



Deploying Cisco Catalyst 8000V Using Solution Templates

You can deploy a Cisco Catalyst 8000V router in Google Cloud Platform (GCP) in two ways: by using a VM instance, or by using a solution template. This chapter specifies the procedures to deploy an instance by using a solution template.

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Create an SSH Key

The first task in the deployment procedure is to create an SSH key. SSH keys act as a method of authentication to access your Cisco Catalyst 8000V instance. When you create an SSH key, a public key and a private key are created in the `.ssh` directory.

RSA is the default key type until Cisco IOS XE 17.9.x. From Cisco IOS XE 17.10.1a, support for ED25519 key type is added.

To create an SSH key, perform the following steps. Enter the commands in a terminal server.

Step 1 Run the `ssh-keygen -t rsa -f ~/.ssh/keyfile [-C username]` command. Here,

`~/.ssh/keyfile` is the directory path and filename of the key, for example, `/users/joe/.ssh/mykey`.

`-C username` is the username that is added as a comment. This variable is optional.

Two key files, a private key and a public key, are created in the `.ssh` directory, for example, `mykey` and `mykey.pub`.

For more information on creating an SSH key, see [Creating a new SSH key](#). See also [Managing SSH keys in Metadata](#).

Example:

```
ssh-keygen -t rsa -f /users/joe/.ssh/mykey -C joe
```

Step 2 Run the `cat ~/.ssh/[keyfile_pub]` command. Here, `keyfile_pub` specifies the public key, for example, `mykey.pub`.

Example:

```
cat /users/joe/.ssh/mykey.pub
```

The system displays the contents of the public key. You will need this public key to create a VM instance.

Create a VPC Network

Before you begin

Learn about VPC networks. For information about VPC networks, see [Virtual Private Cloud \(VPC\) Network Overview](#) and [Using VPC Networks](#).

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- Step 1** In the navigation pane of the Google Cloud Platform console, choose **VPC network > VPC Networks**.
- Step 2** Choose **Create VPC Network**.
- Step 3** Enter a **Name** for the network.
- Step 4** Enter a **Description** for the network.
- Step 5** Choose **Subnets > Add Subnet**.
- Step 6** In the **New Subnet** dialog box, enter a **Name** for the subnet, for example, **c8kvnet1**.
- Step 7** Choose the appropriate option from the **Region** drop-down list.
- Step 8** Enter an **IP address range**, for example, enter 10.10.1.0/24 for the subnet address.
- Step 9** Click **Done** to create the subnet.
- To create multiple subnets for the VPC network, repeat step 5 to step 9.
- Step 10** Click **Create** to create the VPC Network.
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Deploy the Cisco Catalyst 8000V Template

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- Step 1** Go to the Google Marketplace and search for Cisco Catalyst 8000V. Select the Cisco Catalyst 8000V template.
- Step 2** Click **Launch On Compute Engine**.
- Step 3** In the New Cisco Catalyst 8000V Deployment screen, provide the following details:
- Deployment name:** This field is filled by default, and displays the cisco-c8000v-`<deployment number>`.
 - Instance Name:** The name of the Cisco Catalyst 8000V instance in text format. You must follow the GCP naming pattern for successful deployment. The name of the instance must be a combination of regex `'(?:[a-z](?:[-a-z0-9]{0,61}[a-z0-9])?)'>`
 - Username:** Specify the username that is used to access the Cisco Catalyst 8000V instance.
 - Instance SSH Key:** Specify the public key to be used for SSHing into the instance. To know how to create an ssh-key, see [SSH-Key](#).
 - Zone:** Select the zone where the Cisco Catalyst 8000V is deployed from the drop-down list.
 - Machine Type:** Select the size of the Cisco Catalyst 8000V that you want to deploy. For more information on Cisco Catalyst 8000V sizes, see [MachineTypes](#).

- g) **Custom Data File URL:** Provide a link to the publicly-readable custom data file. For example, `http://storage.googleapis.com/customdatatest/customdata.txt`. For more information, see the Custom Data section in the *Cisco Catalyst 8000V Installation and Upgrade Guide*.

Bootdisk

- h) **Bootdisk type:** By default, the SSD Persistent disk is selected. Cisco recommends that you use the default Boot disk type.
- i) **Boot disk size in GB:** The default value is 10 GB. Cisco recommends that you use the default Boot disk size.

Networking

- j) **Network (VPC):** Select the network in the region where you want to deploy the Cisco Catalyst 8000V instance. You must create the Network (VPC) before you create the Cisco Catalyst 8000V instance. Ensure that at least one subnet is associated to that Network (VPC). For more information about VPC networks, see [Virtual Private Cloud Network Overview](#) and [Using VPC Networks](#).
- k) **Subnetwork:** Select the subnet that is associated with the selected Network (VPC). This subnet acts as the first Network Interface (nic0) of the Cisco Catalyst 8000V instance.
- l) **ExternalIP:** The public IP address that you must use to SSH into the Cisco Catalyst 8000V instance. This can be static, Ephemeral (Dynamic) and None. For more information about IP addresses, see [IP Addresses](#).
- m) **Firewall:** The firewall wall rule associated to the VPC Network. With the current Solution Template, you can use TCP ports 21, 22, 80. You can also create additional Firewall rules. For more information on firewall rules, see [Firewalls in VPC Networking and Firewalls](#).

Note You can also specify source ranges for firewalls rules.

- n) **IP Forwarding:** The default value to allow traffic between interfaces on the Cisco Catalyst 8000V instance. By default, the value for IP Forwarding is ON.
- o) **Additional Network Interfaces:** Configure this field if you want to configure additional interfaces. By default, the value of this field is 0. To add additional interfaces, specify additional interfaces that are needed for the Cisco Catalyst 8000V instance. Select the additional network interfaces based on the machine type. For more information on deployment of instance with multiple interfaces in GCP, see [Creating Instances With Multiple Network Interfaces](#).

Note For the deployment to be successful, even if you do not require all the additional interfaces, you must select the **Additional Network Interfaces** option. This is a known issue where Google brings up to 8 interfaces, and you must fill in all the eight interfaces.

For example, in the following image, even though two additional NICs were selected, note that the 7 additional interfaces are configured with the networks and subnets present in region where the Cisco Catalyst 8000V instance is deployed.

After successful deployment, the system displays a message that the Cisco Catalyst 8000V instance has been deployed.

Access the Cisco Catalyst 8000V CLI

SSH keys act as the authentication method to access your Cisco Catalyst 8000V instance. Apart from the RSA key type, Cisco Catalyst 8000V also supports the ED25519 key type from Cisco IOS XE 17.10.1a. To set up an SSH using the CLI, perform the following steps.

Before you begin

- Perform the Day 0 configuration as mentioned in the [Day Zero Configuration](#) chapter.

- Ensure that the Cisco Catalyst 8000V VM instance is up. This is required for you to access the Cisco Catalyst 8000V VM instance using an SSH session.



Note In the VM Instances window, the **SSH** tab is not enabled for a Cisco Catalyst 8000V VM. You must set up an SSH using the following commands.

SUMMARY STEPS

1. `ssh -i ~/.ssh/[keyfile] username@ instance-external-IP .`
2. `interface interface-name`
3. `ip address dhcp`
4. `speed 10000`
5. `no negotiation auto`
6. `exit`

DETAILED STEPS

	Command or Action	Purpose
Step 1	ssh -i ~/.ssh/[keyfile] username@ instance-external-IP . Example: <pre>ssh -i /users/joe/.ssh/mykey.pub joe@10.0.0.2</pre>	Logs into the Cisco Catalyst 8000V instance using an SSH session. <code>~/.ssh/keyfile</code> represents the path and filename of the public key. After logging in, you can enter Cisco IOS XE commands using the CLI.
Step 2	interface interface-name Example: <pre>Router(config)# interface GigabitEthernet1</pre>	Enters interface configuration mode. It is recommended that you perform the following steps are recommended in order to increase the interface's speed to 10 Gbps for each interface.
Step 3	ip address dhcp Example: <pre>Router(config-if)# ip address dhcp</pre>	Acquires an IP address on an interface from DHCP.
Step 4	speed 10000 Example: <pre>Router(config-if)# speed 10000</pre>	Sets the speed of the interface to 10 Gbps.
Step 5	no negotiation auto Example: <pre>Router(config-if)# no negotiation auto</pre>	Disables auto negotiation.
Step 6	exit Example: <pre>Router(config-if)# exit</pre>	Exits interface configuration mode. (Optional) Repeat steps 2 to 6 to increase the speed of the second interface of the Cisco Catalyst 8000V instance.