Tableau Server on Windows

in the Alibaba Cloud

Administrator Guide

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Install Tableau Server on the Alibaba Cloud

When you install Tableau on an Alibaba Cloud Elastic Compute Service (ECS) instance, you still have the advanced capabilities of Tableau in a local environment. Running Tableau on an ECS instance is an excellent choice if you want the flexibility of scaling up and scaling out without having to purchase and maintain an expensive fleet of servers. For instance, you can configure Tableau to be highly available, and integrate with all of the common enterprise applications (for example, Active Directory) that many organizations rely on.

> Looking for Tableau on Linux? See Install Tableau Server on the Alibaba Cloud.

You can store the data you use with Tableau Server in the following Alibaba databases:

- Apsara DB RDS for Microsoft SQL Server: An on-demand database hosting service for Microsoft SQL Server.

- Apsara DB RDS for MySQL: An on-demand database hosting service for MySQL.

- Apsara DB RDS for PostgreSQL: An on-demand database hosting service for PostgreSQL.

You can use the following native data connectors to connect to your data in the Alibaba Cloud:

- Microsoft SQL Server: Connect to a Microsoft SQL Server database.

- MySQL: Conntect to a MySQL database.

- PostgreSQL: Connect to a PostgreSQL database.

- Other Databases (JDBC): Conntect to a database using the Java Database

Connectivity (JDBC) standard.

- Other Databases (ODBC): Connect to a database using the Open Database Connectivity (ODBC) standard.

Tableau Server on the Alibaba Cloud deployment options

You can deploy Tableau Server on an Alibaba Cloud Elastic Compute Service (ECS) instance. A Tableau deployment on Alibaba Cloud supports the following:

Tableau Server	Alibaba Cloud ECS Self-Deployment
Production ready	✅
Upgrade Tableau without replacing the instance	✅
Install on Linux	✅
Install on Windows	✅
Scale-up	✅
Scale-out (add nodes)	✅
Active Directory support	✅
14-day trial license	✅
BYOL license	✅

The self-deployment option is described in more detail below:

- **Self-Deploy to Alibaba Cloud Elastic Compute Service (ECS) instance** - Provides the most flexibility and options to customize Tableau Server to your environment.

  Self-deployment of Tableau Server on an ECS instance is recommended for development, test, and production environments that start simple but may need to scale later.

  For more information about self-deployment, see Self-Deploy a Single Tableau Server on the Alibaba Cloud. For more information about deploying in a distributed environment, see Self-Deploy Tableau Server on the Alibaba Cloud in a Distributed Environment.

For more information about Tableau licensing options, search for "Licensing Overview" in the Tableau Help.

What You Need Before You Begin

To work with Tableau Server in the Alibaba Cloud, you will need:

- An Alibaba Cloud account. If you don't already have one, sign up for a new account.

- A Tableau license.

  - For a standalone deployment, you can use a 14-day trial version of Tableau, which doesn't require the use of a product key. After 14 days, you'll need to purchase a Tableau license and activate the associated product key.

  - For a cluster-based deployment, you need a user-based license (which covers all authorized users of Tableau), a core-based license (with a minimum of 16 cores), or a Tableau subscription license. To obtain a product key, contact sales.

  For more information about Tableau licensing options, search for "Licensing Overview" in the Tableau Help.

Best Practices for Installing Tableau Server in the Alibaba Cloud

The following best practices make installing Tableau Server in the cloud a better experience.

- Search for "Plan Your Deployment" in the Tableau Server Help.

- Read the Tableau Server on Alibaba Cloud Prerequisites.

- Search for "Security Hardening Checklist" in the Tableau Server Help

- If you're new to the cloud, use the Alibaba Cloud free trial to get familiar with working in the cloud before you deploy Tableau Server on the Alibaba Cloud.

- Read about and understand network topology on the Alibaba Cloud and how to architect it.

Keeping Costs Down

The Alibaba Cloud offers cloud-based services on a pay-as-you-go basis. Costs are determined by the services you run and amount of time you use them. Different combinations of instance types and sizes have different costs. For more information about services pricing, see Alibaba Cloud pricing. You can estimate your total monthly costs using the Alibaba Cloud price calculator.

To help monitor and control usage costs on an ongoing basis, you can set up a billing alert on the Alibaba Cloud to send email when your monthly Alibaba Cloud costs reach your predefined spending threshold:

1. In the Alibaba Cloud console, click **Billing Management**.

2. On the **Account Overview** page, next to **Monthly Spending Alert**, click **Setting**.

3. In the **Monthly Spending Alert** dialog box, turn on monthly spending alerts, enter

the spending threshold, and set the email recipient who should be notified when spending reaches the threshold you've set.

4. Click **Save**.

For more information about how to track your spending, see How to see the instance spending at the Alibaba website.

Tableau Server on the Alibaba Cloud Topology

When deploying Tableau Server on the Alibaba Cloud, you may choose the level and depth of integration between Tableau Desktop and Tableau Server on your Alibaba Cloud Elastic Compute Service (ECS) instance. You can use Tableau Desktop and its ability to extract data from your data sources to act as a bridge between your data and Tableau. Based on your needs, or if you already have a lot of data in the Alibaba Cloud, you might instead choose to leverage the full range of Alibaba Cloud services in conjunction with Tableau Server. The following diagram shows data source integration with Tableau Desktop and Tableau.
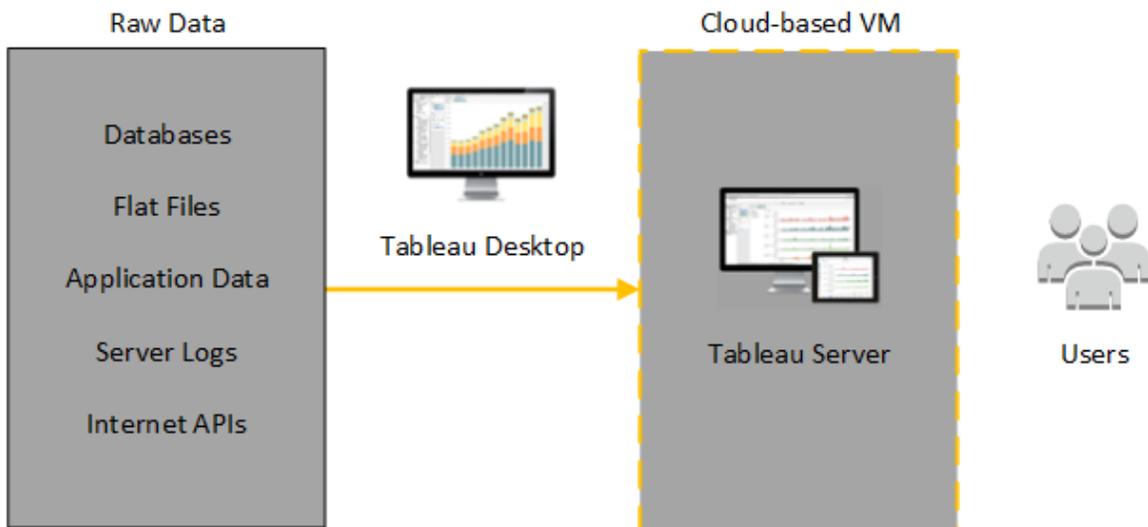
In the following diagram, all of your data is hosted on the Alibaba Cloud. You can analyze both structured and unstructured data managed in a secure, scalable manner. You may leverage data that resides on the Alibaba Cloud only, unmanaged data that lives outside of the Alibaba Cloud, or a combination of both. This flexibility greatly increases the ability of your organization to support moves to the cloud from on-premise data, since both types of data is supported equally.
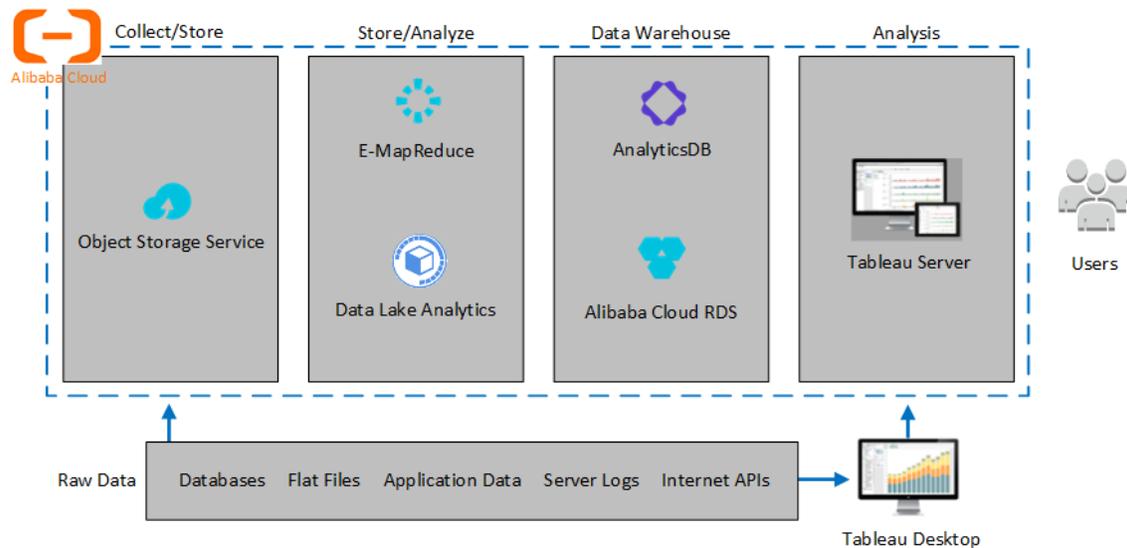
Selecting an Alibaba ECS Instance Type and Size

The Alibaba Cloud offers many types of instances in various sizes. Choosing the right instance for your workload is an important factor for a successful Tableau Server deployment. You can choose from a wide range of instances. For a complete list of all available instance types and sizes, see Instance type families at the Alibaba website.

It is important to select an instance that can run Tableau Server. The instance must meet the Tableau Server hardware guidelines (a minimum of 8 cores and 32 GB of RAM).

At minimum, a 64-bit Tableau Server requires a 4-core CPU (the equivalent of 8 vCPUs on an Alibaba Cloud Elastic Compute Service (ECS) instance) and 16 GB RAM. However, a

total of 8 CPU cores (16 vCPUs on an ECS instance) and 64GB RAM are strongly recommended for a single production ECS instance.

The Windows Operating system will recognize these 16 vCPUs as 8 cores, so there is no negative licensing impact.

Typical instance types and sizes for development, test, and production environments

- ecs.c5.4xlarge

- ecs.g5.4xlarge

- ecs.r5.4xlarge

> **Note:** Some instance types may not be available in all regions.

Recommended specifications for a single production instance

Component/Resource	Alibaba Cloud
CPU	16+ vCPU

Operating System	• Tableau Server 2021.3.0 and later:
	
	    • Windows Server 2016
	
	    • Windows Server 2019
	
	 ## Earlier versions:
	
	 • Tableau Server 2020.1.0 - 2021.2.x:
	
	    • Windows Server 2012

	• Windows Server 2012 R2
	
	• Windows Server 2016
	
	• Windows Server 2019
	
	• Tableau Server 2019.1.0 - 2019.x:
	
	    • Windows Server 2008 R2
	
	    • Windows Server 2012
	
	    • Windows Server 2012 R2
	
	    • Windows Server 2016
	
	    • Windows Server 2019

Memory	64+ GB RAM (4GB RAM per vCPU)
Storage	Two volumes: 30-50 GiB volume for the operating system 100 GiB or larger volume for Tableau Server
Storage type	SSD Cloud Disk For more information about SSD Cloud Disks, see Cloud disks and Shared Block Storage at the Alibaba website.
Disk latency	Less than or equal to 20ms as measured by the **Avg. Transfer disk/sec** Performance Counter in Windows. For more information about disk latency in the Alibaba Cloud and its relationship to IOPS, see Storage parameters and performance test at the Alibaba website.

Self-Deploy a Single Tableau Server on the Alibaba Cloud

You can install and run Tableau Server on an Alibaba Cloud Elastic Compute Service (ECS) instance. Perform the following tasks to install and configure Tableau Server on an ECS instance.

Step 1: Set up a VPC

Create a virtual private cloud (VPC) where you'll launch your ECS instance and install Tableau. You'll also create a virtual switch (VSwitch), which facilitates communications between your ECS instances.

1. Sign in to the Alibaba Cloud Console (https://ac-count.alibabacloud.com/login/login.htm).

2. On the Alibaba Cloud dashboard, under **Networking**, click **Virtual Private Cloud**.

3. From the region drop-down list, select the region where you want to create resources.

4. In the **VPC** console, click **Create VPC**.

5. On the **Create VPC** page, specify the following:

   a. **Name:** Enter a name (up to 128 characters) for your VPC.

   b. **IPv4 CIDR Block:** Choose a private IPv4 CIDR range.

   > **Note:** The IPv4 CIDR block cannot be changed after the VPC is created.

   c. **Description:** Enter a description (up to 256 characters) to describe your VPC.

6. Under **VSwitch**, specify the following:

a. **Name:** Enter a name (up to 128 characters) for the virtual switch (VSwitch).

b. **Zone:** Select an availability zone.

c. **IPv4 CIDR Block** Choose a private IPV4 CIDR range.

d. **Description:** Enter a description (up to 256 characters) to describe your VSwitch.

7. When you're finished, review your selections, and then click **OK**.

Step 2: Create a Security Group

Create a security group for use with your ECS instance. The security group is a virtual firewall that allows or denies access from the internet to your ECS instance.

1. On the Alibaba Cloud dashboard, under **Products & Services**, click **Elastic Compute Service**.

2. On the **Elastic Compute Service** page, under **Network & Security**, click **Security Groups**.

3. On the **Security Groups** page, click **Create Security Group**.

4. On the **Create Security Group** page, specify the following:

    a. **Template:** Choose **Web Server Windows**.

    b. **Security Group Name** Enter a name (up to 128 characters) for your security group.

    c. **Description:** Enter a description (up to 256 characters) to describe your security group.

    d. **Network Type:** Select **VPC**.

    e. **VPC:** Select the VPC you created earlier.

      f. **Tag:** Enter a key/value pair to tag the security group to enable easier searching/filtering later on.

5. Click **OK**, and then in the **Notes** dialog box, click **Create Rules Now**.

6. For each of the ports listed on the **Ingress** tab, click **Modify**, and then in the **Authorization Objects** field, change the IP address range to correspond to your network to allow only traffic from your network to connect to your ECS instance.

Step 3: Set up an ECS instance

Create an ECS instance where you'll install Tableau.

1. On the Alibaba Cloud dashboard, under **Products & Services**, click **Elastic Compute Service**.

2. On the **Elastic Compute Service** page, click **Instances**.

3. On the **Instances** page, click **Create Instance**.

4. On the **Elastic Compute Service (ECS)** page, click **Custom**.

5. In **Billing Method**, click **Subscription**.

6. In **Region**, select the region and availability zone where you created your VPC.

7. In **Instance Type**, select **Current Generation**, select **X86-Architecture**, and then in the instances list, select **ecs.g5.4xlarge**.

> **Note:** Some instance types may not be available in all regions.

8. In **Image**, select **Public Image**, and in the operating systems list, select **Windows Server** and one of the supported versions, for example, **2012 R2 Data Center Edition 64bit English Edition**.

9. In **Storage**, under **System Disk**, select **SSD Cloud Disk**, and then set the size to 50

GiB.

10. Under **Data Disk**, click **Add Disk**, select **SSD Cloud Disk**, and then set the size to 100 GiB.

11. In **Duration**, choose the length of time you want to rent the instance for, and then click **Next: Networking**.

12. In **Network**, select the VPC and VSwitch you created earlier.

13. In **Security Group**, select the security group you created earlier.

14. Click **Next: System Configurations**, and specify the administrator password and instance name.

15. Click **Next: Grouping**, specify any tags or deployment sets, and then click **Next: Pre-view**.

16. Review your selections, review the **Terms of Service**, and then click **Create Order**.

Step 4: Connect to your ECS instance

After you create your ECS instance, you must connect to it and prepare it to install Tableau. For more information about how to connect to an ECS instance, see Connect to instances at the Alibaba website.

1. On the Alibaba Cloud dashboard, under **Products & Services**, click **Elastic Compute Service**.

2. On the **Elastic Compute Service** page, click **Instances**.

3. In the list of instances, select your instance, and then click **Connect**.

4. If prompted, enter your VNC password.

5. Enter the Microsoft Windows login name and password, and then press **Enter**.

Step 5: Install Tableau Server on your ECS instance

Installing Tableau on an ECS instance is similar to installing it on any other server.

1. Copy the Tableau Server installation program to your VM by doing one of the following:

   - **Download the installer directly**. While logged into the VM, open a browser, browse to the Tableau Server download page, and download the 64-bit version of Tableau.

     > **Note:** The default enhanced security configuration on Windows Server dictates that Internet Explorer is always set to High for the Internet zone and cannot be changed for that zone. Therefore, as you browse to public sites using Internet Explorer, you must add those sites to the list of trusted sites.

   - **Copy the installer to the VM**. If you already have a copy of the Tableau installer on your computer, copy it to the VM. Create a folder on the VM where you want to put the installer. From your computer, upload the Tableau installer file (for example, TableauServer-64bit-10.5.exe) to the instance.

2. Run the Tableau installer on the VM to start the server installation process. The installation process works the same as it does on any other server. For more information, search for "Install and Configure Tableau Server" in the Tableau Help.

Step 6: Access Tableau Server from a remote browser

Make sure that users can access the Alibaba Cloud ECS instance where you've installed Tableau.

1. In the Elastic Compute Services console, click **Instances**, select your instance in the list, and then find the external IP address.

2. On another computer (not on the instance), open a browser.

3. In the browser, type the external IP address of the Tableau you installed on the instance. For example, `http://13.64.47.61`.

4. Sign in using the credentials for the administrator user that you created at the end of the installation process. When you've signed in, you see the Tableau Server Content page.

Step 7: Publish data to Tableau Server on your ECS instance

After you set up Tableau Server on an ECS instance, users in your organization can publish workbooks and data sources to the server. The process works the same way that it does if Tableau is installed on premises, except that users must sign in to the server that is running on the ECS instance.

Before you allow users to publish, make sure that each user has been created with the Publisher site role in Tableau Server and that the users have Publisher permissions. For more information, search for "Add Users to the Server" in the Tableau Help.

To publish workbooks and data sources to Tableau, users must sign in to the server by using the cloud server IP address using credentials they've been assigned. For more information, see How to Publish Workbooks to a Tableau Server.

Step 8: Manage Tableau Server licenses

You don't need to manage your Tableau Server license if you shut down your ECS instance using the Alibaba Cloud console or from inside the instance itself. When you stop an instance using the ECS console, the instance may still incur charges.

Deleting an instance deallocates all of its resources, including external storage. You might delete your instance when you no longer need it. Always deactivate your Tableau license before you shut down and delete your instance.

Before you delete your instance, do the following:

1. Sign in to your instance.

2. Create a backup of Tableau, and then copy the `.tsbak` file to another location, such as Alibaba Cloud Object Storage Service, that will be accessible after the instance is no longer available. For more information, search for "Perform a Full Backup and Restore of Tableau" in the Tableau Help.

3. Use the tsm licenses deactivate command to deactivate your Tableau product key. You can now shut down and delete your VM.

Self-Deploy Tableau Server on the Alibaba Cloud in a Distributed Environment

You can run Tableau Server on two virtual machines (VMs) in a distributed environment, also known as a cluster. However, if you want to run Tableau Server in a highly available (HA) distributed environment, you need to launch three or more Alibaba Cloud Elastic Compute Service (ECS) instances of the same type and capacity and configure them as additional nodes. This scenario assumes that you have three ECS instances with Tableau Server installed on each instance. One instance is configured as the initial node, and the other two instances are configured as additional nodes.

Use the following steps to install and deploy Tableau Server on a cluster of three ECS instances in a highly available and scalable configuration.

## Step 1: Create an Alibaba Virtual Private Cloud (VPC)

You must have an existing Alibaba Virtual Private Cloud (VPC) with a private and a public subnet across three different zones. For information about how to plan and create a custom mode VPC network with custom subnets, see Plan and design a VPC at the Alibaba website.
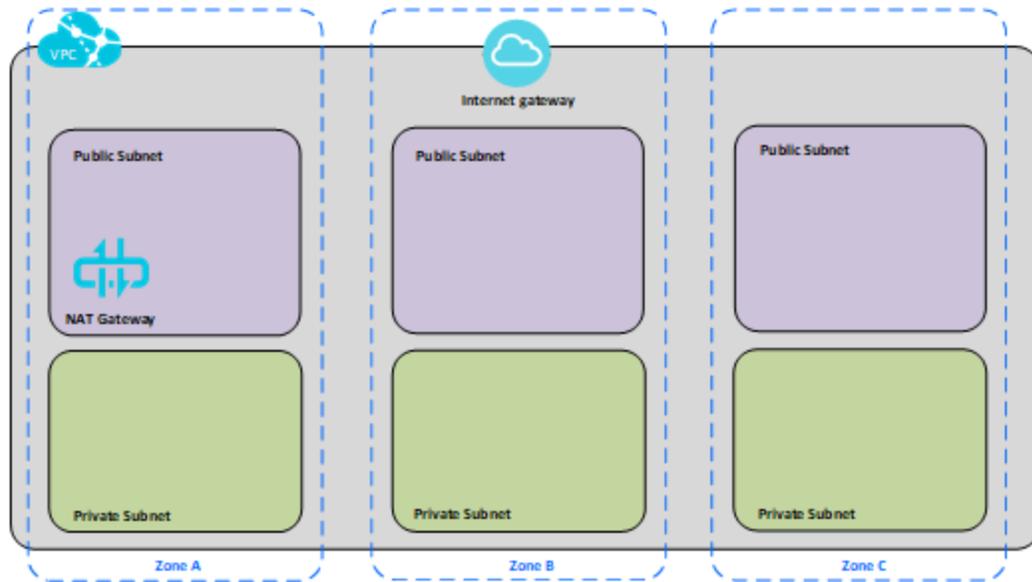
Step 2: Deploy three ECS instances

Deploy three ECS instances of the same type and capacity, in the private subnet, and distribute the nodes among the available zones. Select instances that meet the system requirements for Tableau Server. You'll install Tableau Server on each of the ECS instances, and use one node as the initial server and the two other nodes as additional servers.

For more information about installing Tableau in a distributed Windows environment, search for "Distributed and Highly Available Installations" and "Install and Configure Additional Nodes" in the Tableau Server Help.
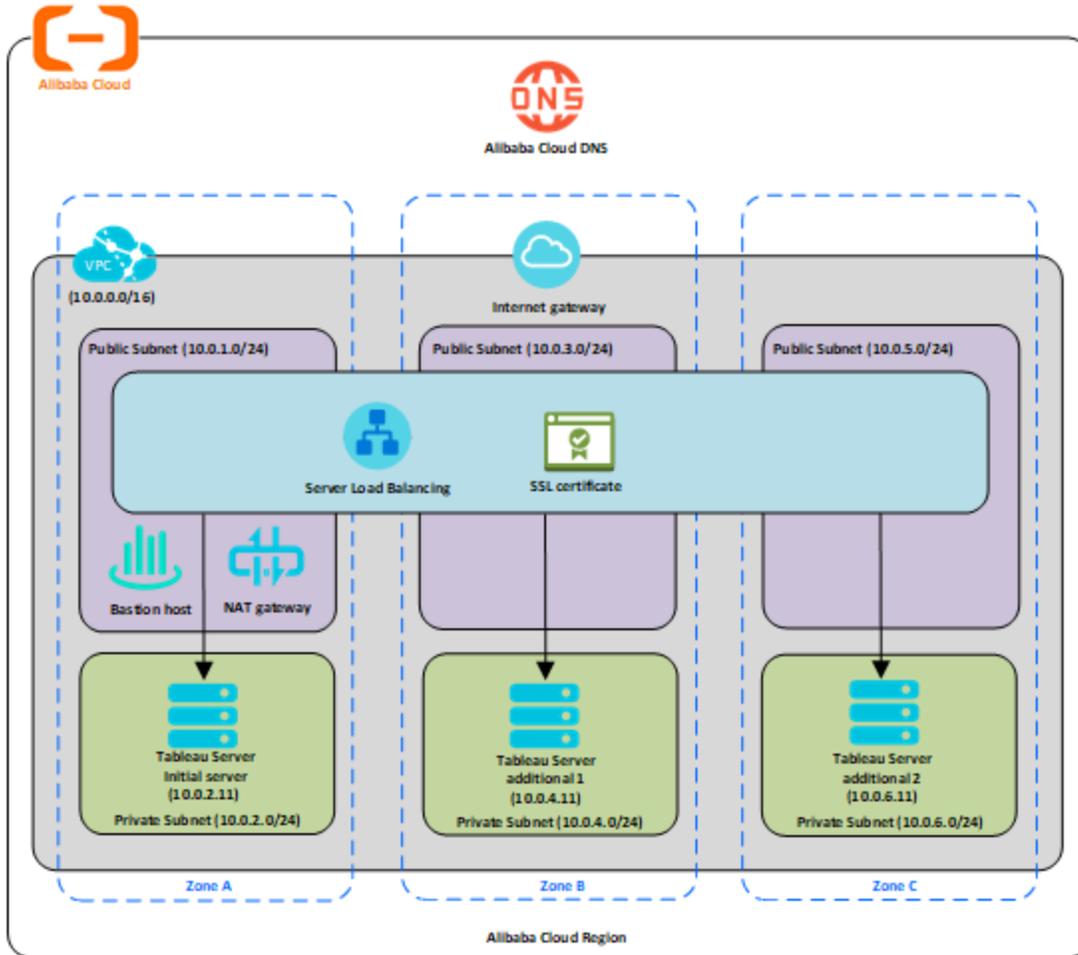
Step 3: Create an Alibaba Server Load Balancer for the Tableau Server Cluster

Read Implement high availability by using Server Load Balancer at the Alibaba website, and follow the steps to launch a load balancer within your Alibaba Virtual Private Cloud (VPC).

1. Create and launch a pubic Internet-facing load balancer. Follow the steps in Implement high availability by using Server Load Balancer at the Alibaba website.

2. Ensure that your ECS security group is configured to allow access on port 80 or 443 only, with the source limited to hosts or ranges of hosts that will access Tableau. For

more information about ECS security groups, see Cases for configuring ECS security groups at the Alibaba website.

3. Specify the ping path as /.

4. Select the Tableau instances and follow the instructions in Achieve cross-region load balancing through Global Traffic Manager at the Alibaba website, so that the load balancer can balance the traffic across the instances in multiple zones.

5. Update Tableau to use the load balancer. For more information, search for "Add a Load Balancer" in the Tableau Server Help.

Troubleshooting Tableau Server on the Alibaba Cloud

If you're having trouble with Tableau on your Alibaba Cloud Elastic Compute Service (ECS) instance, or with getting access to Tableau after installation, review these troubleshooting tips.

- **Cannot connect to the instance using RDP**

  One or more of the following issues might prevent you from connecting to your instance using RDP:

  - Make sure you're using the right credentials.

  - Choose the **Other User** option and enter your credentials there.

  - Make sure that you're using a username that is valid on the instance. For instance, if you created the instance with an administrator account of **myuser**, enter **.\myuser** as the username in the RDP dialog box.

- **Cannot access the server from a remote browser**

One or more of the following issues might prevent you from accessing the server from a remote browser:

- Sign in to the instance and make sure that the server is running.

- In the instance, open a browser and access the server locally (for example, using http://localhost or http://localhost:port, where port is the port number that the server was configured to listen on).

- In the Alibaba Cloud Elastic Compute Service (ECS) console, make sure that you've configured an endpoint to allow HTTP traffic to the instance.

> **Note:** You cannot use the Windows ping utility to test connectivity to the instance. The ping utility will always report a timeout when used from the public internet.

- **You receive the following error message: Tableau Server is unlicensed**

  This error can occur if you've shut down instances without first deactivating the license. Contact Tableau Support.

- **Tableau Server does not use all CPU cores**

  One or more of the following symptoms might occur when working with Tableau Server core-based licensing:

  - When installing Tableau Server, the installer might show fewer cores than you would expect to see for the computer running Tableau Server.

  - On the Licenses page on Tableau Server, the number of cores listed under Licenses in Use is less than you would expect to see.

  - When you run `tsm licenses list`, Tableau Server might report fewer cores in use that you would expect to see.

For more information, see Not All Cores Recognized by Tableau Server.