not support embedded credential migration for OAuth connections. To migrate OAuth credentials, use the Set Connection Info data source transformation.
External assets	Customized attributes for external assets are not migrated to the destination site. For example, tags, certifications, data quality warnings, descriptions, permissions, user contacts, tables, and columns must be recreated. For more information, see Manage Permissions for External Assets.
Extract refresh schedules	Extract refresh schedules cannot be migrated to Tableau Cloud destination sites. To refresh data on Tableau Cloud, you can run extract refreshes manually or create new extract refresh schedules. For more

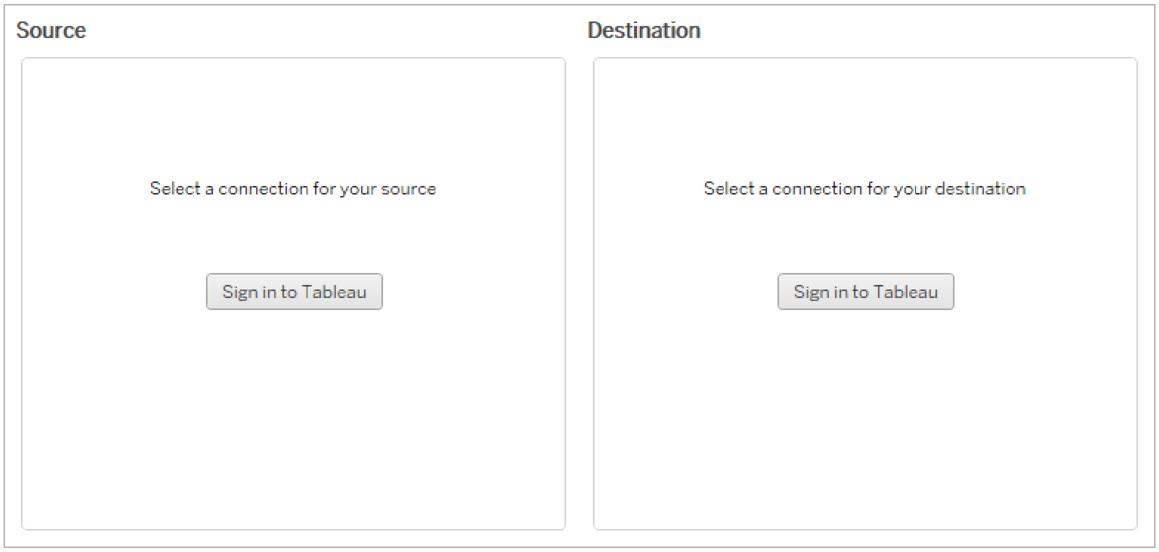
	information, see Schedule Refreshes on Tableau Cloud.
Favorites	Users must reselect their favorite content on the destination site. For more information, see Mark Favorites in Tableau Desktop help.
Flows	To run flows on a schedule, users must republish flows to the destination site with Tableau Prep. For more information, see Publish a Flow to Tableau Server or Tableau Cloud in Tableau Prep help.
Incremental extract refreshes	Incremental extract refreshes are changed to full extract refreshes on the destination site. Users must reconfigure incremental refreshes in Tableau Desktop and publish extracts to the destination site after migration. For more information, see Refresh Extracts in Tableau Desktop help.
Metrics	The historical values for metrics are removed from views, and users must recreate metrics on the destination site. For more information, see Create and Troubleshoot Metrics (Retired). The legacy Metrics feature was retired in February 2024 for Tableau Cloud and in Tableau Server version 2024.2. For more information, see Create and Troubleshoot Metrics (Retired).
Revision history	To migrate previous versions of workbooks to the destination site, users must download the versions they wish to keep and republish the workbook to the destination site. For more information see Work with Content Revisions in Tableau Desktop help.
Subscriptions	Users must resubscribe to views and workbooks on the destination site. For more information, see Create a Subscription to a View or Workbook.
Thumbnails for workbooks and views	Workbooks and views that are migrated using the Content Migration Tool will retain their original thumbnails, even if the migration plan includes transformations that result in the views being rendered differently (for example, if data connections change). To update thumbnails, edit the workbook or view on the destination site

	and re-save it. For more information, see Edit Tableau Views on the Web in Tableau Desktop help.
Virtual connections	Users must recreate virtual connections on the destination site. For more information, see Create a Virtual Connection.

Migration Plans: Sites

The first step when creating a migration plan in the Tableau Content Migration Tool is to sign in to the source and destination sites.

In the Sites section of the planning phase, you'll sign in to the source and destination sites. The permissions of the user credentials you use govern the sites and projects you see when creating a migration plan. You can only migrate content that the user has access to.



Select a connection for your source

Select a connection for your destination

Required permissions and licenses

The user account(s) used to sign in to the source and destination sites must have an Explorer role or higher, and the following permissions for the content you want to migrate:

- View
- Download Workbook/Save a Copy
- Optional: Administrator (to select workbooks, to access a user list)

Both the source and destination sites must have Advanced Management capacities. For more information, see About Tableau Advanced Management on Tableau Cloud.

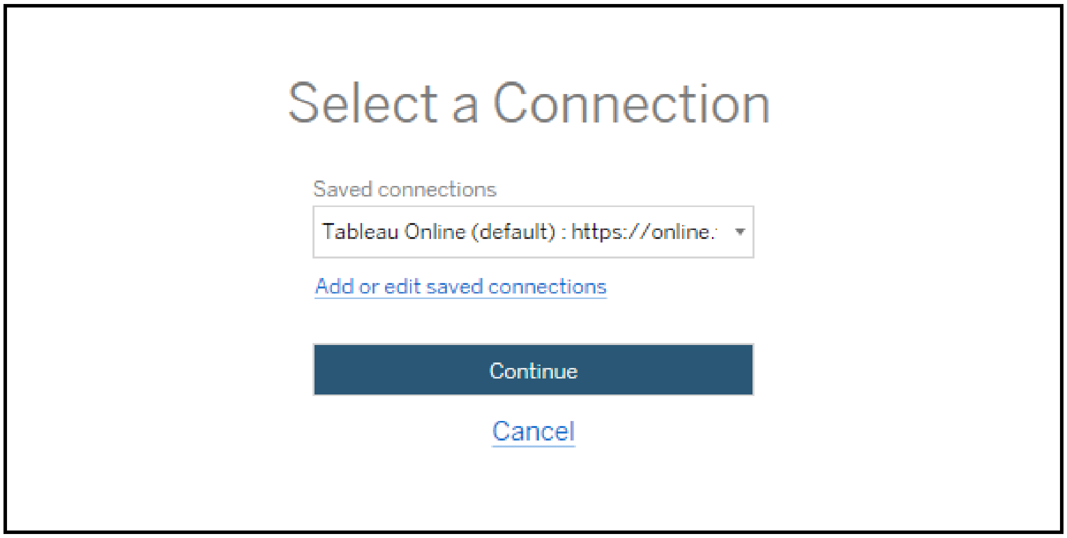
Step 1: Source

Here is the starting point of the migration. Sign in to Tableau Cloud, then select your *site* to use as the source. Sites are independent silos of workbooks, data, and user lists created within Tableau to group related content for selected users. You can only migrate content from one site at a time.

Sign in to the source site

Use the steps below to sign in to Tableau Cloud or Tableau Server. For more information about signing in to Tableau Cloud with Single Sign-On and Tableau with MFA, see Sign In to Tableau Cloud.

1. Click **Sign in to Tableau**.
2. In the **Select a Connection** dialog window, select a saved connection and click **Continue**.



Select a Connection

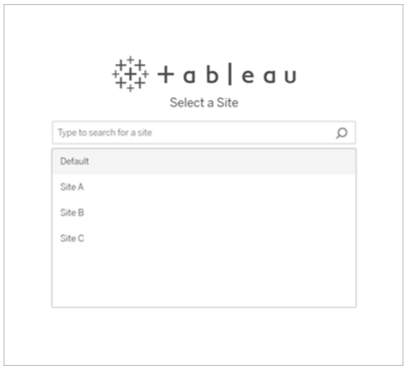
Saved connections: Tableau Online (default) : https://online.

If no connections are available, click **Add or edit saved connections** to add a new connection. For more information, see Saved connections.

3. Enter your username and password, and click **Sign In**.

   If your server is configured for SAML or Single Sign-On, you are redirected to the Identity Provider sign-in page to complete the authentication process.

4. Select the site you want to use.



To change the source server or update your site selection, click **Select a different source**.

Step 2: Destination

Repeat the sign-in process for the destination site (the site you are migrating content to).

If you are migrating your workbooks between two projects on the same Tableau site, your sign-in credentials for the source and destination site will be identical (including the server URL and site name).

Saved connections

Using saved connections allow you to quickly sign in to the source and destination sites by creating a reusable connection. When adding a saved connection, you must specify the preferred sign-in method for your site.

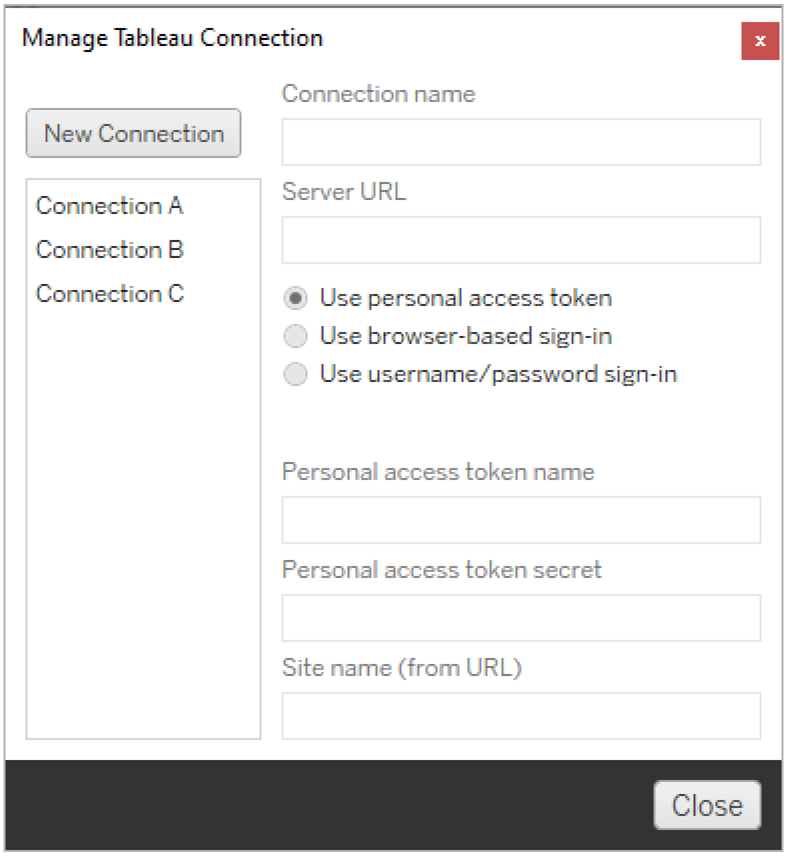
The Content Migration Tool supports the following sign-in methods:

- **Personal access tokens:** Allows users to create long-lived authentication tokens for improved security, auditing, and automation of migration plans. Personal access tokens let users sign in without requiring interactive login in the Content Migration Tool. For more information, see Personal Access Tokens.

- **Browser-based sign-in:** Users enter their credentials and complete authentication through an embedded web browser. This option may be similar to how you usually authenticate to Tableau.
- **Username and password sign-in:** Users authenticate through the Content Migration Tool instead of an embedded browser window. This option passes credentials to the server using Tableau REST APIs. You can use username and password sign-in to troubleshoot issues that prevent the use of browser-based sign-in.

Add or edit saved connections

A link to **Add or edit saved connections** is displayed at the bottom of the Content Migration Tool, and when signing in to the source and destination sites. Clicking this link will open the **Manage Tableau Connections** window.


Manage Tableau Connection
x
New Connection
Connection A
Connection B
Connection C
Connection name
Server URL
● Use personal access token
○ Use browser-based sign-in
○ Use username/password sign-in
Personal access token name
Personal access token secret
Site name (from URL)
Close

Use the steps below to add a saved connection:

1. On the **Manage Tableau Connections** window, click **New Connection**, or select an existing connection to make changes.
2. Enter a **Connection Name** (name to describe your server) and the **Server URL**.

   If you don't include a prefix for the Server URL, the Content Migration Tool will use `http://`.
3. Select the sign-in method for your connection.

   If you're using personal access tokens, see Add saved connections with personal access tokens.
4. Click **Save**.

After you create a saved connection, it's listed in the Select a Connection window next time you sign in to the source and destination sites.

Add saved connections with personal access tokens

Adding a saved connection with a personal access token requires more information than other sign-in methods. You will need to create a new personal access token on the source and destination sites to begin. Personal access tokens should not be shared between applications. For more information, see Personal Access Tokens.

Creating personal access tokens

1. In a web browser, sign in to your Tableau site.
2. At the top of the page, click your profile image or initials, and then select **My Account Settings**.
3. Under **Personal Access Tokens**, enter a descriptive name for your token in the **Token Name** field, and then click **Create new token**.
4. In the resulting window, click **Copy to clipboard** and then close the window.
5. Paste the token secret to a file. Store the file in a safe location.

Adding personal access tokens

1. In the Content Migration Tool, click **Add or edit saved connections**.
2. On the **Manage Tableau Connections** window, enter a **Connection name** and the **Server URL**.

If you are connecting to Tableau Cloud, you must enter the full pod URL of your site. For example, `https://10ay.online.tableau.com`. Your pod is shown in the first portion of the site URL after signing in to Tableau Cloud.

3. Enter the **Personal access token name** and **Personal access token secret**, obtained when creating a personal access token in the previous section.
4. In the **Site name** field, enter the site name as it appears in the URL, without spaces. This is different than the friendly site name. For example, “Site A” would be “sitea” in a browser URL.
5. Click **Save**.

Step 3: Continue to the next step

After successfully signing in to both source and destination sites, click **Next** to continue to the Migration Plans: Source Projects section of the planning phase.

Who can do this

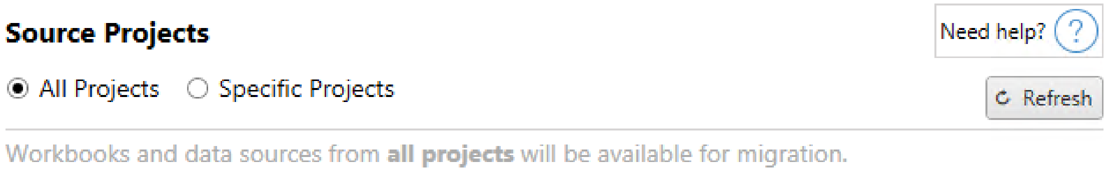
Tableau site user with an Explorer role or higher. To migrate content, you must have **View** and **Download/Save a Copy** capabilities for workbooks on the source site and **View** and **Publish** capabilities for target projects on the destination site. For more information, see Permissions.

Migration Plans: Source Projects

The next step in creating a migration plan in the Tableau Content Migration Tool is to select the source projects. Source projects are the projects the workbooks and published data sources will be migrated from. The projects you choose determine which workbooks are available to migrate in the next step of the migration plan.

Step 1: Select your source project

There are two options when selecting source projects, **All Projects**, and **Specific Projects**:



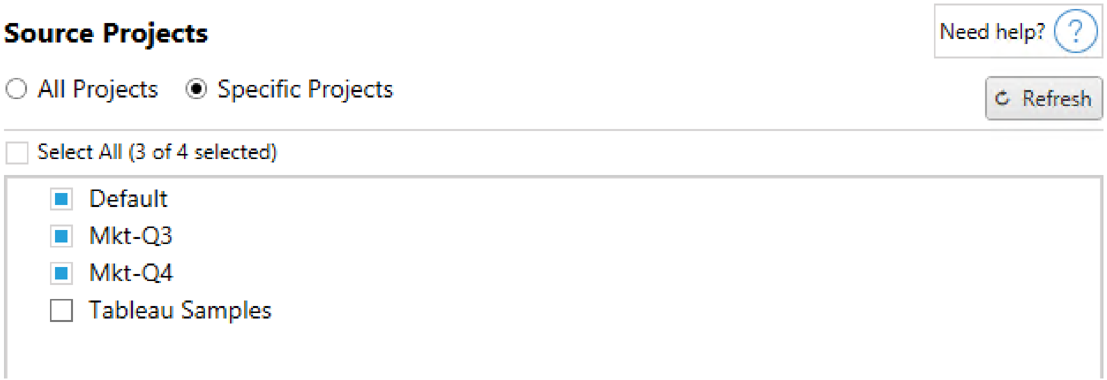
Source Projects

● All Projects ○ Specific Projects

Workbooks and data sources from **all projects** will be available for migration.

The **All Projects** option selects all projects from the source site you specified in the Servers step. The **Specific Projects** option allows you to select specific projects from the source site.

> **Note:** Source projects must contain workbooks or data sources. Content Migration Tool will not migrate empty projects.



Source Projects

○ All Projects ● Specific Projects

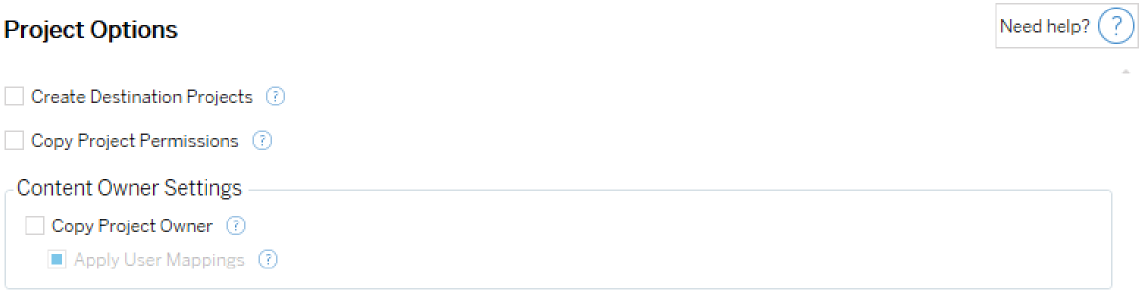
☐ Select All (3 of 4 selected)

- ☑ Default
- ☑ Mkt-Q3
- ☑ Mkt-Q4
- ☐ Tableau Samples

You can select each project individually or use the **Select All** button and then clear selections for the projects you don't want to include. If you make any changes on the source site while on this step, you can use the **Refresh** button to update the projects list.

Step 2: Select project options

Once the source projects are selected, select which project options to apply for the destination location. There are options to create projects that don't exist, in addition to copying project permissions and ownership from the source location. To assign new content ownership based on user mappings, select **Apply User Mappings**.


Project Options

☐ Create Destination Projects

☐ Copy Project Permissions

Content Owner Settings

☐ Copy Project Owner

☑ Apply User Mappings

- **Create Destination Projects**: Automatically create projects that don't exist in the destination location. Content Migration Tool will not create destination projects if the source project is empty or no workbooks or data sources are selected. By default, attempts to migrate to a non-existent project will result in a failed migration.
- **Copy Project Permissions**: Copy source project permissions as closely as possible.
- **Copy Project Owner**: Copy project ownership settings from the source location to assign the project owner.
- **Apply User Mappings**: Apply user mappings to assign content ownership of projects in the destination location. Content ownership won't be applied if the destination project already exists. For more information, see Migration Plans: Permissions and Ownership.

Step 3: Continue to the next step

After selecting the source projects, click **Next** to continue to the Migration Plans: Workbooks section of the planning phase. If you are migrating workbooks between two projects on the same Tableau site, you'll choose your destination project in the next section.

Who can do this

Tableau site user with an Explorer role or higher. To migrate content, you must have **View** and **Download/Save a Copy** capabilities for workbooks on the source site and **View** and **Publish** capabilities for target projects on the destination site. For more information, see Permissions.

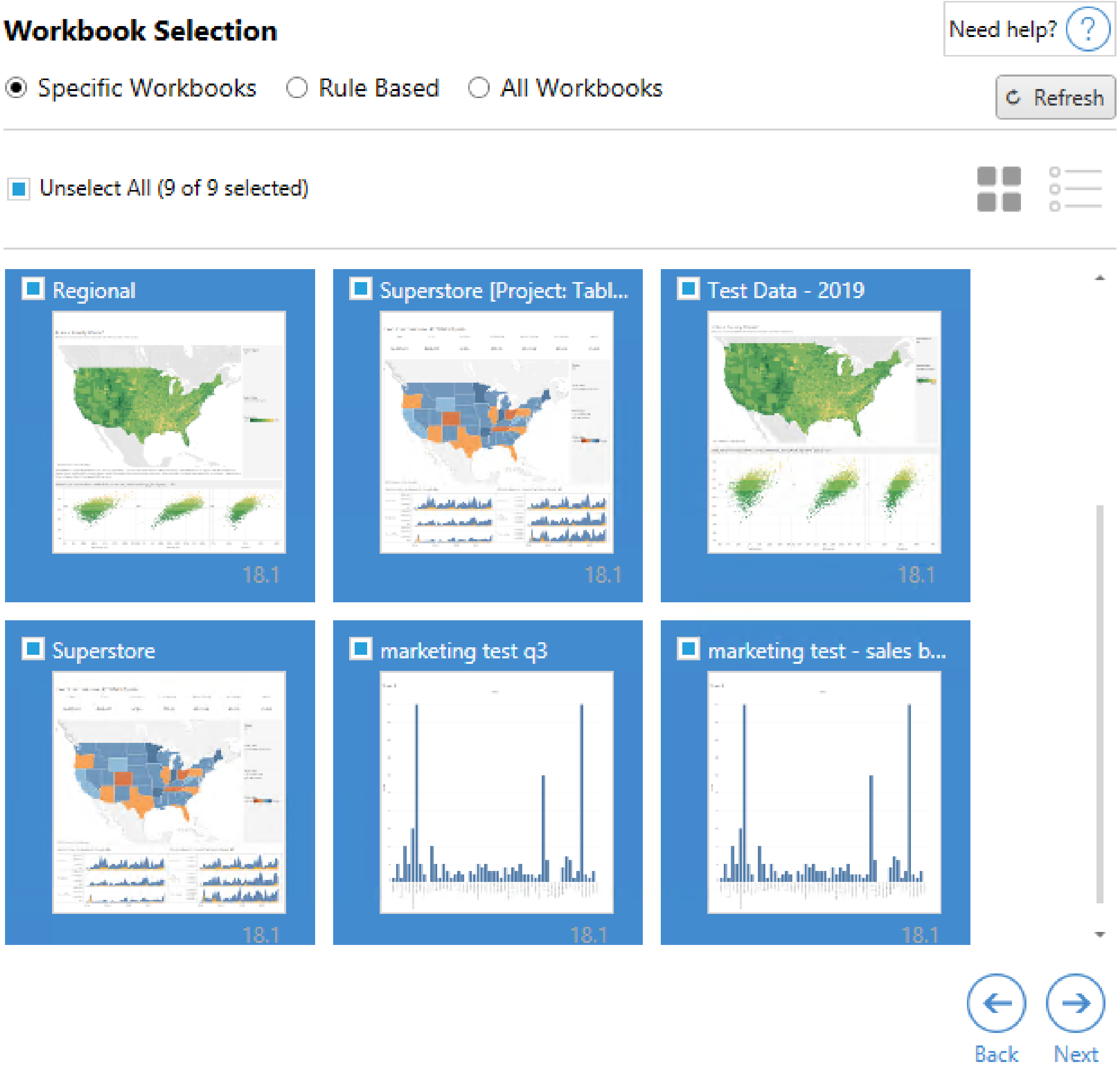
Migration Plans: Workbooks

You have successfully signed in to your source and destination sites and selected projects. The next step is to prepare your workbooks for migration.

Note: If your workbooks or data sources include extracts, be sure you read and understand the information in Migrate Workbooks and Data Sources with Extracts.

Step 1: Workbook selection

All of the workbooks in the source site and selected projects appear on the **Workbook Selection** screen.



Workbook Selection
Need help?
● Specific Workbooks
○ Rule Based
○ All Workbooks
Refresh
Unselect All (9 of 9 selected)
Regional
18.1
Superstore [Project: Tabl...
18.1
Test Data - 2019
18.1
Superstore
18.1
marketing test q3
18.1
marketing test - sales b...
18.1
Back
Next

If you make any changes to the workbooks in the source site while on this step, you can click **Refresh** to update the workbook listings. There are several different ways to select these workbooks.

Specific Workbooks Selection

There are three buttons in the **Specific** section. Any choices from the Basic section will immediately include the specifically selected workbook in the migration plan. Alternately, you can individually select specific workbooks by clicking on each one.

Select All

This button will select or clear selection of all the workbooks in the site. If additional workbooks are added to the site after the plan is saved, they will not be automatically added the next time the plan is used.

Display:

Thumbnails

The default view shows your workbooks in thumbnail previews to help you differentiate each of them. In this view, mousing over the thumbnail will show previews of the other worksheets and dashboards within that workbook.

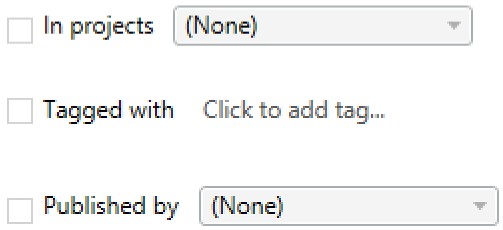
List

The list view is a more succinct listing that also provides additional information, including Workbook Name, Project, Tableau Version, and Last Modified.

Clicking on any of the column headers will sort the workbooks appropriately. Also, mousing over any of the workbooks will also provide a floating preview of the worksheets and dashboards within that workbook. List view is particularly useful if you have a large amount of workbooks in a site.

Rule Based Selection

You can use **Rule Based** selection to choose workbooks based on specific criteria. Rule-based options will create workbook selection criteria to be used when the migration plan is run. Be aware that selecting "all" in any of the **Rule Based** options is different than the **Specific Workbooks** selection. A rule-based "all" selection will always include all workbooks, so any newly added workbooks are included in future migrations.



☐ In projects (None)

☐ Tagged with Click to add tag...

☐ Published by (None)

The **Rule Based** radio button allows you to select workbooks by using the following options:

Workbooks in projects

This menu allows you to select workbooks from specific projects.

Workbooks tagged with

This menu allows you to select workbooks by their tags.

Workbooks published by

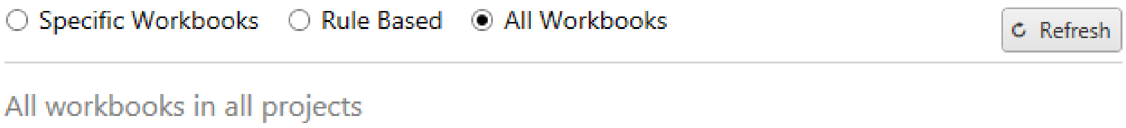
This menu allows you to select workbooks by their author.

With each option, you can select individually or multiple by clicking on the option next to each entry. All selected workbooks will appear in the **Selection Description** box.

All Workbooks Selection

The last option is to select the **All Workbooks** radio button, which selects all workbooks in all projects in the site.

Using the **All Workbooks** radio button is different than selecting all of the workbooks using the **Specific Workbook** method because it will use every workbook in the source site each time the migration plan is used in the future.



○ Specific Workbooks ○ Rule Based ● All Workbooks

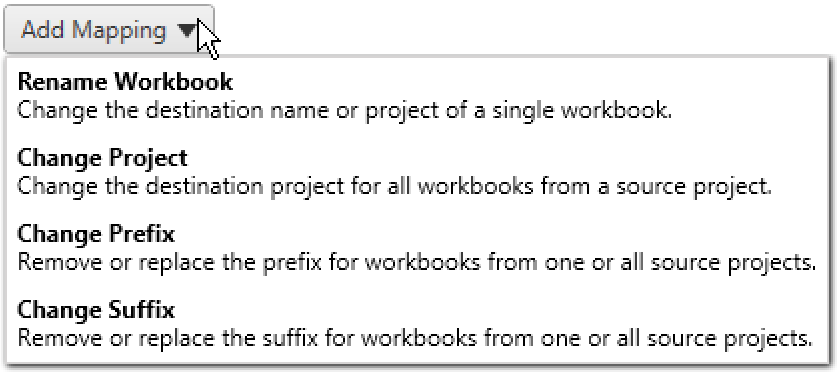
All workbooks in all projects

When you are satisfied with your workbook selections, click **Next**.

Step 2: Workbook mapping

You can now map your selected workbooks from the source file to the destination file. Mapping allows you to rename source workbooks as they are migrated and choose different destinations. You can also add mapping to change the project, prefix, or suffix for the workbooks as well. Projects can be added to the Destination in this section as well.

If you make no changes here, then the selected workbooks will simply be migrated with the same name and into the same project as the source. If you have not defined projects in your destination site, then they will be migrated into the Default project. To add workbook mapping click the **Add Mapping** button. The following options will appear in the mapping area.



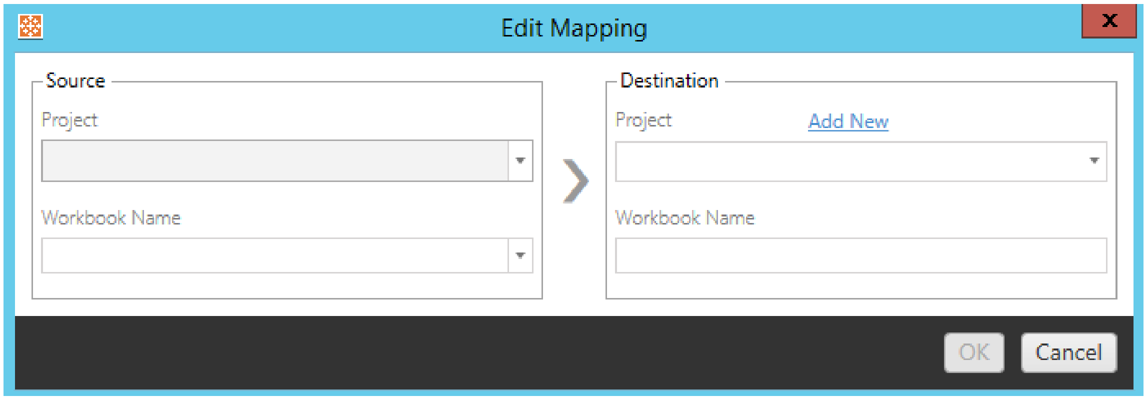
Rename Workbook
Change the destination name or project of a single workbook.

Change Project
Change the destination project for all workbooks from a source project.

Change Prefix
Remove or replace the prefix for workbooks from one or all source projects.

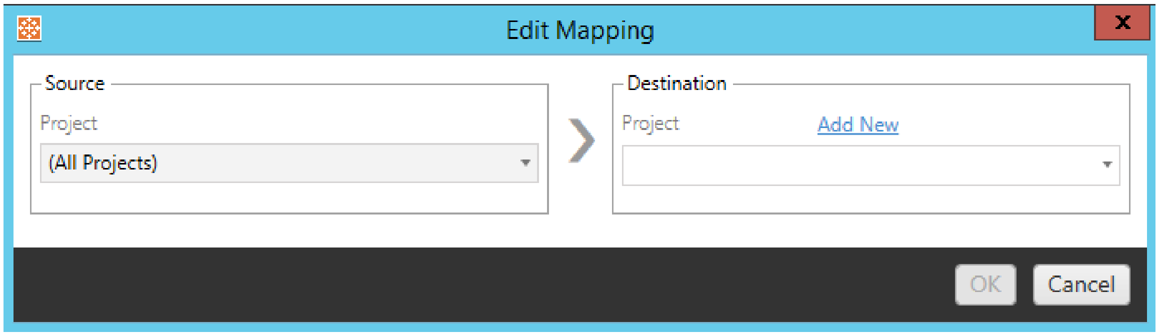
Change Suffix
Remove or replace the suffix for workbooks from one or all source projects.

Rename Workbook



This transformation allows you to filter by the **Source** project and select the desired workbook (s) to rename. In the **Destination** field, select which project you would like the workbook to be directed to and enter the desired name.

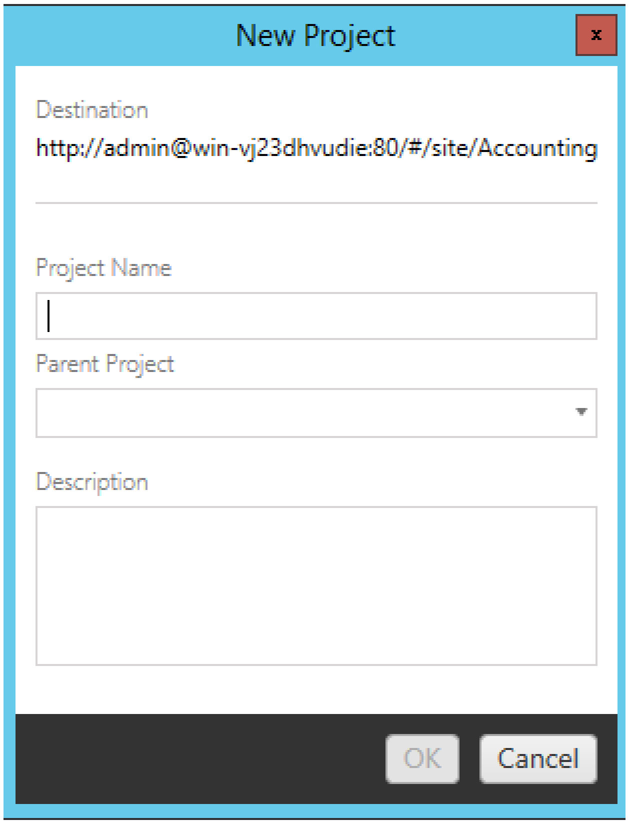
Change Project



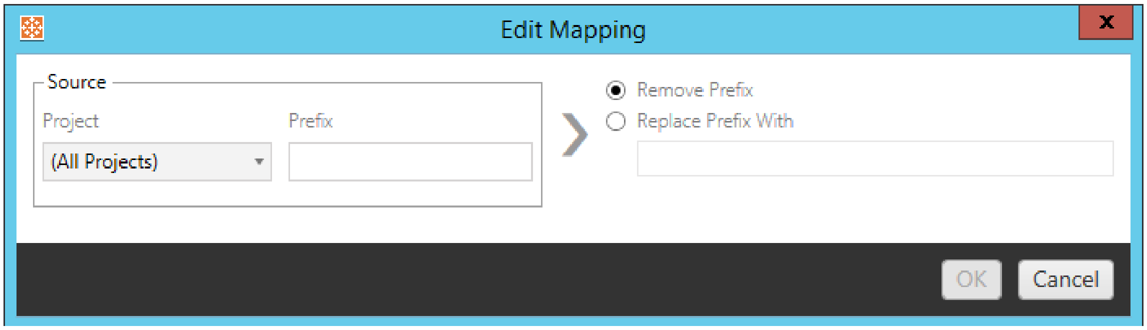
By default, the workbooks are migrated to the same project in the destination. This mapping allows you to change the destination project for all workbooks from a source project.

Add Project

When renaming the workbook or changing the project, the **Add New** option allows you to create a destination project without having to sign in to the destination site and create the project manually. You can create both projects and nested projects using the **Add New** dialog box.


New Project
×
Destination
http://admin@win-vj23dhvudie:80/#/site/Accounting
Project Name
Parent Project
Description
OK
Cancel

Change Prefix


Edit Mapping
×
Source
Project
Prefix
(All Projects)
● Remove Prefix
○ Replace Prefix With
OK
Cancel

This allows you to remove or replace the prefix for workbooks from one or all source projects.

Change Suffix

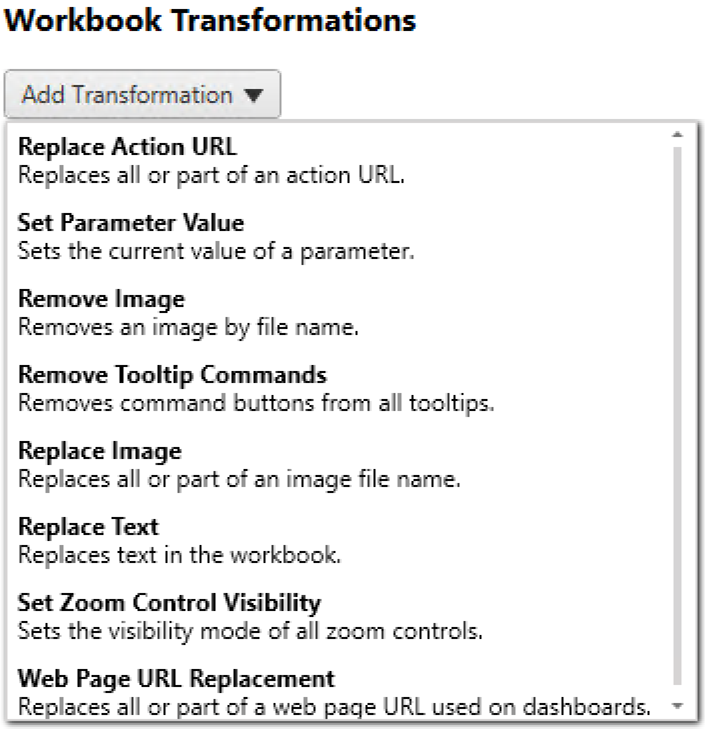
Like the prefix mapping, you can remove or replace the suffix for workbooks from one or all source projects.

Step 3: Workbook transformations

You can change and modify your workbooks by using the Transformation step.

Add Transformation

Transformations modify your workbooks in a specified manner. Additional transformations can be included via plug-ins or will be added in future versions of the application. Click on the **Add Transformation** drop-down menu to see the selection of Transformations currently available.



Replace Action URL
Replaces all or part of an action URL.

Set Parameter Value
Sets the current value of a parameter.

Remove Image
Removes an image by file name.

Remove Tooltip Commands
Removes command buttons from all tooltips.

Replace Image
Replaces all or part of an image file name.

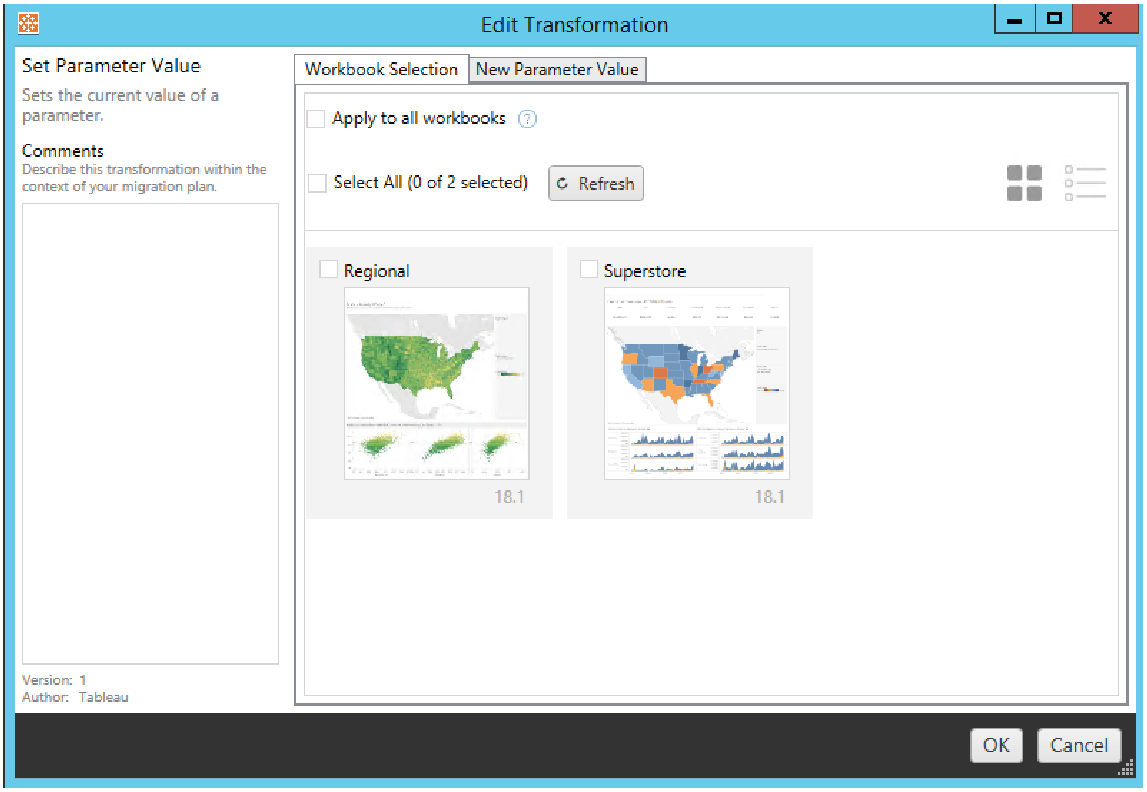
Replace Text
Replaces text in the workbook.

Set Zoom Control Visibility
Sets the visibility mode of all zoom controls.

Web Page URL Replacement
Replaces all or part of a web page URL used on dashboards.

Selecting any of the transformations will bring up the Edit Transformation window, which will allow you to customize it to your selected workbooks. All transformations will be completed in the order that they are listed from top to bottom.

For all of the different types of transformations, there are two basic steps. The first step is to make your selection for the transformation. In this case, select the workbook(s) you want to transform. The selection area is similar to the Workbook Selection section of the Planning phase with all of the features of the Basic selection radio button: **Select/Unselect All**, **Refresh**, **Thumbnail** Display, and **List** Display. At the top of the list, you can select **Select All** workbooks, which is an option to automatically select all workbooks for future transformations. You can also **Refresh** the workbook display window to reflect any changes or updates to the source site.


Edit Transformation
Workbook Selection
New Parameter Value
☐ Apply to all workbooks
☐ Select All (0 of 2 selected)
Refresh
☐ Regional
18.1
☐ Superstore
18.1
OK
Cancel

Set Parameter Value

Sets the current value of a parameter.

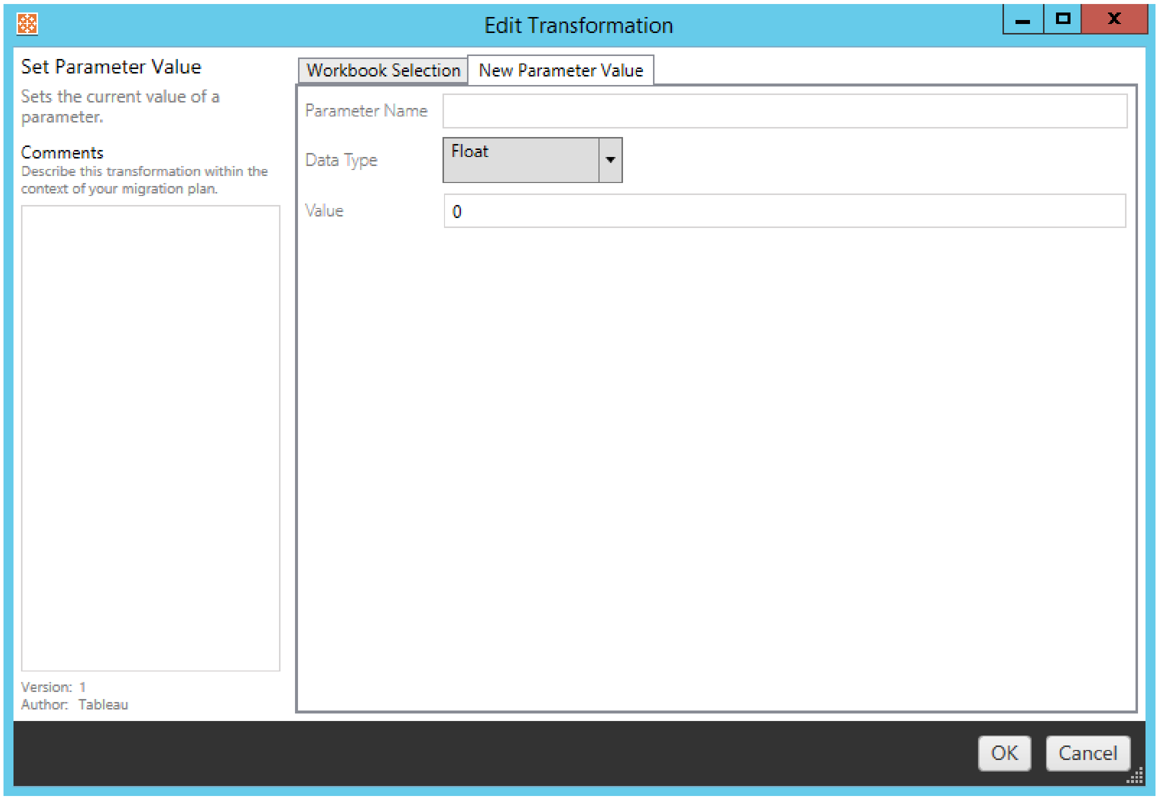
Comments

Describe this transformation within the context of your migration plan.

Version: 1

Author: Tableau

The second step is to use the options tab to enter the specific selections for whichever transformation you select.



Edit Transformation

Set Parameter Value

Sets the current value of a parameter.

Comments

Describe this transformation within the context of your migration plan.

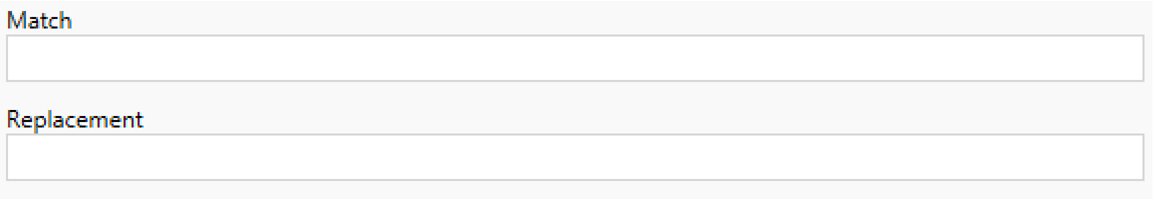
Version: 1
Author: Tableau

Parameter Name:
Data Type: Float
Value: 0

Each of the workbook transformations have different values to be entered on the options tab, and the tab will have different names, depending on the transformation you're editing:

Replace Action URL

Replace part or all of a URL action inside the workbook using this transformation. On the options tab, enter the text to be matched and its replacement value. The replacement functionality is intended for URL actions and doesn't check the entire workbook XML.



Match:

Replacement:

Example:

URL: `www.exampledev.com`

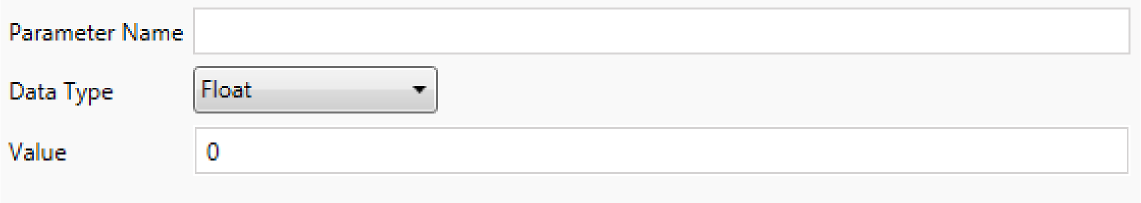
Match: `dev`

Replacement: `Prod`

Result: `www.exampleProd.com`

Set Parameter Value

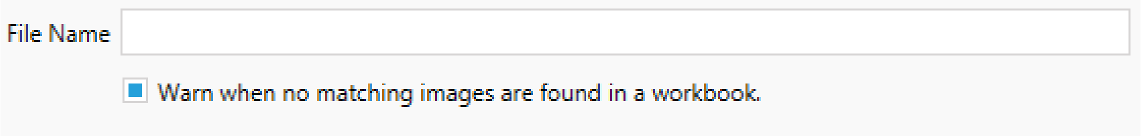
Define a new parameter. On the options tab, enter the name of the Parameter, the data type from the drop-down menu, and the value.



Parameter Name	
Data Type	Float
Value	0

Remove Images

Remove any images (such as a watermark) in the selected workbooks by entering in the file name on the options tab. There is an additional check box to receive a warning during migration if no image is found.



File Name

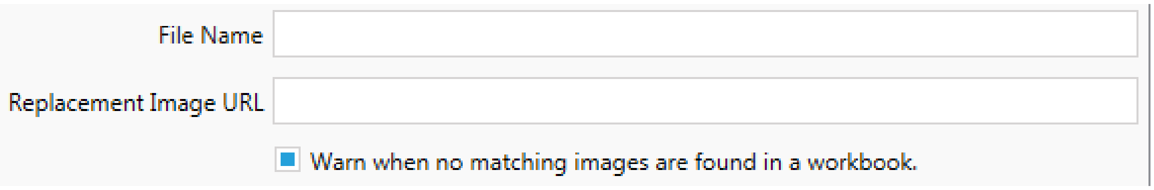
☑ Warn when no matching images are found in a workbook.

Remove Tooltip Commands

Remove all of the tooltip commands from the selected workbooks. There are no additional options to define for this transformation.

Replace Images

Replace images embedded in the selected workbooks. On the options tab, enter the file name of the current image and the replacement image. You can replace images using a local file path or URL.


File Name

Replacement Image URL

☑ Warn when no matching images are found in a workbook.

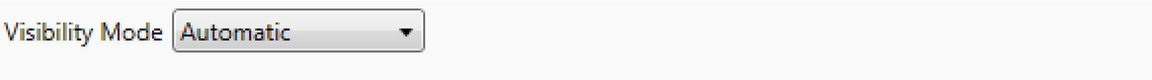
Example:

File Name: `image.png`

Replacement Image URL: `https://www.exampledev.com/replacementImage.png`

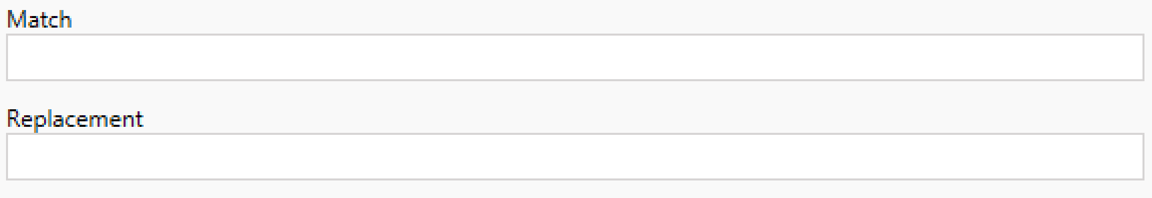
Zoom Control Visibility

Set the visibility mode from the drop-down menu: **Automatic**, **Show on Hover**, or Hide on the options tab.


Visibility Mode: Automatic

Web Page URL Replacement

Replace part or all of a web page URL used on dashboards using this transformation. On the options tab, enter the text that should be matched and its replacement value.


Match

Replacement

Example:

URL: `www.exampledev.com`

Match: `dev`

Replacement: `Prod`

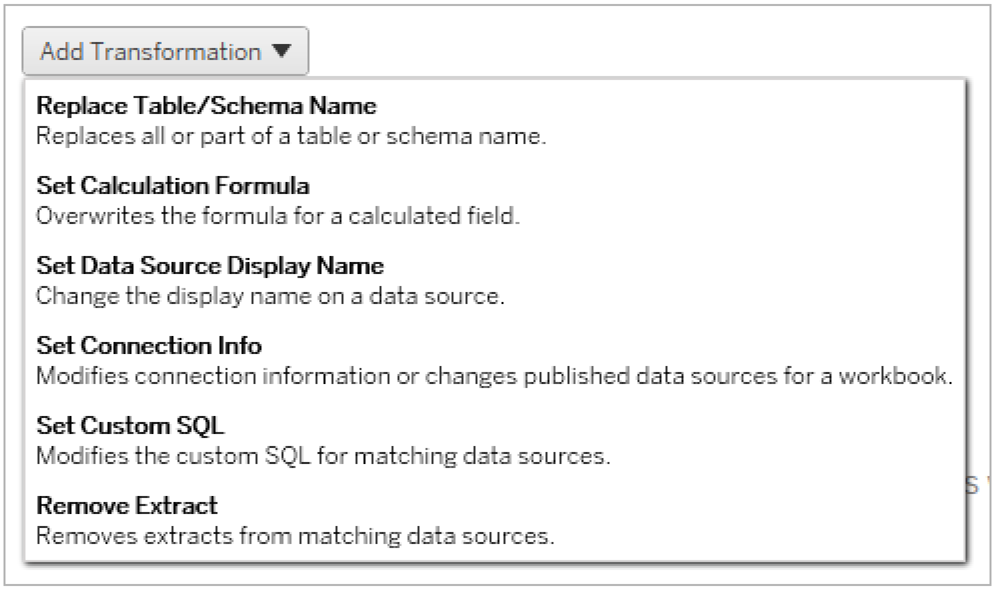
Result: `www.exampleProd.com`

Step 4: Data source transformations

The next step in planning your workbooks for your enterprise migration are your data source transformations. It is similar in function to the Workbook Transformations step. These are for data sources that are packaged within the workbooks. Published data sources are handled in a different step in the process.

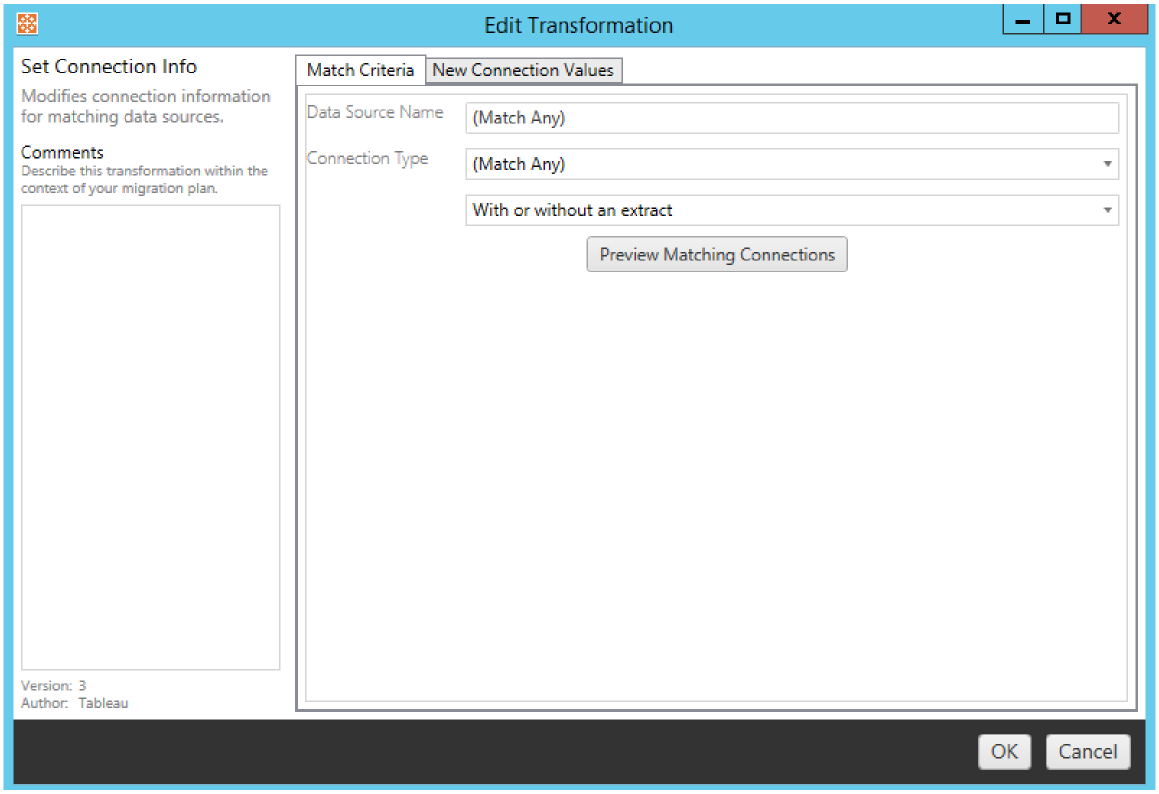
Add Transformation ▼

Click on the **Add Transformation** drop-down menu and the following options will appear:


Add Transformation ▼
Replace Table/Schema Name
Replaces all or part of a table or schema name.
Set Calculation Formula
Overwrites the formula for a calculated field.
Set Data Source Display Name
Change the display name on a data source.
Set Connection Info
Modifies connection information or changes published data sources for a workbook.
Set Custom SQL
Modifies the custom SQL for matching data sources.
Remove Extract
Removes extracts from matching data sources.

Selecting any of the data source transformations will bring up the Edit Transformation window, which will allow you to customize it to your selected data sources. All transformations will be completed in the order that they are listed from top to bottom.

For all of the different types of data source transformations, there are two basic steps. The first step is to enter in the match criteria for the desired data source. Depending on which connection type you select, more fields will appear on the **Match Criteria** tab.



Edit Transformation

Set Connection Info

Modifies connection information for matching data sources.

Comments

Describe this transformation within the context of your migration plan.

Version: 3
Author: Tableau

Match Criteria
New Connection Values

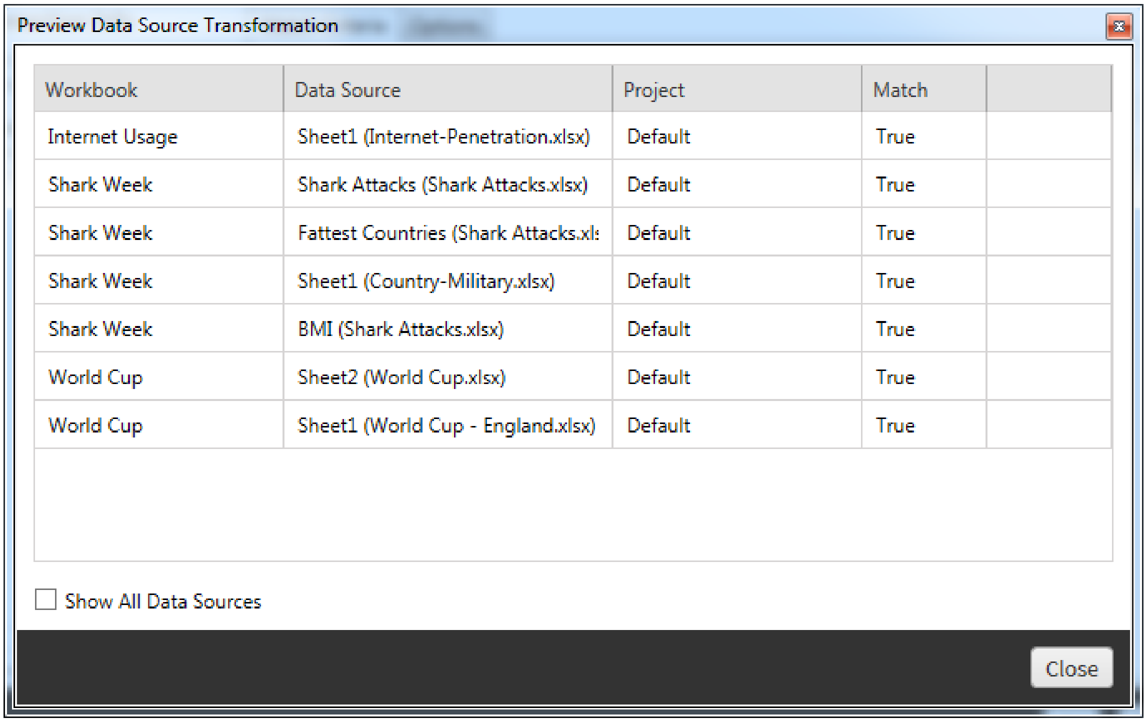
Data Source Name: (Match Any)

Connection Type: (Match Any)

With or without an extract

Preview Matching Connections
OK
Cancel

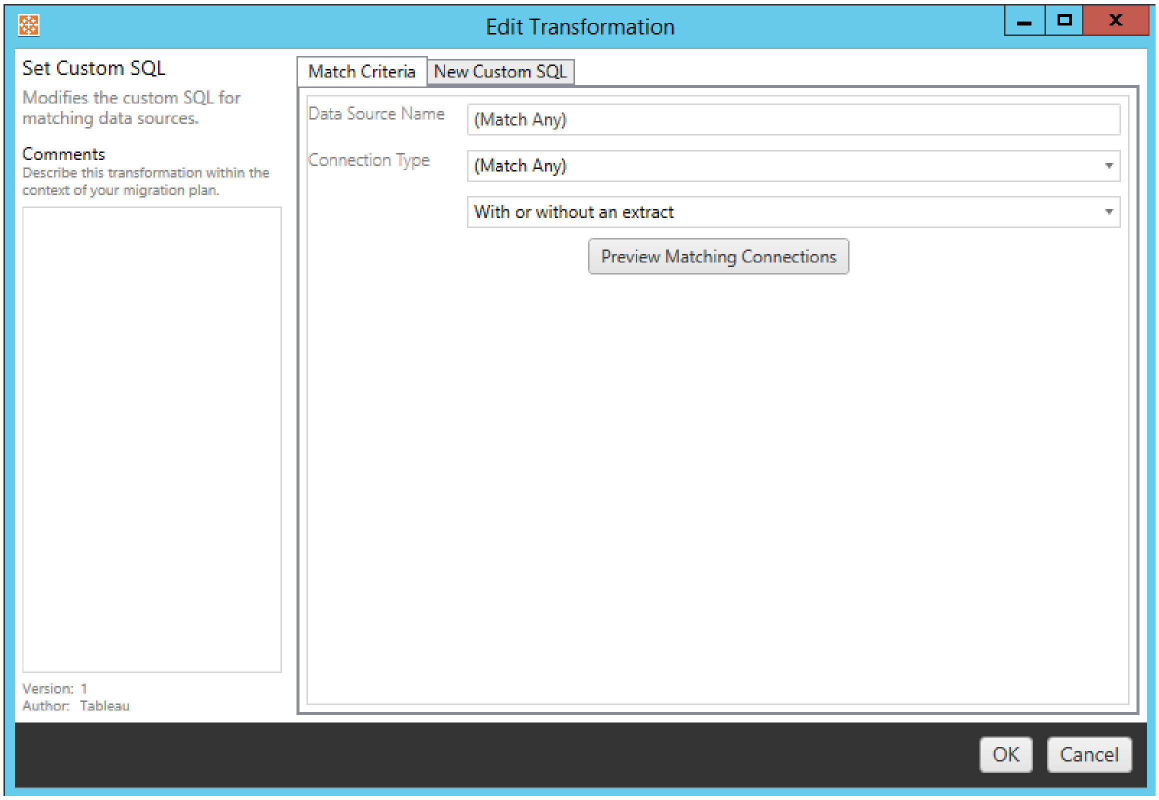
Click on the **Preview Source Connections** to find any connections that match the criteria entered.



Preview Data Source Transformation
☐ Show All Data Sources
Close

Workbook	Data Source	Project	Match	
Internet Usage	Sheet1 (Internet-Penetration.xlsx)	Default	True	
Shark Week	Shark Attacks (Shark Attacks.xlsx)	Default	True	
Shark Week	Fattest Countries (Shark Attacks.xl:	Default	True	
Shark Week	Sheet1 (Country-Military.xlsx)	Default	True	
Shark Week	BMI (Shark Attacks.xlsx)	Default	True	
World Cup	Sheet2 (World Cup.xlsx)	Default	True	
World Cup	Sheet1 (World Cup - England.xlsx)	Default	True	

The second step is to use the options tab to enter the specific selections for whichever transformation you select.


Edit Transformation
Set Custom SQL
Modifies the custom SQL for matching data sources.
Comments
Describe this transformation within the context of your migration plan.
Version: 1
Author: Tableau
Match Criteria
New Custom SQL
Preview Matching Connections
OK
Cancel

Data Source Name: (Match Any)

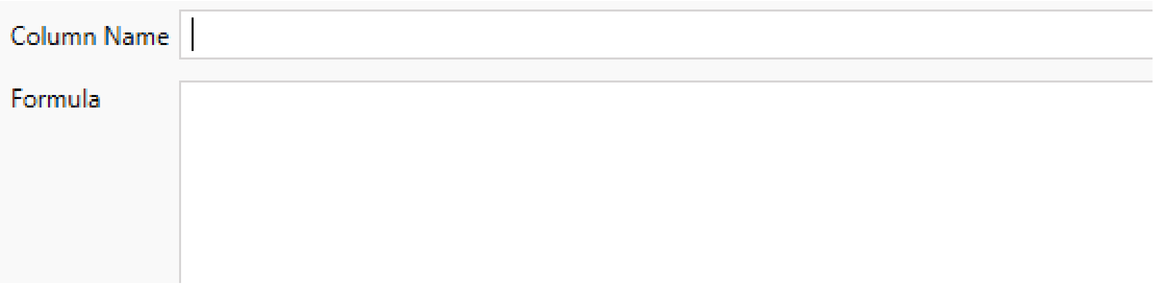
Connection Type: (Match Any)

With or without an extract

Each of the data source transformations have different values to be entered on the options tab:

Set Calculation Formula

On the options tab, you can replace the calculation for a column.


Column Name
Formula

Set Connection Info

On the **New Connection Values** tab, enter the authentication method and connection details for the new data source. Depending on which connection type you select, more fields will appear.

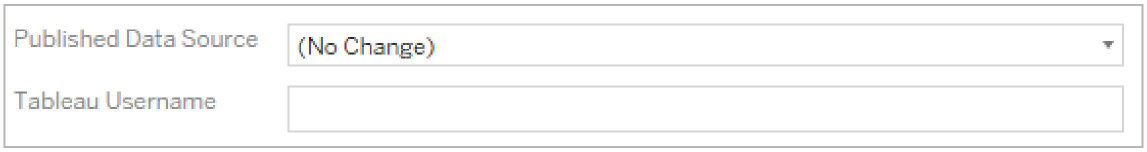
Change published data sources with CMT

Select the **Tableau Server (Published Data Source)** connection type to change the published data source for a workbook. This can reduce the manual steps required when migrating workbooks between projects, for example, promoting content from development to production.

To change the published data source, select a data source from the drop-down menu and enter the **Tableau Username** for authentication. The user must exist on the destination site and have the Connect capability for the published data source.

- For file-based data sources, users will access the workbook and see data based on permissions of the specified Tableau user.
- For all other data sources, users are prompted for their own database credentials when the view or workbook loads.

If Tableau Username isn't specified, only users with the Connect capability can see data in the workbook.



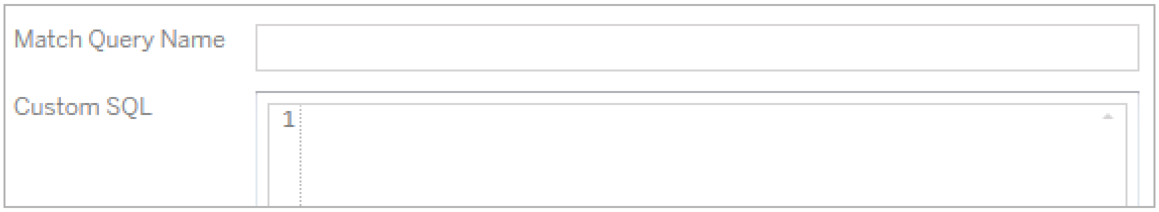
Published Data Source: (No Change)

Tableau Username:

Set Custom SQL

On the **New Custom SQL** tab, enter the name of the custom SQL query you want to modify for **Match Query Name**. The query name must match the custom SQL query name from the physical layer of the data source. If these names don't match, the transformation will fail. For more information about data modeling and the physical layer, see The Tableau Data Model.

After entering the query name, enter the desired **Custom SQL** in the text field. Be aware that custom SQL can negatively impact the performance of your workbooks if improperly used.



Remove Extract

There is no options tab for this transformation, simply enter in the **Match Criteria** information and the extract will be removed during migration.

In addition, on each of the transformations you can enter notes in the **Comments** section on the left-hand side of the **Edit Transformation** window.

Apply Saved Credentials

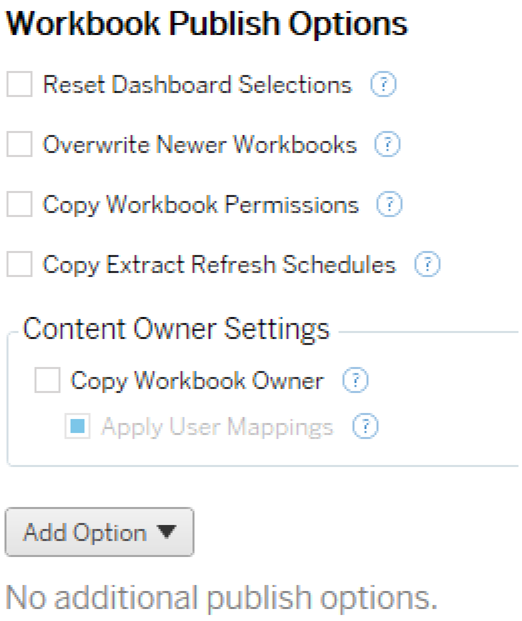
Deprecated in version 2022.3. Use the Set Connection Info data source transformation instead.

On the options tab, enter the **Tableau Username** and corresponding **Saved Credentials Username** for the data connection. You can only apply saved credentials for existing data connections on the Account Settings page of your Tableau site. For more information, see Manage Saved Credentials for Data Connections.

Tableau Username
Saved Credentials Username

Step 5: Publish options

The final step in the Workbooks phase is to select publish options and create transformations for tags, extract refresh schedules, and permissions.



Workbook Publish Options

☐ Reset Dashboard Selections

☐ Overwrite Newer Workbooks

☐ Copy Workbook Permissions

☐ Copy Extract Refresh Schedules

Content Owner Settings

☐ Copy Workbook Owner

☑ Apply User Mappings

No additional publish options.

Reset Dashboard Selections

This option deselects all objects on dashboards.

Overwrite Newer Workbooks

If checked, a workbook will be migrated even if it will overwrite a workbook that has been created at the same time or more recently than the moved workbook

Copy Workbook Permissions

When selected, the migration tool will attempt to match source workbook permissions as closely as possible.

Copy Extract Refresh Schedules

When selected, the migration tool will attempt to set the destination workbook extract refresh schedule(s) to schedules matching the source’s name.

> **Note:** Extract refresh schedules cannot be created in Tableau Cloud. This option is not available if the destination is a Tableau Cloud site. For more information, see Migration Limitations.

Copy Embedded Credentials for Workbooks

Copy the embedded credentials for data sources embedded in workbooks. Only available when migrating from Tableau Server to Tableau Cloud sites. For more information, see Migrate Workbooks and Data Sources with Embedded Credentials.

> **Note:** CMT does not support embedded credential migration for OAuth connections. To migrate OAuth credentials to the destination site, use the Set Connection Info data source transformation.

Copy Workbook Owner

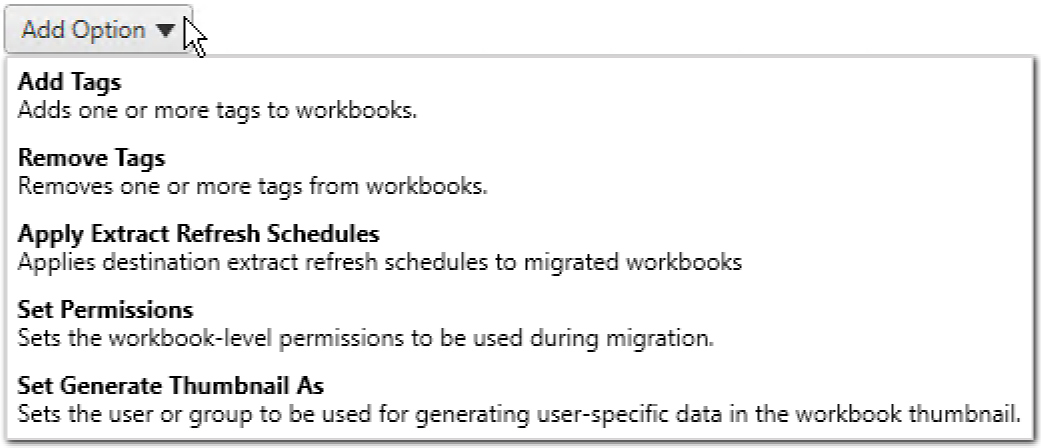
Copy workbook owner settings from the source location to assign the workbook owner. If unselected, the Content Migration Tool user is given ownership of the workbook in the destination location.

Apply User Mappings

Apply user mappings to assign content ownership. Select this option if there are differences in username syntax in the destination location. For more information, see Migration Plans: Permissions and Ownership.

Add Option

Click on the **Add Option** drop-down menu for the different types of transformations you can add:



Add Tags
Adds one or more tags to workbooks.

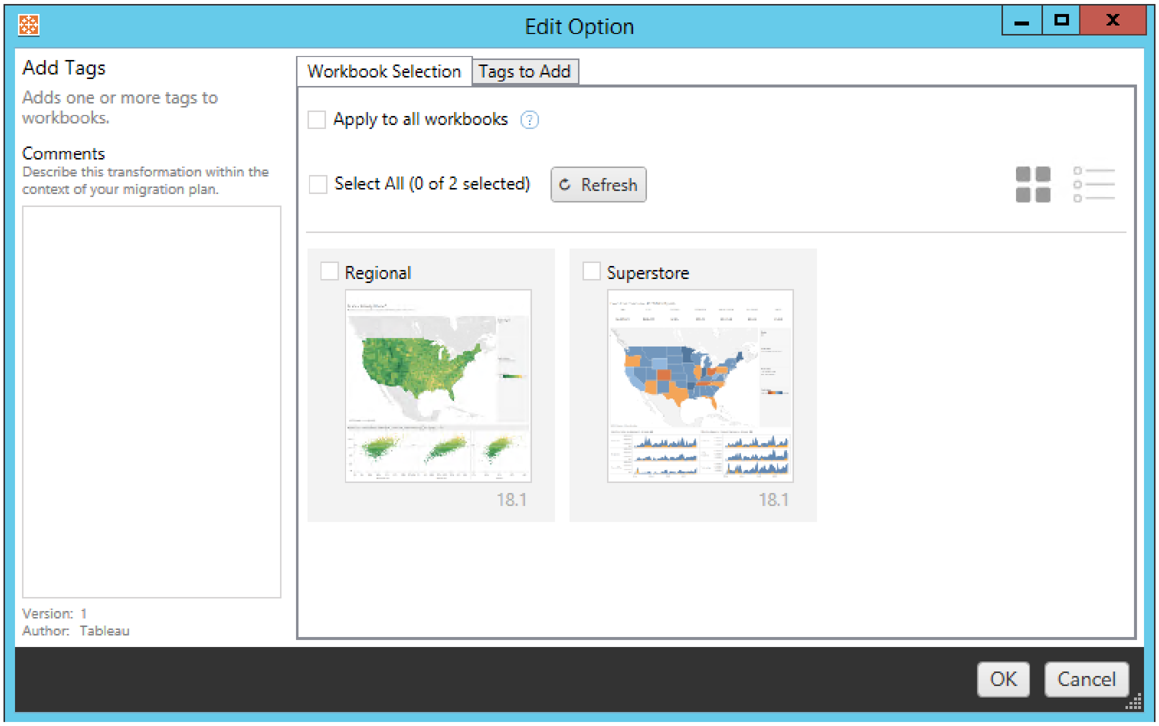
Remove Tags
Removes one or more tags from workbooks.

Apply Extract Refresh Schedules
Applies destination extract refresh schedules to migrated workbooks

Set Permissions
Sets the workbook-level permissions to be used during migration.

Set Generate Thumbnail As
Sets the user or group to be used for generating user-specific data in the workbook thumbnail.

For all of the different types of transformations, there are two basic steps. The first step is to make your selection for the transformation. In this case, select the workbook(s) you want to transform. The selection area is similar to the Workbook Selection section of the Planning phase with all of the features of the Basic selection radio button: **Select/Unselect All**, **Refresh**, **Thumbnail Display**, and **List Display**. At the top of the list, you can select **Select All** workbooks, which is an option to automatically select all workbooks for future transformations. You can also **Refresh** the workbook display window to reflect any changes or updates to the source site.

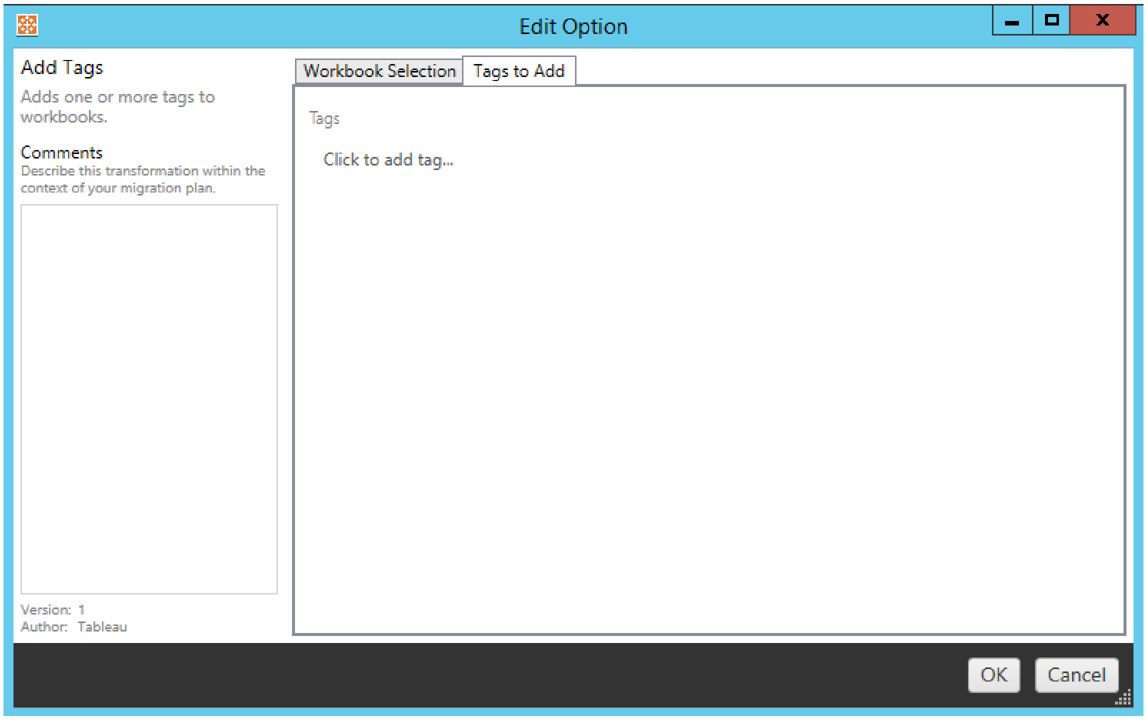


Edit Option
Add Tags
Adds one or more tags to workbooks.
Comments
Describe this transformation within the context of your migration plan.
Version: 1
Author: Tableau
Workbook Selection
Tags to Add
☐ Apply to all workbooks
☐ Select All (0 of 2 selected)
Refresh
☐ Regional
18.1
☐ Superstore
18.1
OK
Cancel

The second step is to use the options tab to enter the specific selections for whichever transformation you select. **Note:** The options tab will have different names, depending on which transformation you are editing.

Add Tags

This allows you to add one or more tags to the workbook. If you hover your mouse over a previously entered tag, a blue “X” will appear to allow deletion.


Edit Option
Workbook Selection
Tags to Add
OK
Cancel

Add Tags

Adds one or more tags to workbooks.

Comments

Describe this transformation within the context of your migration plan.

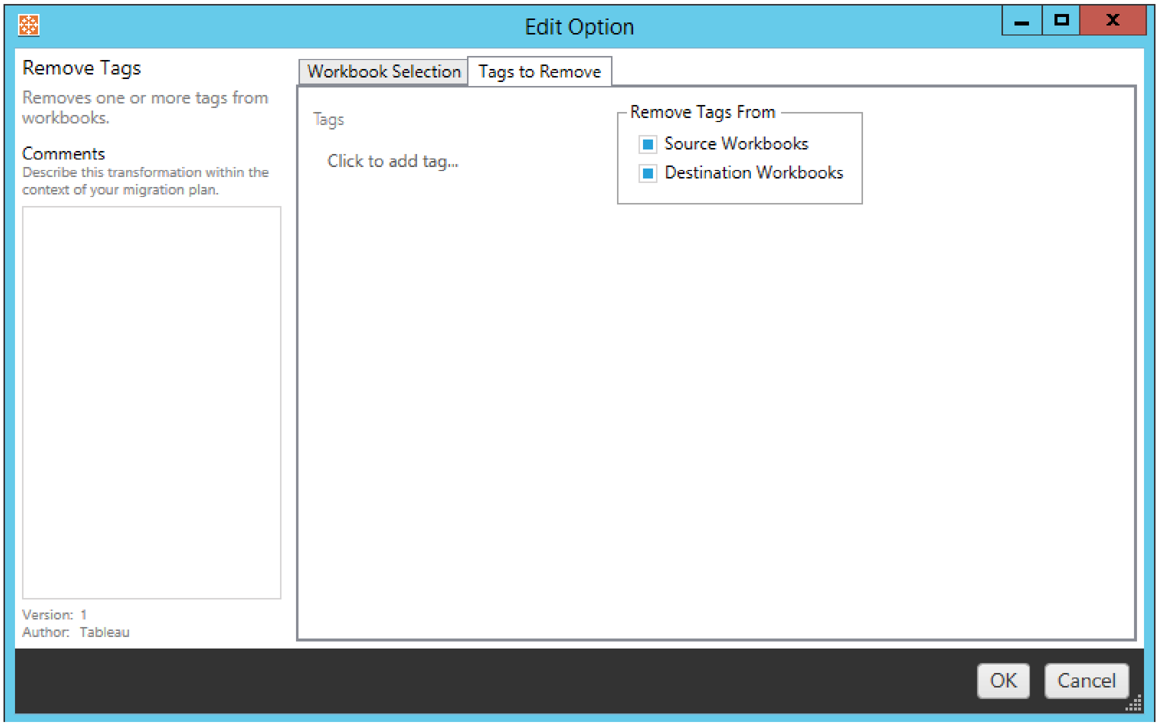
Version: 1
Author: Tableau

Tags

Click to add tag...

Remove Tags

This allows you to add one or more tags to the workbook. If you hover your mouse over a previously entered tag, a blue “X” will appear to allow deletion. You can also choose to remove the tag from the source or destination workbooks.



Remove Tags

Removes one or more tags from workbooks.

Comments

Describe this transformation within the context of your migration plan.

Version: 1

Author: Tableau

Tags

Click to add tag...

Remove Tags From

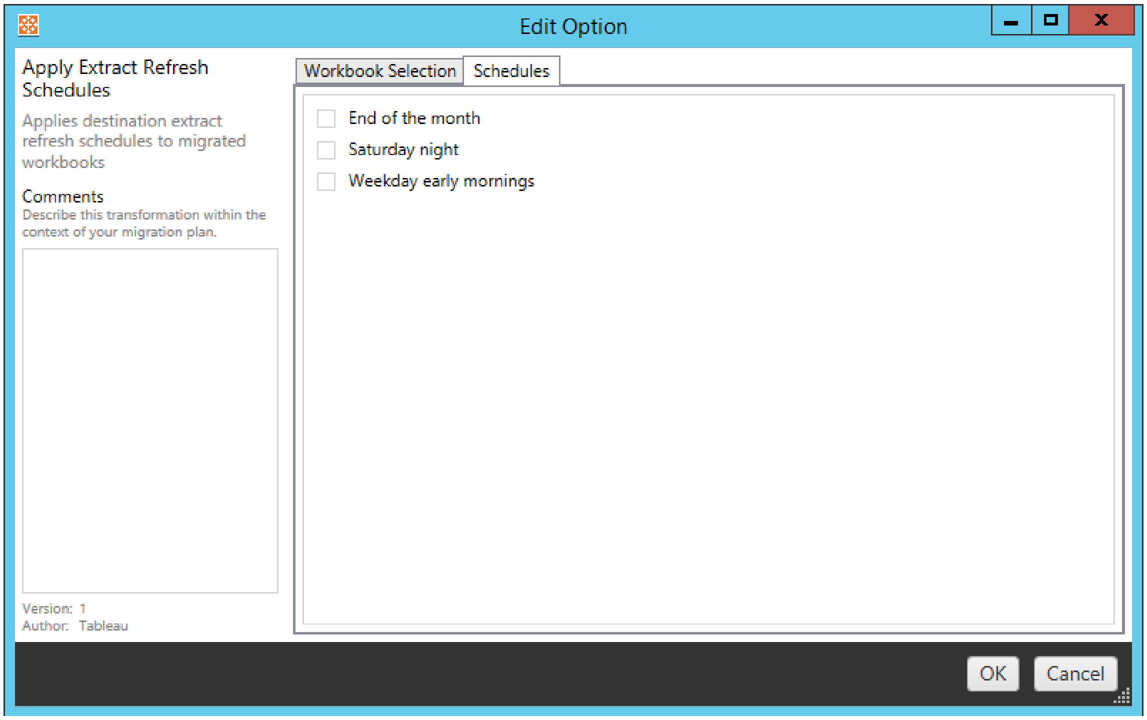
☑ Source Workbooks

☑ Destination Workbooks

Apply Extract Refresh Schedules

Here you can apply destination extract refresh schedules to migrated workbooks. The list of schedules generated are from the destination.

Note: Extract refresh schedules cannot be created in Tableau Cloud. This option is not available if the destination is a Tableau Cloud site. For more information, see Migration Limitations.



Apply Extract Refresh Schedules

Applies destination extract refresh schedules to migrated workbooks

Comments

Describe this transformation within the context of your migration plan.

Version: 1

Author: Tableau

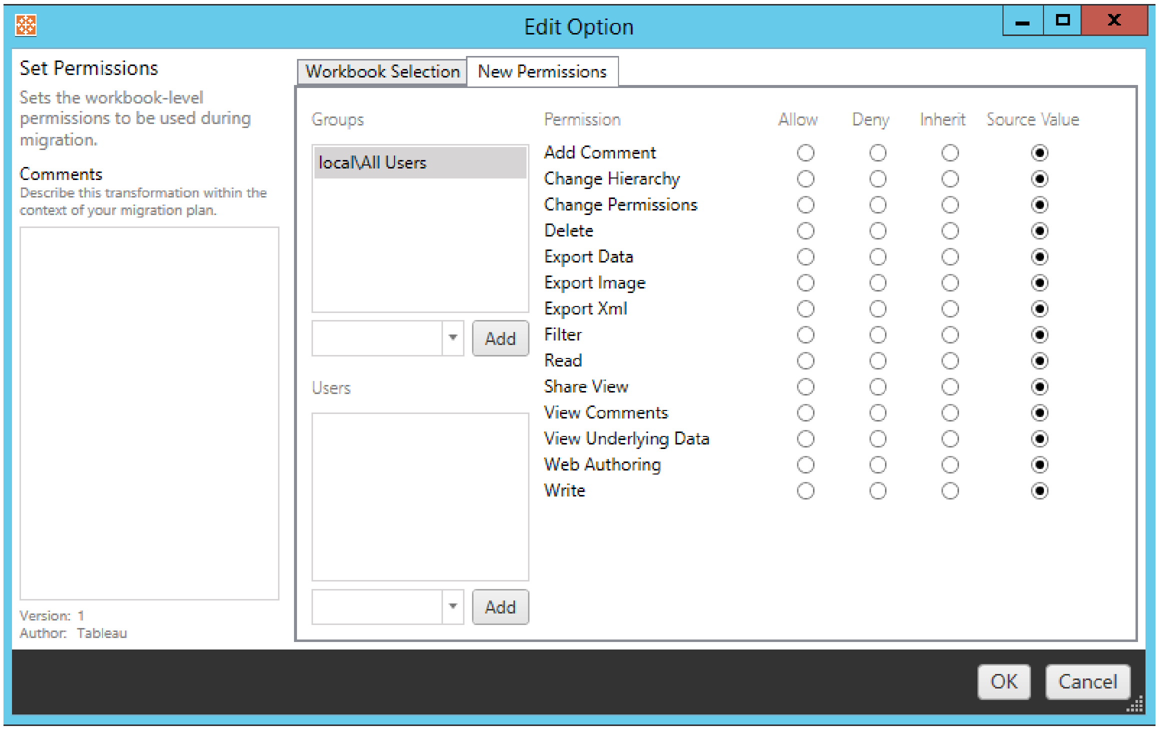
☐ End of the month

☐ Saturday night

☐ Weekday early mornings

Set Permissions

This transformation is to edit the permissions for the selected workbooks. Enter in a Group or User and then click **Add**. Adjust the permissions as desired. The four different options are to **Allow** the permission, **Deny** the permission, **Inherit**, or to keep the **Source Value**.



Set Permissions

Sets the workbook-level permissions to be used during migration.

Comments

Describe this transformation within the context of your migration plan.

Version: 1
Author: Tableau

Groups

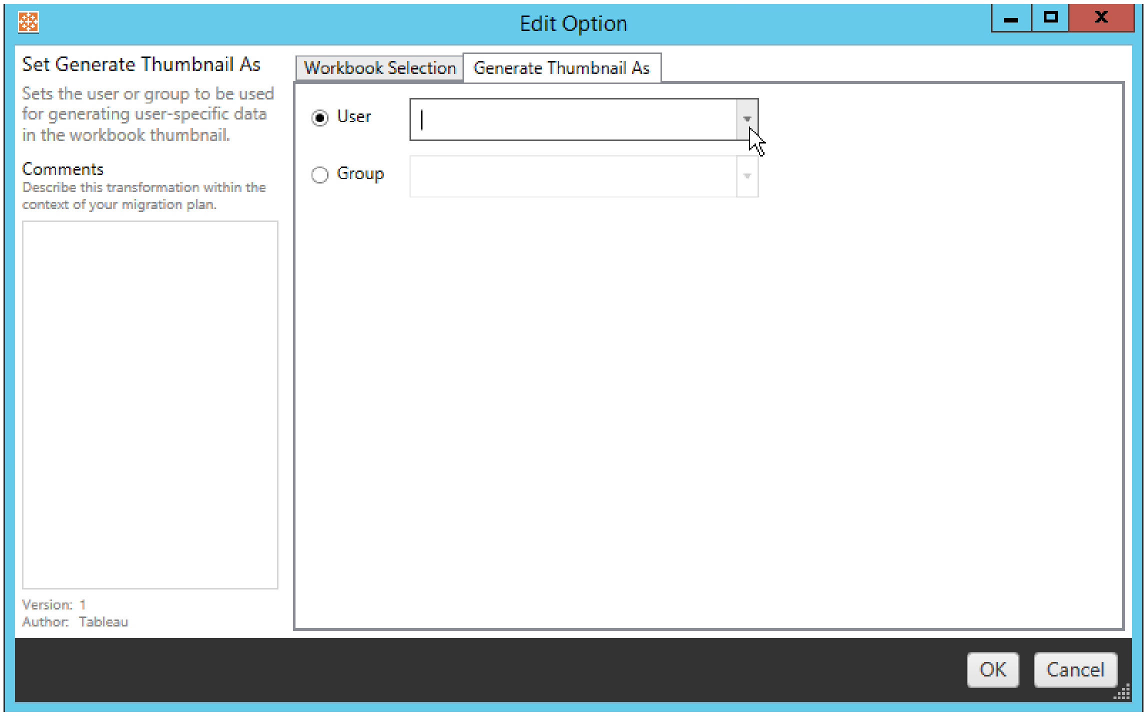
local\All Users

Users

Permission	Allow	Deny	Inherit	Source Value
Add Comment	○	○	○	●
Change Hierarchy	○	○	○	●
Change Permissions	○	○	○	●
Delete	○	○	○	●
Export Data	○	○	○	●
Export Image	○	○	○	●
Export Xml	○	○	○	●
Filter	○	○	○	●
Read	○	○	○	●
Share View	○	○	○	●
View Comments	○	○	○	●
View Underlying Data	○	○	○	●
Web Authoring	○	○	○	●
Write	○	○	○	●

Set Generate Thumbnail As

This allows you to set the **User** or **Group** to be used for generating user-specific data in the workbook thumbnail after being migrated. Each option has a drop down to select the desired user or group.



Set Generate Thumbnail As

Sets the user or group to be used for generating user-specific data in the workbook thumbnail.

Comments

Describe this transformation within the context of your migration plan.

● User

○ Group

Version: 1

Author: Tableau

Step 6: Continue to the next step

After selecting your workbooks and preferences, click **Next** to continue to the Migration Plans: Published Data Sources section of the planning phase.

Who can do this

Tableau site user with an Explorer role or higher. To migrate content, you must have **View** and **Download/Save a Copy** capabilities for workbooks on the source site and **View** and **Publish** capabilities for target projects on the destination site. For more information, see Permissions.

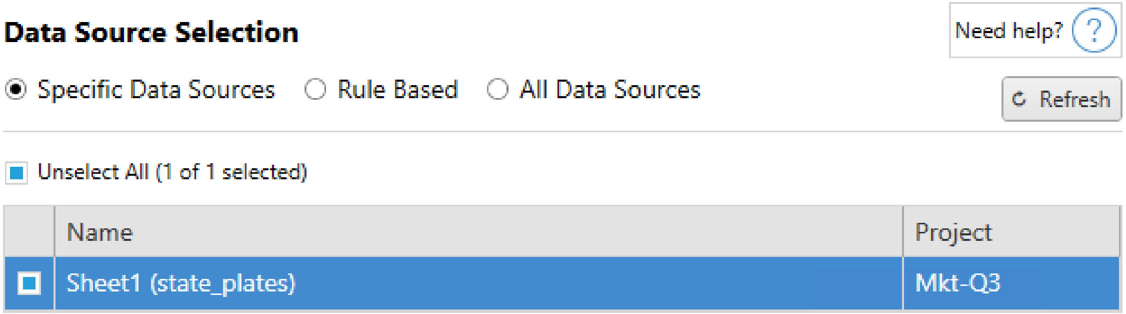
Migration Plans: Published Data Sources

The next step of creating a migration plan in the Tableau Content Migration Tool is to select, map, and add any transformations to your published data sources. The process is very similar to the Workbooks step of the planning phase, particularly the data source mapping step.

Note: If your workbooks or data sources include extracts, be sure you read and understand the information in Migrate Workbooks and Data Sources with Extracts.

Step 1: Selection

Starting the Published Data Sources phase of the migration plan, you'll select any data sources you want to include in the migration plan:



Data Source Selection

● Specific Data Sources ○ Rule Based ○ All Data Sources

☑ Unselect All (1 of 1 selected)

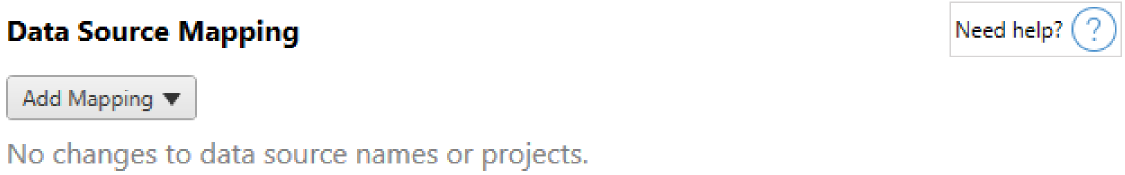
	Name	Project
☑	Sheet1 (state_plates)	Mkt-Q3

The data sources will only be selected at the moment of migration. You have two methods of selection. Use **Specific Data Sources** to choose one or more published data sources. Click **Refresh** to reload the list of published data sources available.

The second option is **All Data Sources**, which selects every data source in the source site.

Step 2: Mapping

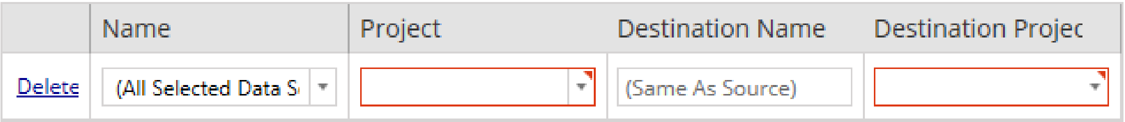
The next step is to map your source data sources to the new destination. This is similar in functionality to mapping workbooks.



Data Source Mapping

No changes to data source names or projects.

If you make no changes here, then the selected data sources will simply be deployed with the same name and project as the source. To add data source mapping click **Add Mapping**. The following options will appear in the mapping area.



	Name	Project	Destination Name	Destination Projec
Delete	(All Selected Data S		(Same As Source)	

The entry has the following options:

Delete

Clicking the **Delete** link will delete this mapping entry.

Name

Use the **Name** menu to select the data source you wish to map. You can select **(All Selected Data Sources)** to choose all of the data sources.

Project

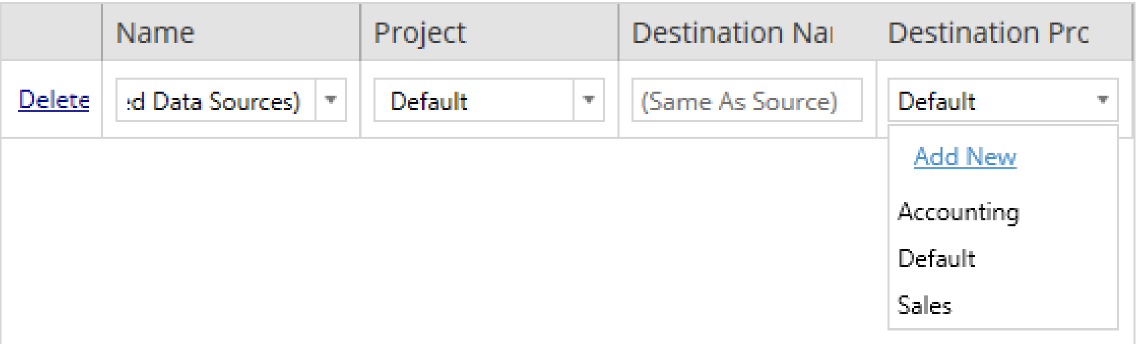
The **Project** is the project of the associated data source names.

Destination Name

By default, the Content Migration Tool will use the same **Destination Name(Same As Source)**, keeping the original name in the Source file, but you can type in a new name here for the destination folder.

Destination Project

If your destination projects have already been created on your site, you can choose which project to place your migrated workbooks or click **Add New** to create a new project. You can create different project destinations for individual data sources.



	Name	Project	Destination Nai	Destination Prc
Delete	:d Data Sources)	Default	(Same As Source)	Default

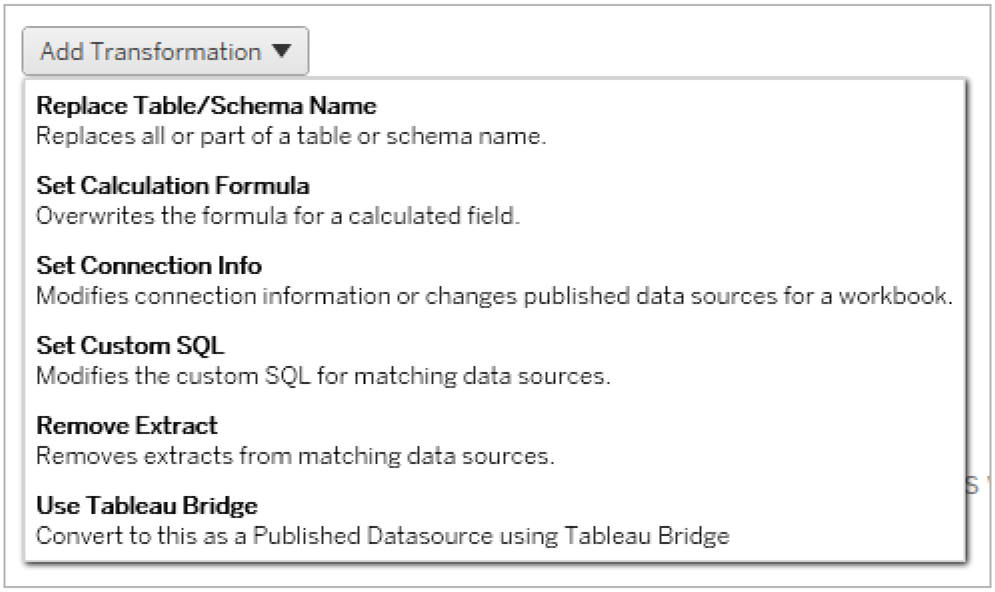
In most situations if multiple mapping entries exist for a single data source, a validation error will be displayed and must be fixed to continue. There is one important exception to this – a data source may match both a specific selection and a project-wide mapping entry. In this instance, the more specific entry will be used.

When you have completed all of the data source mapping necessary, click **Next** to continue.

Next

Step 3: Data source transformations

You can modify your data sources by using the transformation option. Click **Add Transformation** to see the list of transformations available.



Replace Table/Schema Name
Replaces all or part of a table or schema name.

Set Calculation Formula
Overwrites the formula for a calculated field.

Set Connection Info
Modifies connection information or changes published data sources for a workbook.

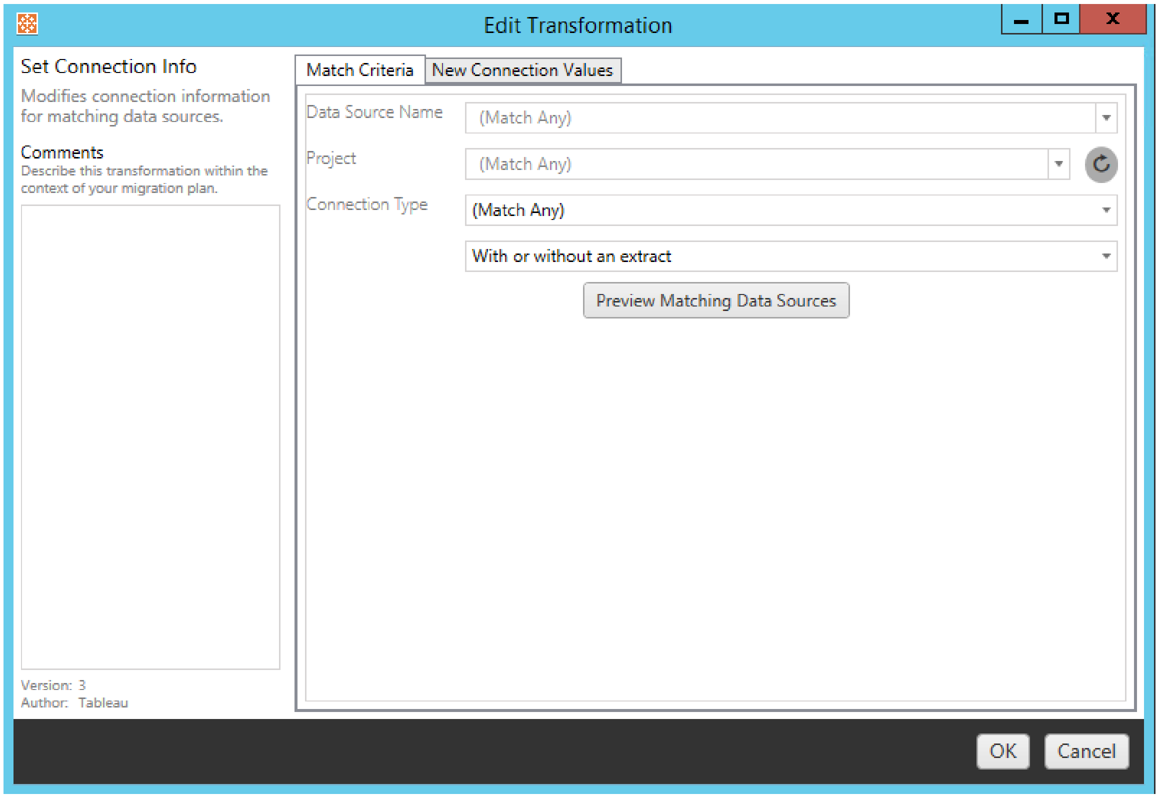
Set Custom SQL
Modifies the custom SQL for matching data sources.

Remove Extract
Removes extracts from matching data sources.

Use Tableau Bridge
Convert to this as a Published Datasource using Tableau Bridge

Selecting any of the data source transformations opens the **Edit Transformation** window. Use this to customize your selected data sources. Transformations are executed in the order they are listed, from top to bottom.

For most data source transformations, there are two basic steps. The first step is to enter in the **Match Criteria** for the desired data source. Depending on which connection type you select, more fields will appear on the **Match Criteria** tab.



Set Connection Info

Modifies connection information for matching data sources.

Comments

Describe this transformation within the context of your migration plan.

Version: 3

Author: Tableau

Data Source Name: (Match Any)

Project: (Match Any)

Connection Type: (Match Any)

With or without an extract

Edit Transformation
Match Criteria
New Connection Values
Preview Matching Data Sources
OK
Cancel

The second step depends on which transformation type you are adding. Each of the data source transformations have different values to be entered on the second tab.

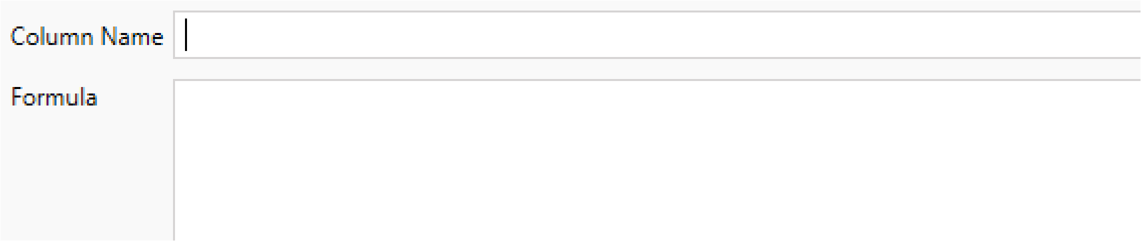
You can add notes in the **Comments** section on the left side of the **Edit Transformation** window for each of the transformations you add.

Replace Table/Schema Name

On the **Options** tab, you can replace all or part of a table or schema name.

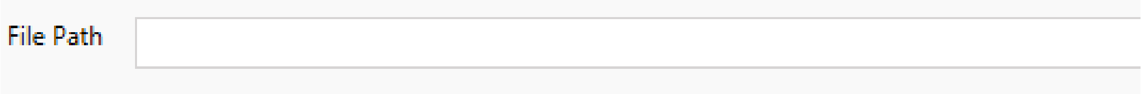
Set Calculation Formula

On the **New Calculation Formula** tab, you can replace the calculation for a column.



Set Connection Info

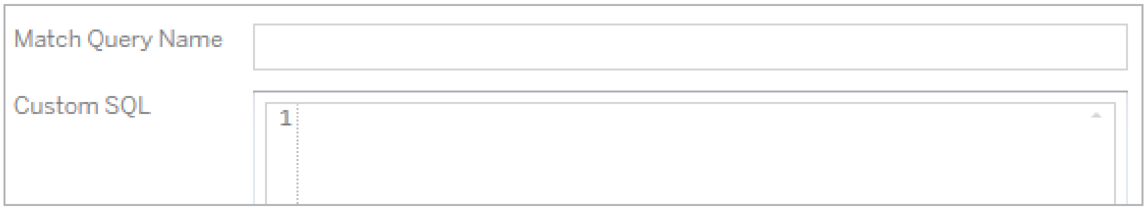
On the **New Connection Values** tab, enter the authentication method and connection details for the new data source. Depending on which connection type you select, more fields will appear.



Set Custom SQL

On the **New Custom SQL** tab, enter the name of the custom SQL query you want to modify for **Match Query Name**. The query name must match the custom SQL query name from the physical layer of the data source. If these names don't match, the transformation will fail. For more information about data modeling and the physical layer, see The Tableau Data Model.

After entering the query name, enter the desired **Custom SQL** in the text field. Be aware that custom SQL can negatively impact the performance of your workbooks if improperly used.



Remove Extract

There is no **Options** tab for this transformation. Type the **Match Criteria** information and the extract will be removed during migration.

Use Tableau Bridge

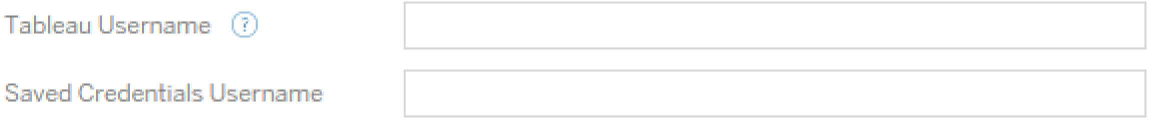
There is no **Options** tab for this transformation. Type the **Match Criteria** information and data sources that are within a private network (inaccessible to the public internet) will be allowed to refresh using Tableau Bridge.

The destination Tableau Cloud site must have Tableau Bridge configured before migrating data sources. For information about Tableau Bridge, see Use Tableau Bridge in Tableau Cloud help. After the migration, data sources will need to be assigned a refresh schedule through Tableau Cloud.

Apply Saved Credentials

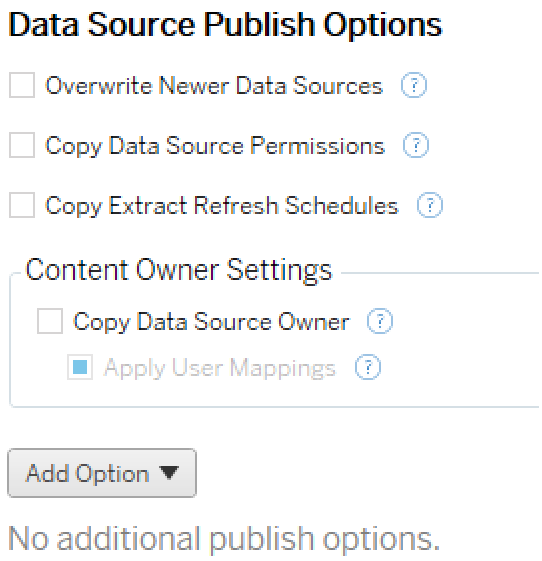
Deprecated in version 2022.3. Use the Set Connection Info data source transformation instead.

On the options tab, enter the **Tableau Username** and corresponding **Saved Credentials Username** for the data connection. You can only apply saved credentials for existing data connections on the Account Settings page of your Tableau site. For more information, see Manage Saved Credentials for Data Connections.



Step 4: Publish options

The final step in the Published Data Source phase is to create transformations for permissions and tags and finalize the publish options specific to the data sources.



Data Source Publish Options

☐ Overwrite Newer Data Sources

☐ Copy Data Source Permissions

☐ Copy Extract Refresh Schedules

Content Owner Settings

☐ Copy Data Source Owner

☑ Apply User Mappings

No additional publish options.

Overwrite Newer Data Sources

If selected, a data source will be published even if it will overwrite a data source that has been updated more recently.

Copy Data Source Permissions

When selected, the migration tool will attempt to match source published data source permissions as closely as possible.

Copy Extract Refresh Schedules

When selected, the migration tool will attempt to set the destination data source extract refresh schedule to schedules matching the source’s name.

Note: Extract refresh schedules cannot be created in Tableau Cloud. This option is not available if the destination is a Tableau Cloud site. For more information, see Migration Limitations.

Copy Embedded Credentials for Data Sources

Copy the embedded credentials for published data sources. Only available when migrating from Tableau Server to Tableau Cloud sites. For more information, see Migrate Workbooks and Data Sources with Embedded Credentials.

> **Note:** CMT does not support embedded credential migration for OAuth connections. To migrate OAuth credentials to the destination site, use the Set Connection Info data source transformation.

Copy Data Source Owner

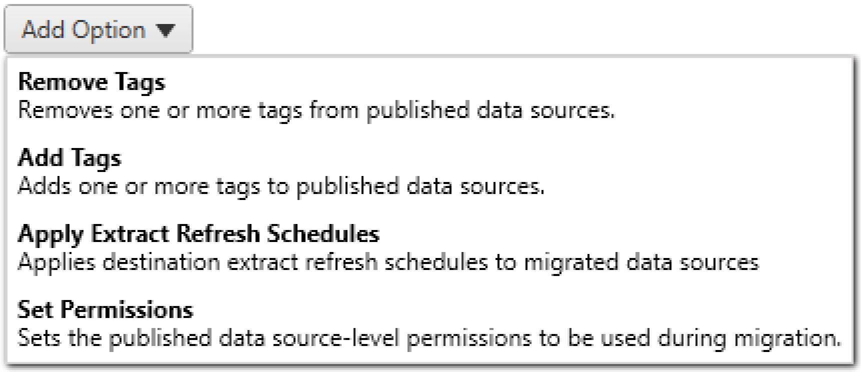
Copy data source owner settings from the source location to assign the data source owner. If unselected, the Content Migration Tool user is given ownership of the data source in the destination location.

Apply User Mappings

Apply user mappings to assign content ownership. Select this option if there are differences in username syntax in the destination location. For more information, see Migration Plans: Permissions and Ownership.

Add Options

Click on the **Add Option** drop-down menu for the different types of transformations you can add:



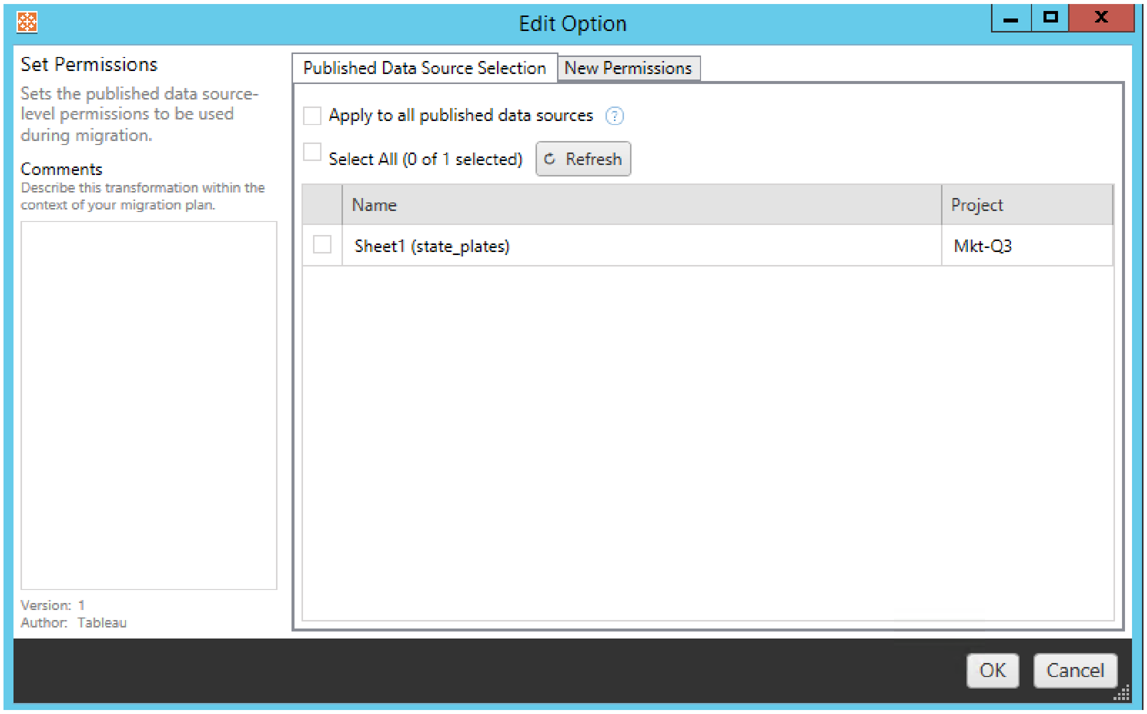
Remove Tags
Removes one or more tags from published data sources.

Add Tags
Adds one or more tags to published data sources.

Apply Extract Refresh Schedules
Applies destination extract refresh schedules to migrated data sources

Set Permissions
Sets the published data source-level permissions to be used during migration.

For all of the different types of transformations, there are two basic steps. The first step is to make your selection for the transformation. In this case, select the data source(s) you want to transform. At the top of the list, you can select **Apply to all published data sources**, which is an option to automatically select all data sources for future transformations. You can also **Refresh** the data source display window to reflect any changes or updates to the source site.



Set Permissions
Sets the published data source-level permissions to be used during migration.

Comments
Describe this transformation within the context of your migration plan.

Version: 1
Author: Tableau

☐ Apply to all published data sources

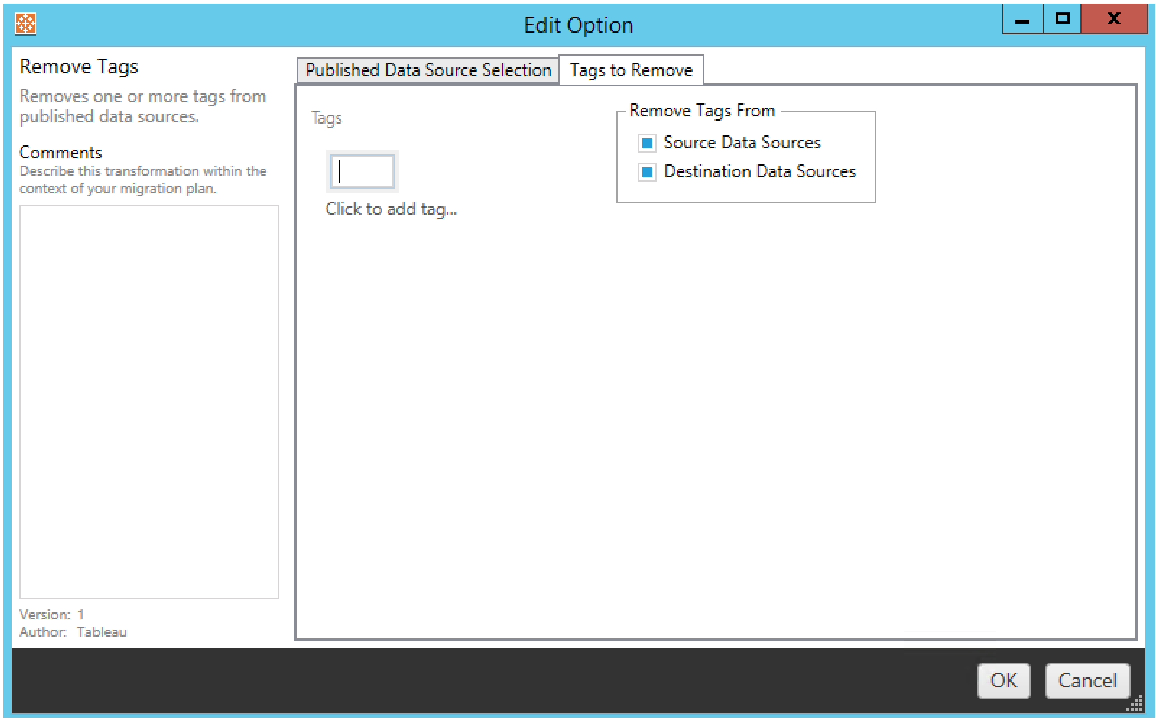
☐ Select All (0 of 1 selected)

	Name	Project
☐	Sheet1 (state_plates)	Mkt-Q3

The second step is to enter the specific selections for the transformation you select.

Remove Tags

Once the data sources you would like to remove tags from are selected, enter any tags you want to remove by entering them into the field at the bottom and click **Add**. From this screen, you can also select to remove from the source or destination data sources. If you want to remove a previously entered tag, click on it and press the delete key.


Edit Option
Remove Tags
Published Data Source Selection
Tags to Remove
Tags
Click to add tag...
OK
Cancel

Removes one or more tags from published data sources.

Comments

Describe this transformation within the context of your migration plan.

Remove Tags From

☑ Source Data Sources

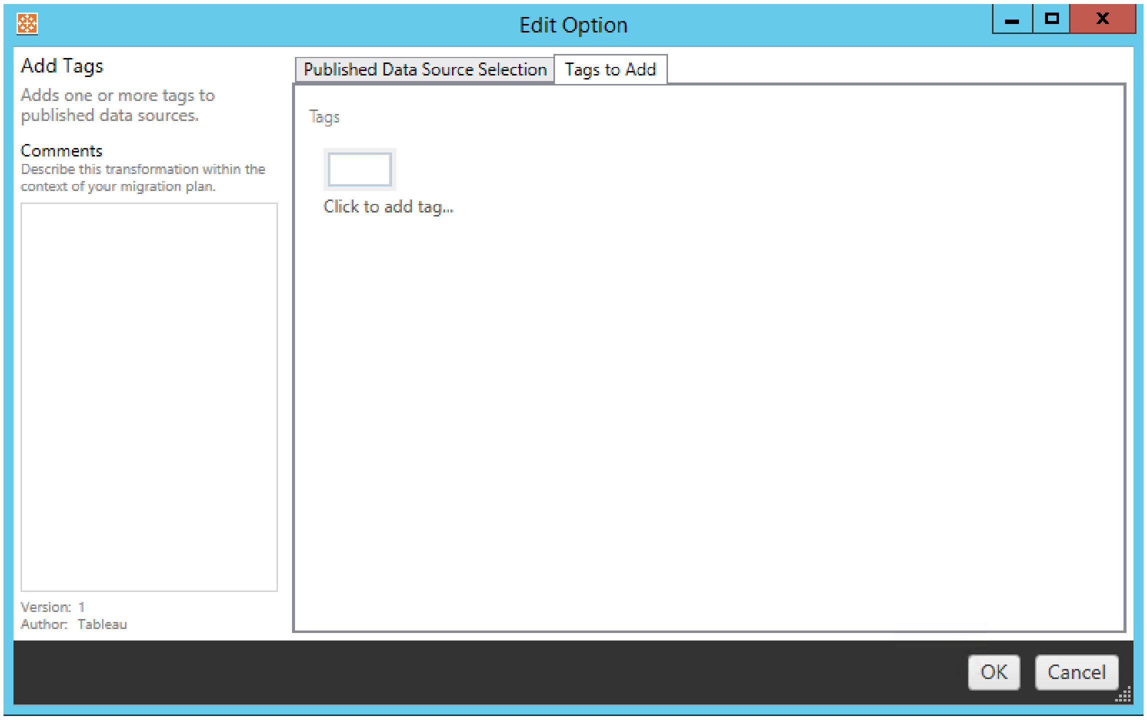
☑ Destination Data Sources

Version: 1

Author: Tableau

Add Tags

After selecting the data sources desired, enter any tags you want to assign by entering them into the field at the bottom and click **Add**. If you want to remove a tag, click on it and press the delete key.



Edit Option
Published Data Source Selection
Tags to Add
Tags
Click to add tag...
OK
Cancel

Add Tags

Adds one or more tags to published data sources.

Comments

Describe this transformation within the context of your migration plan.

Version: 1

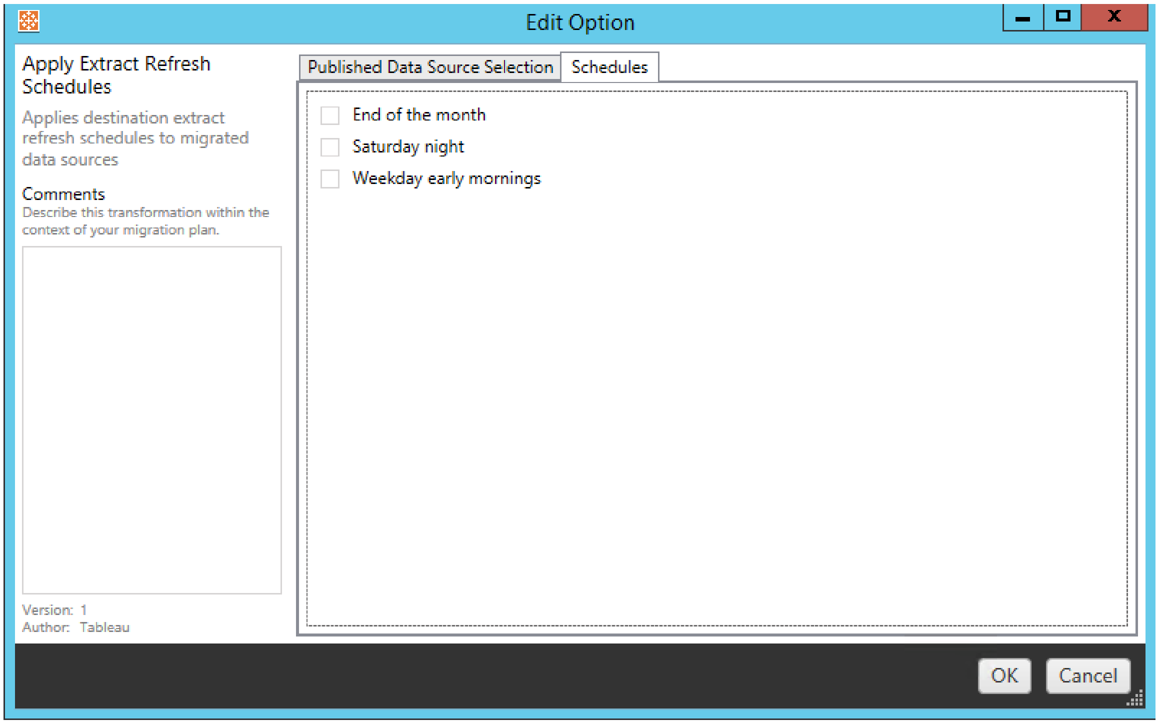
Author: Tableau

In addition, on each of the transformations you can enter notes in the **Comments** section on the left-hand side of the Edit Transformation window.

Apply Extract Refresh Schedules

This transformation applies destination extract refresh schedules to migrated data sources. The list of schedules generated are from the destination.

Note: Extract refresh schedules cannot be created in Tableau Cloud. This option is not available if the destination is a Tableau Cloud site. For more information, see Migration Limitations.



Apply Extract Refresh Schedules

Applies destination extract refresh schedules to migrated data sources

Comments

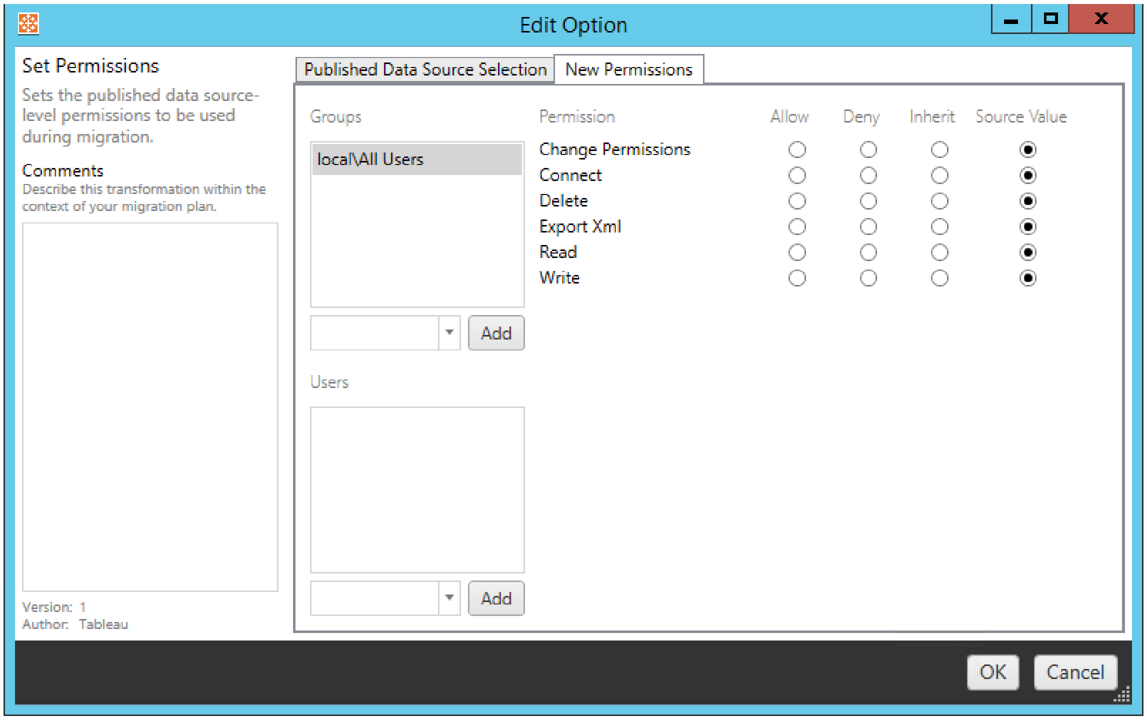
Describe this transformation within the context of your migration plan.

Version: 1
Author: Tableau

☐ End of the month
☐ Saturday night
☐ Weekday early mornings

Set Permissions

The last type of transformation is to edit the permissions for the selected data sources. Enter in a Group or User and click **Add**. Adjust the permissions as desired. The four different options are to **Allow** the permission, **Deny** the permission, **Inherit**, or to keep the **Source Value**.



Set Permissions

Sets the published data source-level permissions to be used during migration.

Comments

Describe this transformation within the context of your migration plan.

Version: 1
Author: Tableau

Groups

local\All Users

Users

Permission	Allow	Deny	Inherit	Source Value
Change Permissions	○	○	○	●
Connect	○	○	○	●
Delete	○	○	○	●
Export Xml	○	○	○	●
Read	○	○	○	●
Write	○	○	○	●

Step 5: Continue to the next step

When you are ready, click **Next** to continue to the Migration Plans: Permissions and Ownership section of the planning phase.

Who can do this

Tableau site user with an Explorer role or higher. To migrate content, you must have **View** and **Download/Save a Copy** capabilities for workbooks on the source site and **View** and **Publish** capabilities for target projects on the destination site. For more information, see Permissions.

Migration Plans: Permissions and Ownership

The Content Migration Tool allows you to replicate workbook and data source permissions to different users. You can create user permissions mappings to customize and secure content after it has been published to the destination location. Mappings are applied if **Copy Project Permissions**, **Copy Workbook Permissions**, or **Copy Data Source Permissions** have been selected earlier in the planning phase, along with **Apply User Mappings**.

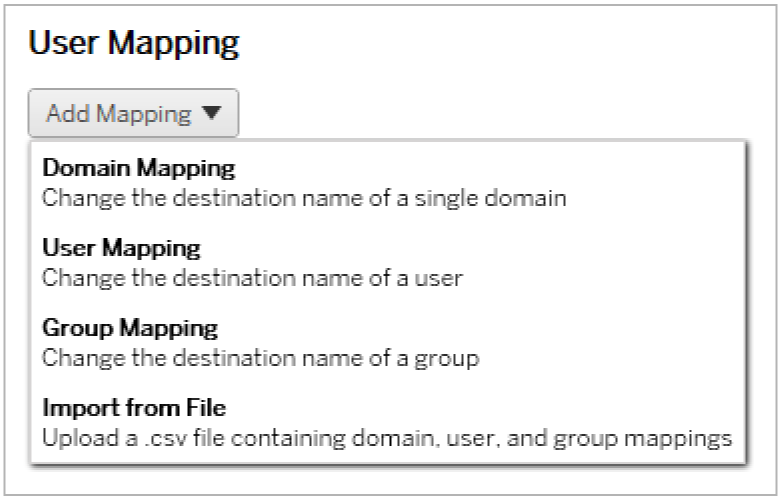
For more information, see Migration Plans: Source Projects, Migration Plans: Workbooks, and Migration Plans: Published Data Sources.

Mapping limitations

- Content Migration Tool will stop the migration process if it fails to find the mapped user or group in the destination location. Subsequent user or group permissions mappings are not checked after the first failure, and the plan must be run again.
- Content Migration Tool cannot replicate permissions if the source content has permissions for multiple users and groups with identical names. This only occurs when there are duplicate user or group names sourced from separate domains.

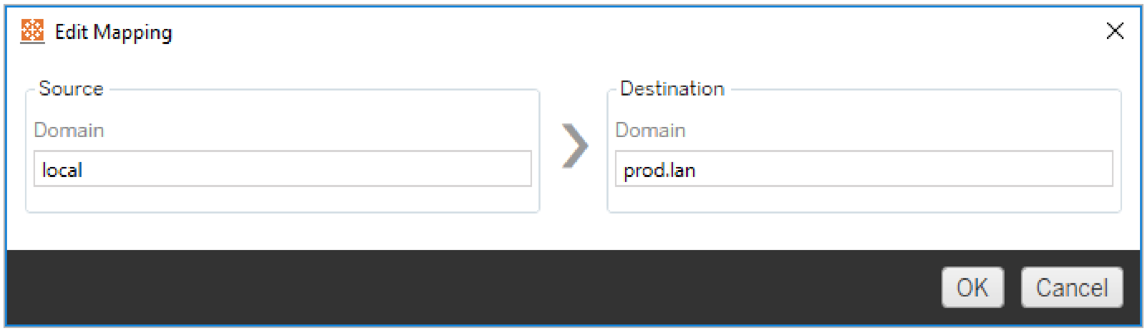
Step 1: Add mapping

To add user permissions mapping, click **Add Mapping** and select whether to change the name of a domain, user, group or to import mappings from a comma-separated values (CSV) file. If Content Migration Tool is unable to match a permission in the destination location, the source content will not be migrated.


User Mapping
Add Mapping
Domain Mapping
Change the destination name of a single domain
User Mapping
Change the destination name of a user
Group Mapping
Change the destination name of a group
Import from File
Upload a .csv file containing domain, user, and group mappings

Domain Mapping

Domain permissions mapping applies to all users and groups in the destination location. If you are unsure about the source or destination domain, you can check the user and group pages on your Tableau site. If local user provisioning has been selected, the domain must be specified as `local`.



Source

Domain: local

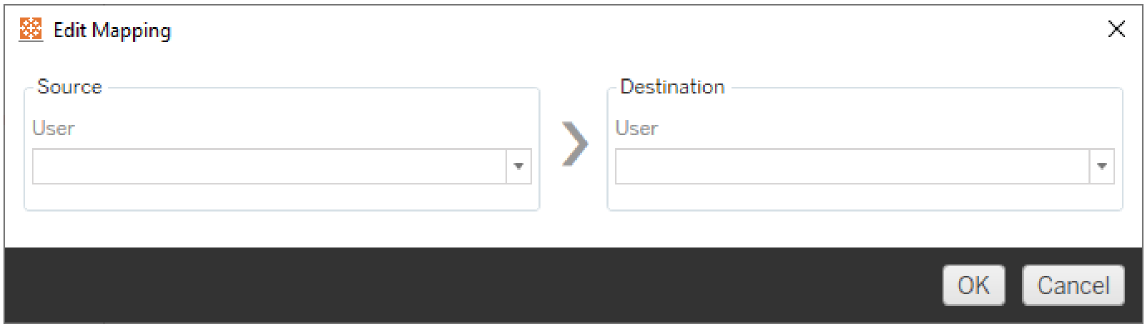
Destination

Domain: prod.lan

User Mapping

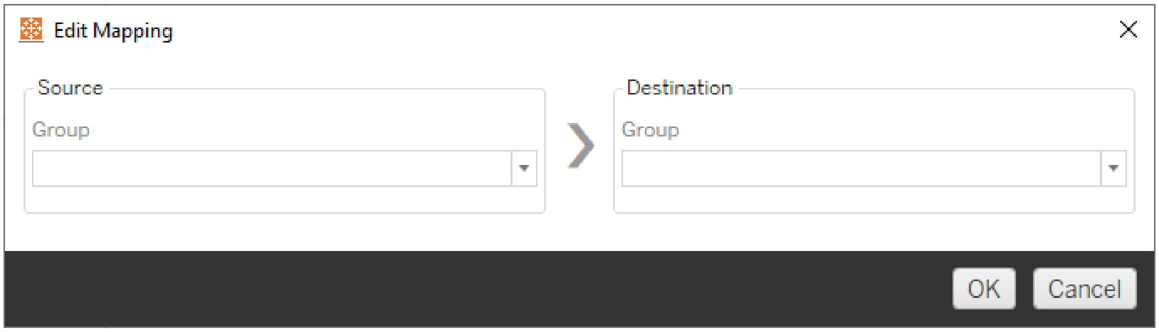
User permissions mapping automatically populates a list of users from the source and destination locations using the syntax `domain\user`. You cannot enter and save the names of users that don't exist.

> **Note:** When migrating between projects on the same site, the destination location and list of users will be the same. You can use mappings to update content ownership from `User_A` to `User_B` on the site.



Group Mapping

Group permissions mapping automatically populates a list of users from the source and destination locations using the syntax `domain\group`. You cannot enter and save the names of groups that don't exist.



Import mappings from a CSV file

Starting in version 2021.4, you can import a CSV file containing domain, user, and group mappings to quickly prepare your data for migration. Importing mappings can reduce the manual steps required to run a migration plan by allowing you to create and edit your mappings in bulk outside of Content Migration Tool. To import mappings, select **Import from File** from the Add Mapping menu.

CSV file format requirements

When you create a CSV file to import mappings, make sure that the file meets the following requirements:

- The file does not include column headings. Tableau assumes that every line represents a mapping.
- The file contains three comma-separated values per row: mapping type, source domain/user/group, and destination domain/user/group.
- Include the domain for user names and groups if the server uses Active Directory authentication or "local" if a local identity store is used.

You must specify "domain," "user," or "group" for mapping type, as shown in the following table. The source and destination columns provide example syntax for Active Directory and a local identity store. Actual values in the CSV file will vary depending on your organization.

Mapping Type	Source	Destination

domain	`<domain>`	`<domain>`
user	`<domain>\<user name>` local\\`<user name>`	`<domain>\<user name>` local\\`<user name>`
group	`<domain>\<group name>` local\\`<group name>`	`<domain>\<group name>` local\\`<group name>`

Import user permissions mappings

To import user permissions mappings in the Content Migration Tool:

1. Click **Add Mapping** and select **Import from File**.
2. In the dialogue window, click **Export CSV** to export a .csv file containing all users and groups from the source site. Edit the resulting file in a text editor to add mappings for the destination site.

   If you already have a mapping file, skip to step 3.

   > **Note:** The exported CSV file doesn't include domains from the source site. Domains must be added manually to the CSV to create domain mappings.

3. Click **Import Mappings** and select the mapping file you want to import.

Content Migration Tool will validate the mappings for errors when importing the file. If errors are detected, you must fix each error in the CSV file and then import it again.

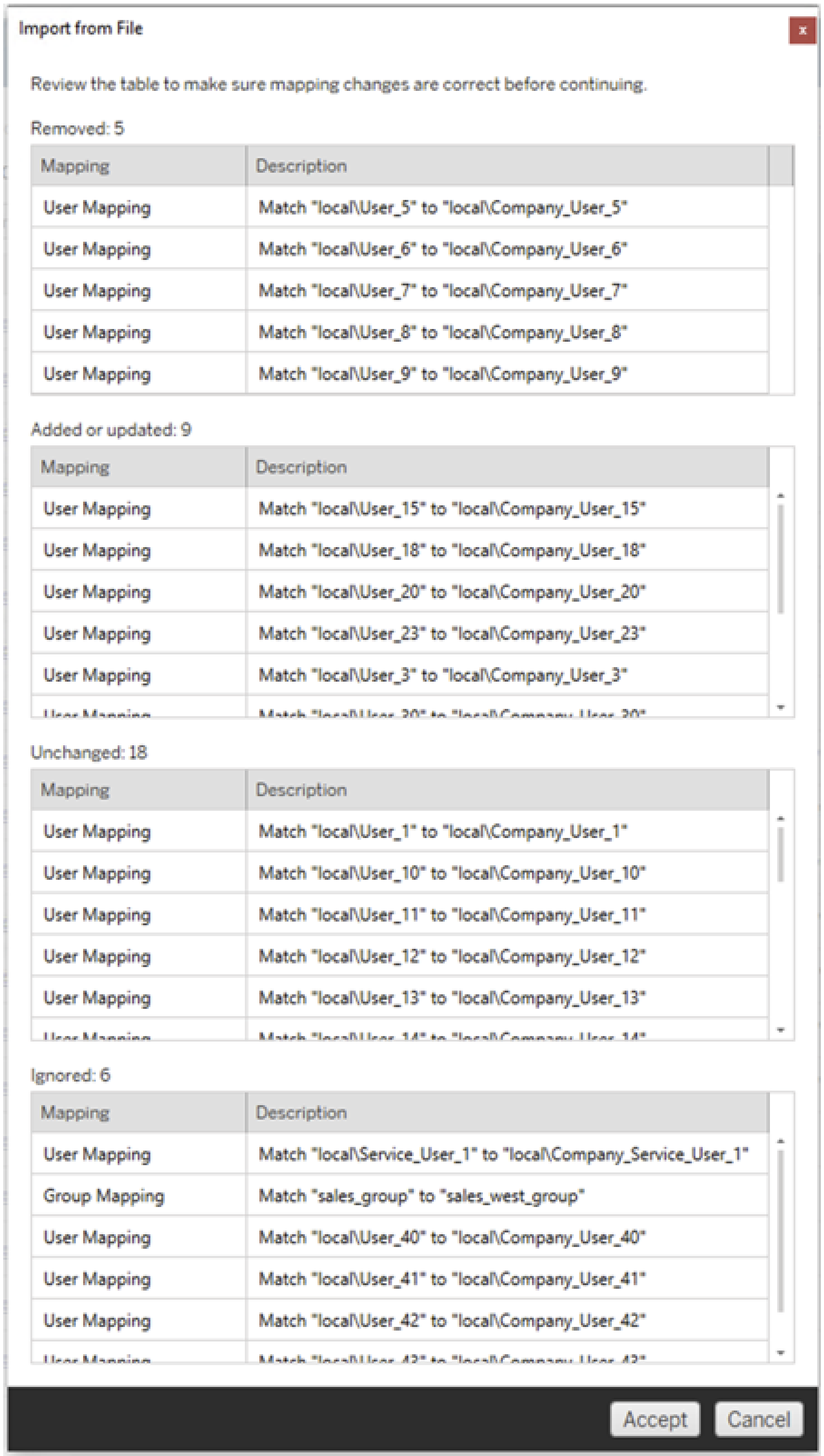
CSV import example

The following example shows a CSV file that contains multiple mapping types.

```
user,local\hwilson,companyx.lan\henry.wilson
user,local\jjohnson,companyx.lan\janna.johnson
user,local\mkim,companyx.lan\michele.kim
user,local\fsuzuki,companyx.lan\fred.suzuki
user,local\awang,companyx.lan\alan.wang
```

```
user,local\snguyen,companyx.lan\susan.nguyen
user,local\lrodriguez,companyx.lan\laura.rodriguez
user,local\agarcia,companyx.lan\ashley.garcia
group,local\All Users,companyx.lan\All Users
group,local\Finance Team,companyx.lan\Finance Group
domain,dev.mycompany,prod.mycompany
```

A preview window is displayed while importing the CSV that shows mappings removed, added or updated, unchanged, and ignored. Review that the mapping changes are correct and click **Accept**.



Import from File

Review the table to make sure mapping changes are correct before continuing.

Removed: 5

Mapping	Description
User Mapping	Match "local\User_5" to "local\Company_User_5"
User Mapping	Match "local\User_6" to "local\Company_User_6"
User Mapping	Match "local\User_7" to "local\Company_User_7"
User Mapping	Match "local\User_8" to "local\Company_User_8"
User Mapping	Match "local\User_9" to "local\Company_User_9"

Added or updated: 9

Mapping	Description
User Mapping	Match "local\User_15" to "local\Company_User_15"
User Mapping	Match "local\User_18" to "local\Company_User_18"
User Mapping	Match "local\User_20" to "local\Company_User_20"
User Mapping	Match "local\User_23" to "local\Company_User_23"
User Mapping	Match "local\User_3" to "local\Company_User_3"

Unchanged: 18

Mapping	Description
User Mapping	Match "local\User_1" to "local\Company_User_1"
User Mapping	Match "local\User_10" to "local\Company_User_10"
User Mapping	Match "local\User_11" to "local\Company_User_11"
User Mapping	Match "local\User_12" to "local\Company_User_12"
User Mapping	Match "local\User_13" to "local\Company_User_13"

Ignored: 6

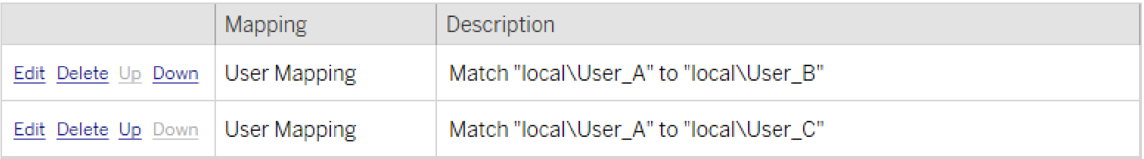
Mapping	Description
User Mapping	Match "local\Service_User_1" to "local\Company_Service_User_1"
Group Mapping	Match "sales_group" to "sales_west_group"
User Mapping	Match "local\User_40" to "local\Company_User_40"
User Mapping	Match "local\User_41" to "local\Company_User_41"
User Mapping	Match "local\User_42" to "local\Company_User_42"

Once the mappings are imported successfully, you can edit, delete, or change the mapping order as described in Step 2.

Step 2: Change mapping order

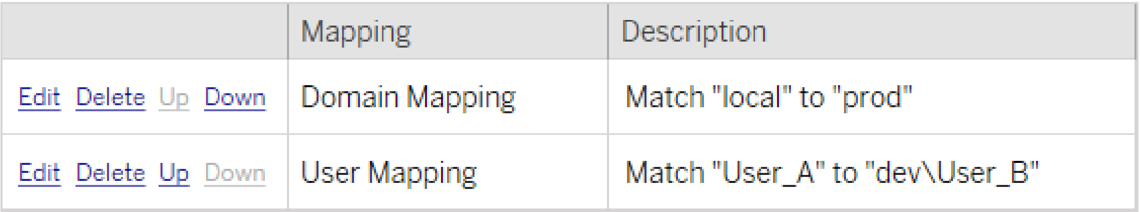
After a permissions mapping is created, you can change the order using the **Up** or **Down** options to determine when it will be handled during the migration. When a domain, user, or group is handled in a permissions mapping, any subsequent permissions mappings for the source domain, user, or group will be ignored.

In the example below, permissions for `User_A` are mapped to `User_B`. Content Migration Tool will ignore the second permissions mapping because `User_A` has already been handled.



	Mapping	Description
Edit Delete Up Down	User Mapping	Match "local\User_A" to "local\User_B"
Edit Delete Up Down	User Mapping	Match "local\User_A" to "local\User_C"

In the example below, the first permissions mapping associates the domain for all users to `prod`. Content Migration Tool will ignore the second permissions mapping because the domain for `User_A` has already been handled.



	Mapping	Description
Edit Delete Up Down	Domain Mapping	Match "local" to "prod"
Edit Delete Up Down	User Mapping	Match "User_A" to "dev\User_B"

Step 3: Continue to next step

When you are ready, click **Next** to continue to the Migration Plans: Migration Scripts section of the planning phase.

Who can do this

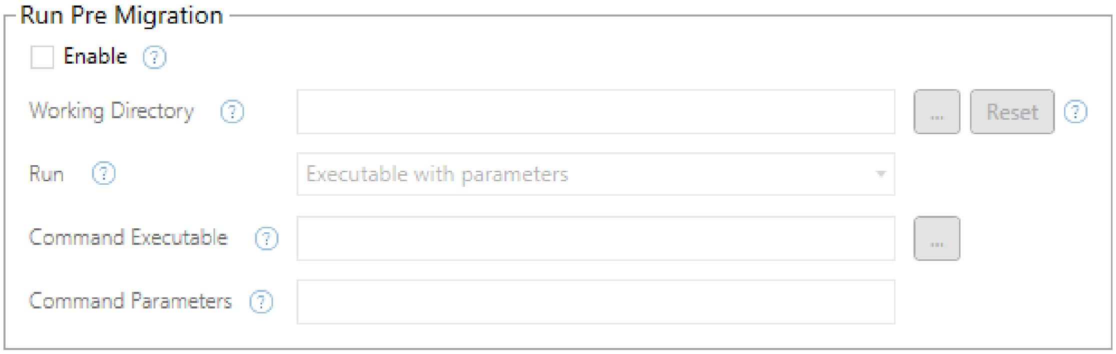
Tableau site user with an Explorer role or higher. To migrate content, you must have **View** and **Download/Save a Copy** capabilities for workbooks on the source site and **View** and **Publish** capabilities for target projects on the destination site. For more information, see Permissions.

Migration Plans: Migration Scripts

The next step of creating a migration plan in the Tableau Content Migration Tool is to create any scripts you want to run with your plan before or after migration.

Step 1: Pre-Migration

The **Run Pre Migration** section of the screen is dedicated to scripts that will run before the migration.



Run: Executable with parameters

Each field has a help icon you can get information from by moving your cursor over it. To start with your pre-migration scripts, select **Enable**, which will then activate the fields below.

Working Directory

This is the working directory for the script. The default directory is the same folder as the migration plan. Click on the browse button to select a different folder. The **Reset** button will restore the current migration plan folder as the working directory.

Run

This drop down allows you to choose either to run a custom script or an executable with parameters.

Command Executable

If you selected **Executable with Parameters** from the **Run** menu, this field will appear. This is the file path to the command executable to run before migration. Type it in directly or use the browse button to find the executable. This is a required field.

Command Parameters

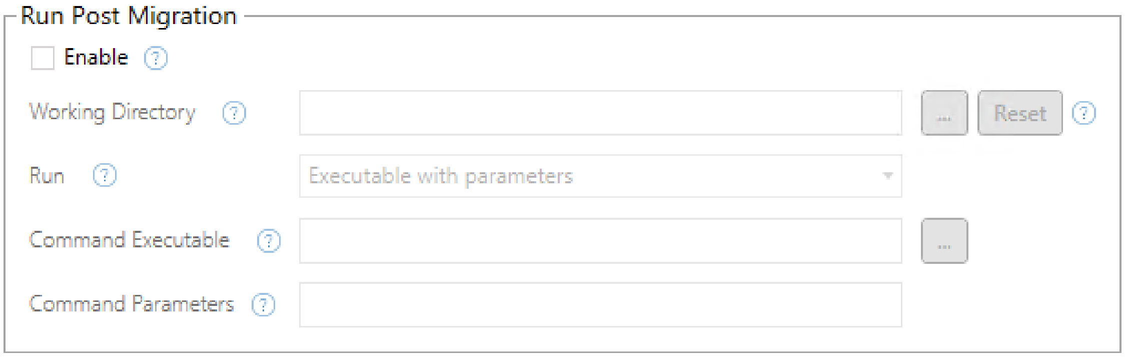
If you selected **Executable with Parameters** from the Run drop-down menu, this field will appear. Enter in command line parameters here to use with the command executable.

Script

If you selected **Custom script** from the **Run** menu, enter in your pre-migration script here. It will be executed as a *.cmd file. This is a required field.

Step 2: Post-Migration

The **Run Post Migration** half of the screen is dedicated to scripts that will run after migration.


Run Post Migration

☐ Enable

Working Directory: Run: Executable with parameters

Each field has a help icon you can get information from by moving your cursor over it. To start with your post-migration scripts, select **Enable**, which will then activate the fields below.

Working Directory

This is the working directory for the script. The default directory is the same folder as the migration plan. Click on the browse button to select a different folder. The **Reset** button will restore the current migration plan folder as the working directory.

Run

This drop down allows you to choose either to run a custom script or an executable with parameters.

Command Executable

If you selected **Executable with Parameters** from the **Run** menu, this field will appear. This is the file path to the command executable to run before migration. Type it in directly or use the browse button to find the executable. This is a required field.

Command Parameters

If you selected **Executable with Parameters** from the **Run** menu, this field displays. Enter in command line parameters here to use with the command executable.

Script

If you selected **Custom script** from the **Run** menu, enter in your post-migration script here. It will be executed as a *.cmd file. This is a required field.

Step 3: Continue to Next Step

When you are ready, click **Next**.

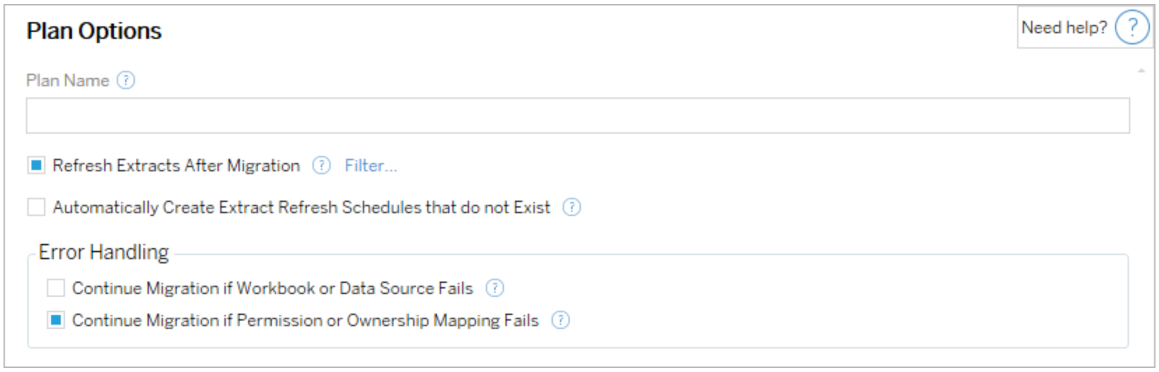
Who can do this

Tableau site user with an Explorer role or higher. To migrate content, you must have **View** and **Download/Save a Copy** capabilities for workbooks on the source site and **View** and **Publish** capabilities for target projects on the destination site. For more information, see Permissions.

Migration Plans: Plan Options

The last step of creating a migration plan in the Tableau Content Migration Tool is configuring the plan options.

Step 1: Configure options



Plan Options

Plan Name

☑ Refresh Extracts After Migration

☐ Automatically Create Extract Refresh Schedules that do not Exist

Error Handling

☐ Continue Migration if Workbook or Data Source Fails

☑ Continue Migration if Permission or Ownership Mapping Fails

The **Plan Name** is the name of the plan as it will appear in Content Migration Tool. We recommend using a user-friendly name for your plan name.

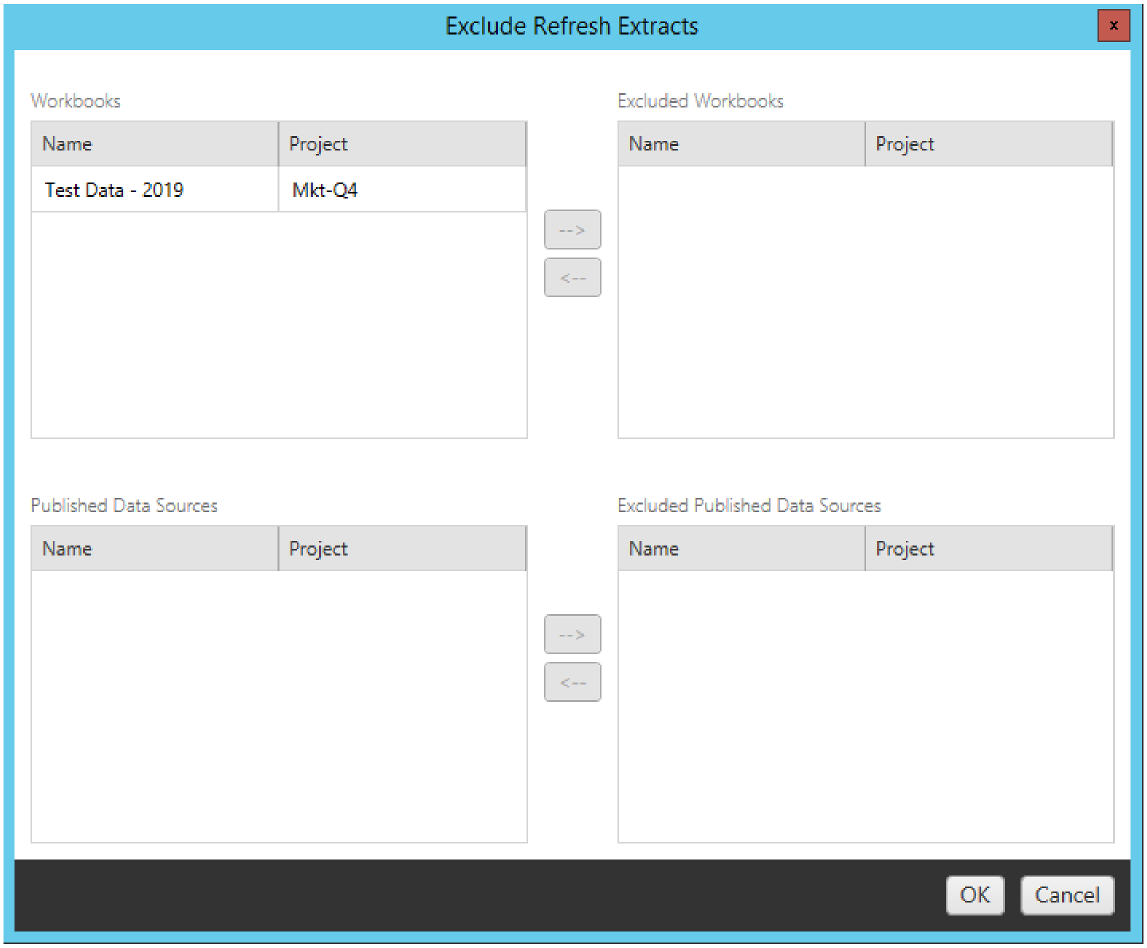
The following are available options:

- **Refresh Extracts After Migration**: If selected, data extracts will be refreshed immediately after migration if Content Migration Tool detects they have been modified during migration. Click the **Filter** link to exclude specific extracts. For more information, see Exclude extract refreshes below.
- **Automatically create Extract Refresh Schedules that do not Exist**: Automatically creates destination extract schedules that do not exist. If not checked, source schedules that do not exist on the destination site will not be copied.
- **Continue Migration if Workbook or Data Source Fails**: If checked, errors migrating a workbook or data source will not cause the migration to stop. The errors will be logged and the migration will continue. Errors during version control will always stop the migration.

- **Continue Migration if Permission or Ownership Mapping Fails**: If checked, errors copying permissions or ownership will not cause the migration to stop. The errors will be logged and the migration will continue.

Exclude extract refreshes

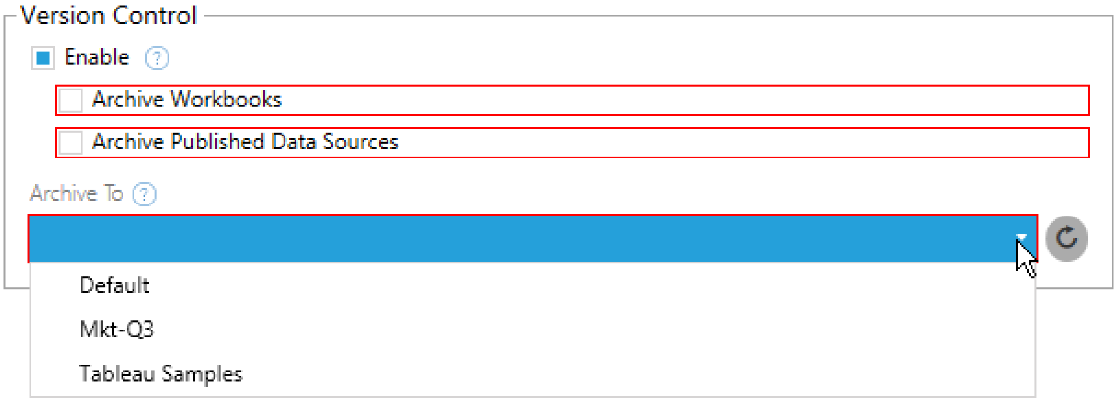
By clicking **Filter** next to **Refresh Extracts After Migration**, you can choose the workbooks or published data sources that will not be refreshed automatically. Use the arrow buttons to select the items you want to exclude, and click**OK**.



Exclude Refresh Extracts
x
Workbooks
Excluded Workbooks
Name
Project
Test Data - 2019
Mkt-Q4
-->
<--
Published Data Sources
Excluded Published Data Sources
OK
Cancel

Step 2: Version control

These options allow you to avoid losing the existing workbooks in the destination site that might be replaced by the migrated workbooks.



Select **Enable** to save previous versions of your content. You can choose to archive workbooks and/or published data sources. Once version control is enabled, you must select a project from the **Archive To** menu, which lists all of the projects in your site. We recommend creating a separate archive project to store your versioned content. Click the refresh button to display any projects that have been added or modified on the site.

Step 3: Save plan

Once you have selected your plan options, click **Save Plan** to save your plan for future use. The plan will be saved to the `Documents\Tableau Content Migration Tool Plans` folder on your local machine.

Step 4: Continue to next step

When you are ready, click **Verify & Run** to end the Planning phase and prepare to run your plan.

Who can do this

Tableau site user with an Explorer role or higher. To migrate content, you must have **View** and **Download/Save a Copy** capabilities for workbooks on the source site and **View** and **Publish** capabilities for target projects on the destination site. For more information, see Permissions.

Migrate Workbooks and Data Sources with Extracts

Tableau Cloud users can publish extracts which are copies, or subsets of the original data. These extracts may be embedded in a workbook or a data source. By default, when you use the Tableau Content Migration Tool to migrate a workbook or data source that contains an extract, that extract is migrated along with the workbook or data source that contains it. The Content Migration Tool gives you a couple options for controlling this behavior:

- **Switching to a Live Connection**

  You can add the **Remove Extract** transformation to your migration plan to remove the extract from your workbook or data source during migration. As always, the source workbook or data source will not be modified. The copy of the workbook or data source migrated to the destination project will have the extract removed from it. This effectively switches the data connection back to a live connection.

- **Refreshing Extracts after Migration**

  You can enable the **Refresh Extracts After Migration** option in your migration plan to have an immediate extract refresh task scheduled after the workbook or data source is migrated.

  We don't recommend using the **Refresh Extracts After Migration** option if your migration plan also uses the **Set Connection Info** transformation to change the data connection to point to a different set of data (for example, a different database server or database). When you change the connection information to point to different data and use the **Refresh Extracts After Migration** option, this can unintentionally expose data in a way that is a potential security issue.

  For more information, see Option 3: Refresh Extracts After Migration.

Changing data connections that use extracts

Tableau data connections are either live connections that directly query a data source, or they are extracts of a data source. Extracts are copies or subsets of the original data and can be embedded in a workbook or data source. When present, the views will query data from the extract instead of the underlying data source.

Commonly, you'll want to modify the data source connection during the migration so that it points to a different database in the destination project than it did in the source project.

For example, if you are migrating a workbook from your staging project to your production project, you will likely want to update the data connections inside the workbook to connect to your production database. You can implement this by using the **Set Connection Info** transformation in your migration plan. Now you have a migration plan which copies a workbook from staging to production and updates the data connections to point to the production database.

If your workbook uses an extract, additional work is required. In this scenario, the workbook will be migrated and the live data connection updated. However, the views will still show data from the staging database since it still contains the staging database extract - copied from the source (staging) project. There are a few ways to address this.

Option 1: Use Published Data Sources

You can change your workbooks so that they use published data sources instead. This way, the extract will be managed as part of the published data source and migrating updates to the workbooks that use that data source can be simplified by not having to worry about the connection to the live database or the data extract.

Option 2: Remove the Extract During Migration

You can add a **Remove Extract** transformation to your migration plan. This will remove the extract from your workbook, effectively switching the data source to a live connection.

Option 3: Refresh the Extract After Migration

You can use the **Refresh Extracts After Migration** option in your migration plan. This will migrate the extract along with the workbook but will schedule an immediate extract refresh task for that workbook after the migration is complete.

This option is usually not recommended when used in combination with a **Set Connection Info** transformation because of potential security issues that it can introduce.

The issue is that the migrated workbook in your destination project will still show the old (source) extract data for the period between the completion of migration and the completion of the extract refresh task. If the extract refresh task fails, then the old/source extract data will remain until the extract is refreshed.

In a scenario like we've outlined above, migrating from a staging to production environment, this may be acceptable but you should be aware that the users of your workbooks may not be aware that the workbook is showing old/staging data due it being recently migrated and the extract not being refreshed yet.

In other scenarios where you may be using **Set Connection Info** to change data connections to point to a different set of customer or client data, this could introduce serious security issues where the workbook's extract contains data from a different client or customer until the extract has been refreshed post-migration.

One way to mitigate this issue is to implement a 2-stage migration. This approach requires you to create two migration plans, one for each step described below and ensures the workbooks and data sources have an up-t-o-date extract before they are accessible.

- **Stage 1:** Migrate your content to a project on your destination site that only administrators have access to. This migration allows you to use the **Refresh the Extract After Migration** option along with the **Set Connection Info** transformation to update the data connection, because no unauthorized users will have an opportunity to see the old data, even if the extract refresh fails.
- **Stage 2:** After stage 1 is complete and you confirm there is a successful extract refresh, run a second migration plan to migrate the content from the stage 1 destination to the final destination where it is visible to end-users.

Who can do this

Tableau site user with an Explorer role or higher. To migrate content, you must have **View** and **Download/Save a Copy** capabilities for workbooks on the source site and **View** and **Publish** capabilities for target projects on the destination site. For more information, see Permissions.

Migrate Workbooks and Data Sources with Embedded Credentials

Starting in version 2023.1, authorized users can migrate workbooks and published data sources with embedded credentials from Tableau Server to Tableau Cloud. Additional configuration is required before migrating with Content Migration Tool.

> **Note:** Content Migration Tool does not support embedded credential migration for OAuth connections. For more information, see Migration Limitations.

Overview

Migrating embedded credentials using Content Migration Tool (CMT) is available when connecting to Tableau Server as the source site and Tableau Cloud as the destination site. Both sites must have an Advanced Management license.

Now that we’ve covered the requirements, let’s discuss how migration works. You’ll need to work closely with the Tableau Cloud site administrator and TSM administrator (sometimes the same person) to allow the feature and authorize a site user. After the feature is activated, the authorized site user builds a migration plan and selects the publish options *Migrate Embedded Credentials for Workbooks* and *Migrate Embedded Credentials for Data Sources*.

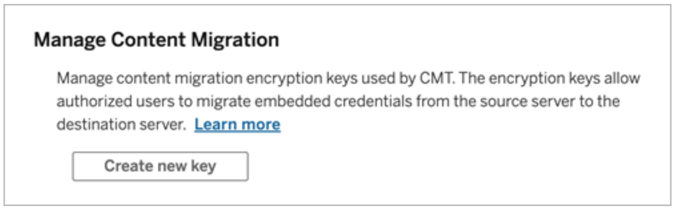
When running the migration plan, all required content credentials are transmitted in an encrypted content manifest from Tableau Server to Tableau Cloud. As CMT publishes content, the destination Tableau Cloud site embeds matched credentials securely from the manifest into the content (workbooks or published data sources). Any problems that occur during migration will appear in the Errors and Warnings tab in CMT. For more information, see Migration Plan Overview.

Allow embedded credential migration

Use the following steps to allow embedded credential migration from Tableau Server to Tableau Cloud.

Tableau Cloud

1. Open a browser window and sign in to Tableau Cloud as a site administrator.
2. Select **Settings** > **General**, and scroll down to **Manage Content Migration**.

   Manage Content Migration

   Manage content migration encryption keys used by CMT. The encryption keys allow authorized users to migrate embedded credentials from the source server to the destination server. Learn more

3. Click **Create new key** to generate an encryption key pair.

   > **Note:** The public key is only displayed once. If you lose the key before completing the configuration, you'll need to generate a new key.

4. In the resulting window, click **Copy to clipboard** and then close the window.
5. Paste the public key to a file and store it in a safe location. The TSM administrator will use the public key to allow migration. You can view the public key expiration date on the Settings page.

TSM Command Line Interface

1. Depending on your operating system, do one of the following:
   - Tableau Server on Windows: Open Windows Command Prompt with an account that is a member of the Administrators group on a node in the cluster.

  - Tableau Server on Linux: Open a command prompt with an account that is a member of the `tsmadmin` group on a node in the cluster.

2. Use `tsm security authorize-credential-migration` to allow embedded credential migration to the Tableau Cloud site. For more information, see tsm security in Tableau Server help.

   ```
   tsm security authorize-credential-migration --source-site-url-namespace <Tableau Server site ID> --destination-site-url-namespace <Tableau Cloud site ID> --destination-server-url <Tableau Cloud site url> --authorized-migration-runner <username> --destination-public-encryption-key <public key>
   ```

   > **Note:** When running TSM commands from a remote node, use `tsm login` to authenticate a session with the Tableau Server Administration Controller service before running `tsm security authorize-credential-migration`.

3. (Optional) Use `tsm security cancel-credential-migrations` to cancel granted authorizations. By default, migration authorization will expire in 7 days or the number of days specified with the `--expiration-time-in-days` option.

Content Migration Tool

1. Open Content Migration Tool and select **Create New Plan** or **Browse for a Plan**.

2. On the Sites page, click **Sign in to Tableau**, and connect to Tableau Server as the source and Tableau Cloud as the destination. Embedded credential migration is only available when migrating from Tableau Server to Tableau Cloud.

3. Build your migration plan and select the following Publish Options:

   - On the Workbook Publish Options page, select **Migrate Embedded Credentials for Workbooks**. For more information, see Migration Plans: Workbooks.

    - On the Data Source Publish Options page, select **Migrate Embedded Credentials for Data Sources**. For more information, see Migration Plans: Published Data Sources.

4. When you are ready, click **Verify & Run** to start the migration.

The workbooks and published data sources you selected are migrated to your Tableau Cloud site and should not prompt for authentication. If you experience issues while migrating embedded credentials, see Troubleshooting.

Troubleshooting

This section includes some common migration issues you might encounter and suggestions to resolve them.

There is no option to migrate embedded credentials

You can only migrate embedded credentials from a Tableau Server to a Tableau Cloud site. Tableau Server and Content Migration Tool must be running versions 2023.1 or later. For more information, see Install Tableau Content Migration Tool.

Migrating embedded credentials failed

In the Errors and Warnings tab of CMT, you may receive an error indicating that migrating the embedded credentials failed. This can occur when the public key used to authorize migration has expired.

As a Tableau Cloud site administrator, go to the Settings page and verify that the public key is valid. You'll have to create a new encryption pair to authorize the migration if the public key expires. For more information, see Allow embedded credential migration.

Who can do this?

- Tableau Cloud site administrator and TSM administrator are required to allow embedded credential migration.

- The authorized site user must have an Explorer role or higher. They must also have View and Download/Save a Copy capabilities for workbooks on the source site and View and Publish capabilities for target projects on the destination site.

For more information, see Permissions.

Using the Tableau Content Migration Tool Console Runner

The Tableau Content Migration Tool includes a command-line utility for running migrations, `tabcmt-runner.exe`, located in the installation folder. The default installation folder is `%PROGRAMFILES%\Tableau\Tableau Content Migration Tool`.

> **Note:** The `tabcmt-runner.exe` utility is not the same as the `tabcmt.cmd` command line utility which is used to configure the Content Migration Tool graphical application. For more information about `tabcmt.cmd`, see Using the Tableau Content Migration Tool Command Line Interface.

Usage:

- tabcmt-runner [options] <plan_file.tcmx>
- tabcmt-runner license --remove
- tabcmt-runner license <new license key>
- tabcmt-runner license <license file path> [--passphrase=<license file passphrase>]
- tabcmt-runner encryption --reset
- tabcmt-runner encryption <new_key>
- tabcmt-runner improvement [on|off]
- tabcmt-runner --help
- tabcmt-runner --version
- tabcmt-runner script-warning [on|off]

Options:

- --version
- --help
- --quiet

- --info
- --logfile=VALUE
- --src-user=VALUE
- --src-password=VALUE
- --dest-user=VALUE
- --dest-password=VALUE
- --https=VALUE
- --allow-scripts

Run Plan

Executes a migration plan immediately.

```
tabcmt-runner [options] <plan file>
```

Available options:

- `--logfile=<file name>` sets the file name to log output to
- `--https=<secure|legacy>` sets the HTTPS mode
- `--quiet` disables logging to stdout
- `--src-user=<username>` sets the username of the source connection
- `--src-password=<password>` sets the password of the source connection
- `--dest-user=<username>` sets the username of the destination connection
- `--dest-password=<password>` sets the password of the destination connection

Exit codes:

- 0 indicates that the migration was successful.
- 1 indicates that the migration was successful but warning messages were logged.
- 2 indicates that the migration failed. Specific errors will be included in the log output.

Show Plan Summary

Shows a summary of the migration plan and then exits.

```
tabcmt-runner --info <plan file>
```

help

Shows usage information for the command line utility.

```
tabcmt-runner --help
```

version

Shows the current application version information.

```
tabcmt-runner --version
```

encryption

Reset the encryption key, or specify a new one. You must specify the encryption key before using the `tabcmt-runner` utility, even if you already done so from the Content Migration Tool UI.

```
tabcmt-runner encryption <new_key> | --reset
```

improvement

Default value: `on`

Enables or disables collection of anonymous usage information by the application. This information is completely anonymous and is sent periodically to Tableau to help us improve Content Migration Tool.

Examples

Show whether the improvement program is enabled or disabled:

```
tabcmt-runner improvement
```

Enable or disable the improvement program:

```
tabcmt-runner improvement <on|off>
```

license

Deprecated in July 2022.

This command is only applicable for legacy licenses. Manages a legacy application license for the current user. When using a legacy key, to use the `tabcmt-runner` utility you must activate the license using this command, even if you already activated it from the Content Migration Tool UI.

Examples

Show the current license information:

```
tabcmt-runner license
```

Set/activate a serial key or offline license key:

```
tabcmt-runner license <key>
```

Remove/deactivate the current license:

```
tabcmt-runner license --remove
```

Set/activate using a license file:

```
tabcmt-runner license <file path> [--passphrase=<password>]
```

script-warning

Default value: `on`

Shows a warning message when running a migration plan that includes migration scripts.

> **Note:** This command updates your selection on the Settings page. For more information, see Tableau Content Migration Tool Settings.

Examples

Show if script warning is turned on or off.

```
tabcmd-runner script-warning
```

Turn script warning on or off

```
tabcmd-runner script-warning <on|off>
```

If turned on, you must include the option `--allow-scripts` to execute migration plans.

```
tabcmd-runner --allow-scripts <plan file>
```

Who can do this

To use the console runner, you must have all the following:

- Administrator permissions on the Content Migration Tool machine.
- Tableau site user account with an Explorer role or higher.
- View and Download Workbook/Save a Copy permissions on the source site.
- Publishing rights for the destination site.

Example: Scripting Migration Plans

> **Note:** This topic includes a sample script you can use as the basis for scripting a multi-plan migration that satisfies your needs and environment. This script is intended to be used as a sample only, and not to be run as-is. For detailed instructions on using the console runner, see Using the Tableau Content Migration Tool Console Runner.

Tableau Content Migration Tool command line utility for running migrations can be used to automate the running of a migration plan from an external scheduler (such as Windows Task Scheduler) or from a custom script. The console runner only runs one migration plan (stored in a .edt file) at a time. If you have a group of migration plans you want to run as a group, then you can use a custom script in combination with the Content Migration Tool console runner.

The example below is written in PowerShell and uses the console runner to execute a list of migration plans as a group.

The following example code demonstrates:

- Running multiple migration plans as a group using the console runner.
- Optionally halting deployment of the group of plans immediately when any single migration in the group fails.
- Using the console runner’s exit code to determine whether the migration failed or logged warnings.

```
# List of migration plans to execute as a group.
$planFiles = @(
       'customer 1.tcmx',
       'customer 2.tcmx'
)

# True of false whether to continue with the next plan if a migra-
tion fails.
$continueOnFailure = $false

# Path to the CMT console runner executable
$runnerExe = 'C:\Program Files (x86)\Tableau\Tableau Content Migra-
tion Tool\tabcmt-runner.exe'

# Store the exit code from the previously run migration plan.
$lastResult = -1

# Loop through and run each migration plan one at a time.
$planFiles | % {
       $file = $_

       if ($lastResult -ge 2 -and -not($continueOnFailure)) {
               Write-Warning "Skipping plan because previous migration failed.
`nSkipped plan: $file"
               return
       }

       Write-Verbose "Running migration plan: $file"
       & $runnerExe $file
       $lastResult = $LASTEXITCODE

       if ($lastResult -ge 2) {
               Write-Error "Migration failed. See output or log file for error
details.`nPlan: $file" -ErrorAction 'Continue'
```

```
        }
        elseif ($lastResult -eq 1) {
                Write-Warning "Migration completed with warnings. See output or
log file for warning details.`nPlan: $file"
        }
}
```

Who can do this

To script migration plans, you must have all the following:

- Administrator permissions on the Content Migration Tool machine.
- Tableau site user account with an Explorer role or higher.
- View and Download Workbook/Save a Copy permissions on the source site.
- Publishing rights for the destination site.

Using the Tableau Content Migration Tool Command Line Interface

The Tableau Content Migration Tool includes a command line interface, `tabcmt.cmd`, located in the installation folder. The default installation folder is `%PROGRAMFILES%\Tableau\Tableau Content Migration Tool` (32-bit Windows) or `%PROGRAMFILES (x86)%\Tableau\Tableau Content Migration Tool` (64-bit Windows).

> **Note:** The `tabcmt.cmd` utility is not the same as the Content Migration Tool console runner, `tabcmt-runner.exe`. The console runner is a separate command line utility used for running migrations from the command line. For information on using the Content Migration Tool console runner, see Using the Tableau Content Migration Tool Console Runner.

Here are the commands that can be used with the `tabcmt` command line:

- migrate
- help
- update
- version

migrate

Opens a migration plan file to the migrate step in the GUI:

```
tabcmt migrate <plan file>
```

help

Shows general help about the command line interface and the available commands.

Examples

Show all commands available:

```
tabcmt help
```

Show help and usage information for a specific command:

```
tabcmt help <command>
```

license

Deprecated in July 2022.

This command is only applicable for legacy licenses. Manages the application license for the current user.

Examples

Show the current license information:

```
tabcmt license
```

Remove/deactivate the current license:

```
edt license remove
```

Set/activate a serial key or offline license key:

```
tabcmt license <key>
```

Set/activate using a license file:

```
tabcmt license <file path> [--passphrase=<password>]
```

update

Manages the options for application updates.

Examples

Show the current update settings:

```
tabcmt update
```

Enable or disable the automatic update notifications:

```
tabcmt update --disabled=<true|false>
```

Set the URL to detect/download updates from:

```
tabcmt update --url=<url>
```

Enable or disable showing beta updates. Set to false to only show stable release updates.

```
tabcmt update --beta=<true|false>
```

version

Shows the current application version information.

```
tabcmt version
```

Who can do this

To use the command line interface, you must have all the following:

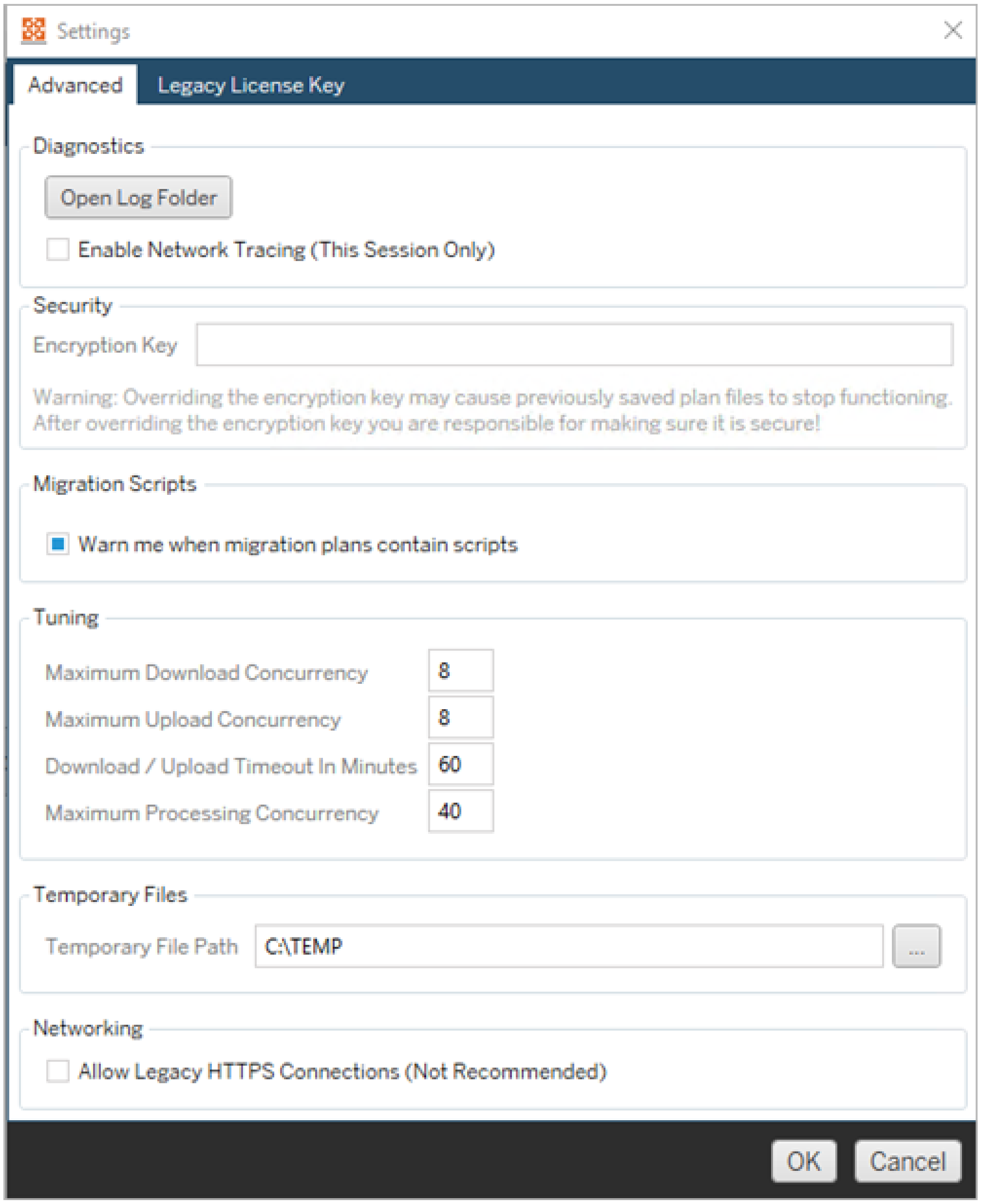
- Administrator permissions on the Content Migration Tool machine.
- Tableau site user account with an Explorer role or higher.
- View and Download Workbook/Save a Copy permissions on the source site.
- Publishing rights for the destination site.

Tableau Content Migration Tool Settings

The Tableau Content Migration Tool default settings work in most cases, but you can change these if you need to, or if you are working with Tableau Support and they ask you to make changes.

To view or update the Content Migration Tool settings:

1. Open Content Migration Tool.
2. Click **Help** > **Settings**. The Settings dialog opens:



Diagnostics

Open Log Folder

☐ Enable Network Tracing (This Session Only)

Security

Encryption Key

Warning: Overriding the encryption key may cause previously saved plan files to stop functioning. After overriding the encryption key you are responsible for making sure it is secure!

Migration Scripts

☑ Warn me when migration plans contain scripts

Tuning

Maximum Download Concurrency	8
Maximum Upload Concurrency	8
Download / Upload Timeout In Minutes	60
Maximum Processing Concurrency	40

Temporary Files

Temporary File Path: C:\TEMP

Networking

☐ Allow Legacy HTTPS Connections (Not Recommended)

Diagnostics—Click **Open Log Folder** to open the logs location. Here you can view the logs, and zip them up if you need to send them to Tableau. For more information, see Tableau Content Migration Tool Log Files.

Select **Enable Network Tracing** if you are working with Support and they ask you to include a network trace in the logs. This applies until you clear the option or restart the Content Migration Tool.

Security—The encryption key is automatically generated on installation. If you change the encryption key, any migration plans with embedded passwords that were created with the previous key cannot be opened. If you have multiple installations of Tableau Content Migration Tool and want to share migration plans, you need to make sure the encryption key used by each instance of the tool is the same.

Migration Scripts—By default, a warning is displayed when running a migration plan that includes migration scripts or executables. Other users can edit these files, so verify that they’re safe before running the migration. Toggling this setting on and off will also update your warning preference for the console runner. For more information, see Using the Tableau Content Migration Tool Console Runner.

Tuning—In almost all cases you can leave these set to the defaults. If you are working with Support, they may ask you to change these settings.

Temporary Files—Select a location for temporary files if you want to change the default. This is the location where content is copied during a migration. You may want to change this if the default location does not have enough space to temporarily hold migrated content.

Networking—Selecting **Allow Legacy HTTPS Connections** gives you the ability to connect to Tableau Server installations running with older HTTPS configurations (for example, SSL v3). This is not recommended.

Who can do this

Typically, the tasks listed above can only be done by a user with Administrator access on the machine where Content Migration Tool is installed.

Tableau Content Migration Tool Log Files

Tableau Content Migration Tool generates log files when you run migrations. These can be helpful for troubleshooting problems.

Note: For information on all the Content Migration Tool settings, see Tableau Content Migration Tool Settings.

Content Migration Tool Log File Location

To find the Content Migration Tool log files from within the Content Migration Tool:

1. Start Content Migration Tool.
2. Click **Help** and **Settings**:

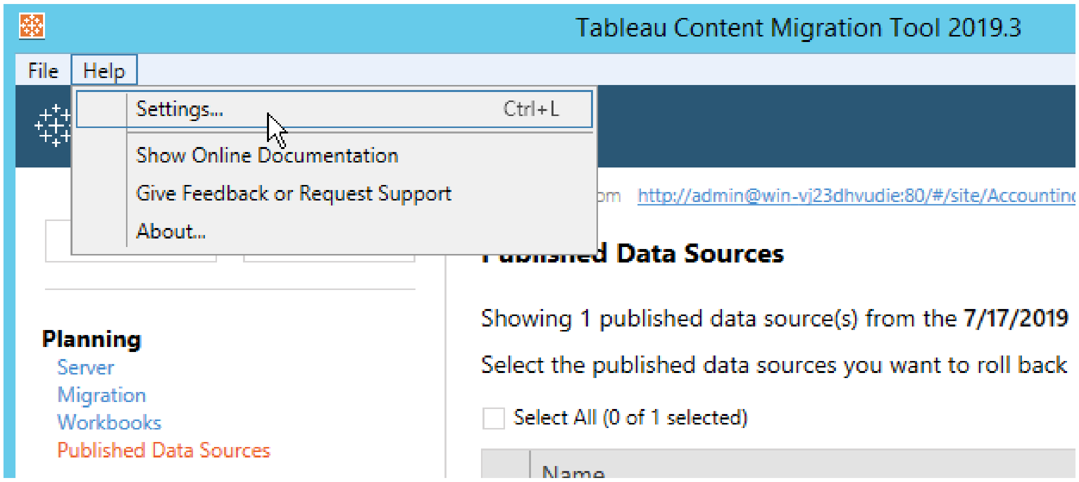
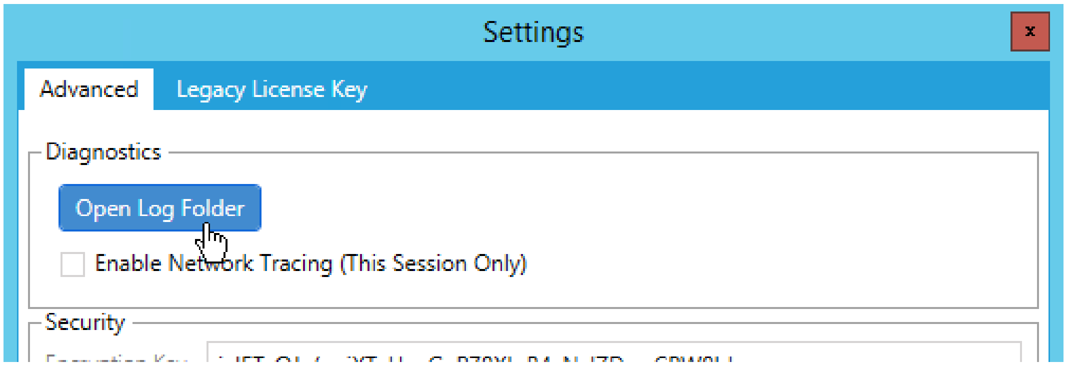


Tableau Content Migration Tool 2019.3
File
Help
Settings... Ctrl+L
Show Online Documentation
Give Feedback or Request Support
About...
http://admin@win-vj23dhvudie:80/#/site/Accountin
Published Data Sources
Showing 1 published data source(s) from the 7/17/2019
Select the published data sources you want to roll back
☐ Select All (0 of 1 selected)
Name
Planning
Server
Migration
Workbooks
Published Data Sources

3. In the **Settings** dialog, click **Open Log Folder**:


Settings
×
Advanced
Legacy License Key
Diagnostics
Open Log Folder
Security

☐ Enable Network Tracing (This Session Only)

A window opens with the log files.

If you are working with Tableau Support and they ask you to send log files, zip the files up before you send them. For more information on sending log files to Tableau, see the Tableau Knowledge Base.

Who can do this

Typically, the tasks listed above can only be done by a user with Administrator access on the machine.