



Installing in OpenStack Environment

From Cisco IOS XE Release 17.7.1, you can install and boot Cisco Catalyst 8000V on OpenStack Train which acts as a hypervisor manager. The OpenStack Train release is the 20th version of the open-source cloud infrastructure software on which you can launch virtual machines (VMs) or instances.

Both 8-GB and 16-GB disks are supported for this installation. You can install Cisco Catalyst 8000V VMs in OpenStack by using one of the following methods:

- Creating a VM manually through the OpenStack dashboard and then using the qcow2 image for the installation.
- Performing the installation by using a Heat template. In OpenStack, Heat is a service that orchestrates composite cloud applications using a template format through an OpenStack-core REST API. A Heat template describes the infrastructure for a cloud application in text files. These templates specify the relationships between resources, which enable Heat to call out to the OpenStack APIs. This action creates all your infrastructure in the correct order to launch your application.

After you install and launch a Cisco Catalyst 8000V instance, based on the bootstrap or the day zero configuration data that you provide, the router either starts in the autonomous mode or the controller mode.

Features Supported

The following are the features that are supported in the Cisco Catalyst 8000V installation in OpenStack:

- IPv6
- CDNA Licensing model
- vNIC hot add and delete in the autonomous mode
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Installation Requirements for OpenStack

The requirements for installing Cisco Catalyst 8000V in OpenStack are:

- OpenStack Release: Train Release
- Red Hat Enterprise Linux (RHEL) Release 8.2 (Ootpa)

- RHEL OSP version 16.1 (Train)
- CVIM version 4.2
- Virtual disk: Both 8-GB and 16-GB virtual disks are supported
- Minimum supported profile: 1 vCPU with 4-GB memory and 8-GB or 16-GB virtual disk

Restrictions for Installing in OpenStack

Console URLs generated by OpenStack heat-deployments are subject to a token time-to-live (TTL) with a default setting of 10 minutes. Any NoVNC URLs that you use expires after this default time, especially under certain conditions, for example, with a lower profile instance bootup or while using different setups.

To overcome this limitation, use the built-in Instance VNC console in the portal, or the **virsh console** command in the compute node to access the console of the instance.

Install Cisco Catalyst 8000V in OpenStack

You can install Cisco Catalyst 8000V in one of the following ways:

- By using the OpenStack GUI. To learn how to do this, see [Launching an Instance, on page 2](#).
- By using the heat template. To learn how to perform this installation, see [Installing the VM Using a Heat Template, on page 3](#).
- By using the CLI. You can create a VM by running the **openstack server create** command in the OpenStack CLI. For more information, see <https://docs.openstack.org/python-openstackclient/train/cli/command-objects/server.html#server-create>.

Launching an Instance

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- Step 1** On the OpenStack portal, click **Images**, and choose the image that you want to launch. Alternatively, you can also click **Instances** and then **Launch Instance**.
- Step 2** In the left pane, click **Details** and specify the following details:
- **Instance Name:** Enter a name for your instance.
 - **Description:** Enter a description for your instance. This field is optional.
 - **Availability Zone:** This field specifies the logical partitioning of the cloud. Enter **Nova** in this field.
 - **Count:** Enter the number of instances that you want to create. Increase the count to create multiple instances with the same settings.
- Step 3** Click **Next**.
- Step 4** In the left pane, click **Source**.
- Step 5** From the **Select Boot Source** drop-down field, choose either **Image**, **Instance Snapshot**, **Volume**, or **Volume Snapshot**.

The **Source** option specifies the template used to create an instance. You can use an image, a snapshot of an instance (image snapshot), a volume, or a volume snapshot (if enabled). You can also choose to use persistent storage by creating a new volume.

Step 6 To delete the Volume when you delete the instance, from the **Delete Volume on Instance Delete** field, choose **Yes**.

Step 7 In the left pane, click **Flavor**.

Step 8 Choose an option based on your memory and storage requirements.

Step 9 Click **Next**.

Step 10 From the **Networks** option, choose a network to connect the Cisco Catalyst 8000V VM with the servers in that network. This option is also required if you want to set up a topology.

Note You can use the **Network Ports** drop-down list and choose an NIC if you want to select an SRIOV port to be attached to the VM.

Step 11 Click **Next**.

Step 12 From the **Security Groups** drop-down list, choose the security groups to launch your instance in. A default security group is also available.

Step 13 Click **Next**.

Step 14 In the **Configuration** section, copy and paste the user data in the **Customization Script** field. The following is a sample user data configuration script:

```
hostname c8kv-ios_cfg
license smart enable
username lab privilege 15 secret lab
ip domain-name cisco.com
interface GigabitEthernet1
ip address 10.0.0.5 255.255.255.0
no shut
exit
ip route 0.0.0.0 0.0.0.0 10.0.0.1
line vty 0 4
login local
exit
```

Step 15 You can also upload an XML file or the iosxe_config.txt file to provide user data or configuration data. Click **Choose File** and browse to your XML or .txt file.

Note For detailed information on configuring day zero settings, see [Day 0 Configuration](#).

Step 16 Check the **Configuration Drive** check box and click **Next**.

Step 17 Click **Launch Instance** to launch your instance.

Note You must copy the ciscosdwan_cloud_init.cfg file to bootflash when you switch from the autonomous mode to the controller mode.

Installing the VM Using a Heat Template

Heat templates in OpenStack allows you to create OpenStack resources such as instances, volumes, security groups, and so on. This template specifies the infrastructure for your cloud application in the form of text files and enables you to automate the deployment of infrastructure, services, and applications.

To install the OpenStack VM using a Heat template, perform the following steps:

- Step 1** Log in to the OpenStack portal.
- Step 2** From the menu options on top, click **Project**.
- Step 3** Click **Orchestration** and select **Stack**.
- Step 4** In the **Stacks** window, click **Launch Stack**.
- Step 5** From the **Template Source** drop-down list, choose **File**, **URL**, or **Direct Input**, based on how you want to provide the template.
- Step 6** If you chose the **File** option, click the **Choose File** option, browse to the location where you have saved your template file, upload this file, and click **Next**.
- Step 7** Enter a name for your stack in the **Stack Name** field.
- Step 8** To enable rollback, check the **Rollback on Failure** check box.
- Step 9** Enter a password for the admin in the **Password for user “admin”** field.
- Step 10** Click **Launch**.

After the launch is complete, in the **Stacks** window, the system displays a Create Complete message in the **Status** column.
