

Deploy Cisco Catalyst 8000V on AWS

This chapter describes the steps involved in deploying a Cisco Catalyst 8000V instance on AWS. To deploy a Cisco Catalyst 8000V instance, you need an Amazon Machine Image (AMI), which is an AWS supported and maintained image. The AMI provides the information required to launch your instance.

After you log in to the AWS Marketplace, select the template or the marketplace offer of your choice. Further, follow the procedures mentioned in this chapter to create an AMI with an encrypted Elastic Block Storage (EBS).

Note If you are using a BYOL AMI, see Licensing.

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Prerequisites for Deploying Cisco Catalyst 8000V on AWS

Before you launch Cisco Catalyst 8000V on AWS, you must:

- Have an AWS account.
- Have an SSH client such as Putty on Windows or Terminal on Macintosh, or have access to an EC2 instance console, to access the Cisco Catalyst 8000V console.
- Determine the instance type for your Cisco Catalyst 8000V AMI.
- Create an Amazon VPC if you're planning to launch the AMI using 1-Click Launch.

Supported Instance Types

- To see the list of supported instance types for this deployment, refer to the Compatibility Matrix.

- The c5n.large, c5n.xlarge, c5n.2xlarge, and c5n.9xlarge instance types are replaced with c6in.large, c6in.xlarge, c6in.2xlarge, and c6in.8xlarge respectively from the Cisco IOS XE 17.13.1a release. However, when you upgrade from an earlier release to Cisco IOS XE 17.13.1a, you will continue to see the c5n instance types. In this scenario, you must manually upgrade the instance types to the corresponding c6in replacement.

Notes and Guidelines

- To optimize the performance while using instance types that support PMD multi-queue, see Support for PMD Multi-Queue.
- To determine the maximum number of network interfaces supported per instance, see Private IP Addresses Per Network Interface Per Instance Type.

Restrictions for Deploying Cisco Catalyst 8000V on AWS

- Pay-As-You-Go license type is not supported in SD Routing devices.
- The jumbo frames in a VPC have limitations. For more information on jumbo frames, see Network Maximum Transmission Unit (MTU) for Your EC2 Instance.

Deploy the Cisco Catalyst 8000V Instance

To deploy the Cisco Catalyst 8000V AMI, perform the steps as described in the following sections:

Select the Cisco Catalyst 8000V Marketplace Offer

Procedure

Step 1 Log in to Amazon Web Services Marketplace.

Step 2 Click **Discover Products**.

Step 3 In the search bar, search for Cisco Catalyst 8000V. The system displays the following offers:

- Cisco Catalyst 8000V - Advantage PAYG
- Cisco Catalyst 8000V - Essentials PAYG
- Cisco Catalyst 8000V - BYOL

Step 4 Select the Cisco Catalyst 8000V AMI that you are planning to deploy.

The marketplace displays product information such as supported instance types, pricing, and support details.

Launch the Instance Through the Website

Before you begin

If you're launching the AMI using 1-Click Launch, you must first create a Virtual Private Cloud (VPC). To know how to do this, see the AWS documentation on VPC.

Procedure

Step 1 After you select the Cisco Catalyst 8000V offer from the AWS Marketplace, click **Continue to Subscribe** after you accept the Terms and Conditions.

Step 2 From the **Configure Software** window, choose the **Software Version** and your **Region** for your Cisco Catalyst 8000V instance.

For information on zones and regions in Amazon EC2, see: Regions and Availability Zones.

Step 3 From the **Fulfillment Option** field, choose **Amazon Machine Image**.

Step 4 Click **Continue to Launch**.

Step 5 In the **Launch This Software** window, choose **Launch from Website**.

Step 6 Choose the **EC2 Instance Type** from the drop-down list.

Step 7 Configure the **VPC**, **Subnet**, **Security Group** and **Key Pair** settings for your instance.

For more information about these settings in AWS, see Parameters for Instance Configuration.

Step 8 Click **Launch**.

To view the newly launched instance, click **Launch** and navigate to https://console.aws.amazon.com/ec2/. Ensure that **Status Check** displays the `2/2 checks passed` message before you try to connect to the instance using SSH.

Launch the Instance Through the EC2 Console

Perform this procedure after you login to the AWS Marketplace and Subscribe to Cisco Catalyst 8000V. This procedure describes how to launch an instance through the EC2 Console.

Procedure

Step 1 After you select the Cisco Catalyst 8000V offer from the AWS Marketplace, click **Continue to Subscribe** after you accept the Terms and Conditions.

Step 2 From the **Configure Software** window, choose the **Software Version** and your **Region** for your Cisco Catalyst 8000V instance.

For information on zones and regions in Amazon EC2, see: Regions and Availability Zones.

Step 3 From the **Fulfillment Option** field, choose **Amazon Machine Image**.

Step 4 Click **Continue to Launch**, and choose **Launch with E2 Console**.

Step 5 In the **Launch an Instance** window, in the **Name** field, enter the name for your instance.

Step 6 In the **Application and OS Images** area, the AMI is autofilled based on your subscription and your choice of the software version.

Step 7 From the **Instance Type** field, choose a supported instance type from the drop-down list. For more information on which instance type is supported for each IOS XE release, refer to the Compatibility Matrix.

Step 8 Configure the **Key Pair** settings for your instance. Choose an existing key pair or create a new key by uploading your own public key. To create a new key pair, click **Create Key Pair**, enter the key pair name, and click **Create**. After the key pair is created, ensure that you have downloaded the private key from Amazon before continuing.

Note that you can access a newly created private key only once. After you download the key pair, click **Close**.

Note
AWS security policies require that the private key permission level be set to 400. To set this value for the .pem file, open a UNIX shell terminal screen and run the **chmod 400***pem-file-name* command.

From Cisco IOS XE 17.10.1a, Cisco Catalyst 8000V supports the ED25519 SSH key. This is in addition to the existing SSH-RSA keys. We recommend that you use the ED25519 SSH key for faster generation and verification of the keys, and for better collision resilience and security.

Step 9 Configure the **Network** settings for your instance. Choose the VPC subnet in which you want to deploy the Cisco Catalyst 8000V instance from the drop-down list. This setting determines the availability zone of your instance.

Note
By default, one insterface is configured. You can create an additional interfaces from the **Instance Details** area under **Network Interfaces**. The maximum number of interfaces that are supported depends on your instance type.

Step 10 Configure the **Security Group** settings. You can create a new security group or choose an existing security group. Cisco Catalyst 8000V requires SSH for console access. Cisco Catalyst 8000V also requires that the Security Group, at a minimum, does not block TCP/22. These settings are used to manage the Cisco Catalyst 8000V instance.

Step 11 Choose the metadata version from the **Metadata Version** drop-down list. Choose either **V1 and V2 (token optional)** or **V2 (token required)**. In both these scenarios, the instance uses session-oriented requests by creating tokens. The tokens are used to fetch all the required metadata for your instances.

For Cisco IOS XE 17.4.x and 17.5.x releases, only version 1 or V1 is applicable. From Cisco IOS XE 17.6.1, metadata versions V1 and V2 are supported.

Step 12 Configure the **Storage** settings for your instance. Retain the default hard drive setting. Note that you cannot change the size of virtual hard drives.

Step 13 Provide the Day Zero configuration data or the bootstrap properties in the custom data format using the **User Data** field. For the supported custom data format, see Day 0 Configuration.

Step 14 Click **Review and Launch**.

Step 15 Review the Cisco Catalyst 8000V instance information, and click **Launch Instance**.

After the instance is launched, a success message appears on top of the Instances page. You can also view the newly launched instance in the Instances list. Click the newly launched instance to access the instance.

Associate the Public IP Address with the Cisco Catalyst 8000V Instance

To access the management console using an SSH connection, you must first associate an interface in the Cisco Catalyst 8000V instance with the public IP address created with the VPC. Perform the following steps to associate the public IP address with your Cisco Catalyst 8000V instance.

Procedure

Step 1 Choose **Services** > **EC2** > **Instances**, and select the Cisco Catalyst 8000V instance.

Step 2 In the **Network interfaces** window that is displayed, click **eth0**.

A dialog box displays detailed information about the eth0 interface. Note the interface's private IP address.

Step 3 Click **Interface ID Value**.

Step 4 Click **Actions**, and choose **Associate Address** from the drop-down list.

Step 5 Choose an available public IP address from the **Elastic IP address** drop-down list.

Step 6 If you're reassigning a public IP address that is currently in use and is mapped to another elastic network interface (ENI), click **Allow Reassociation**.

Step 7 Validate that the selected private IP address matches the one that you noted in step 3.

Step 8 Click **Associate Address**.

This action associates the public IP address (Amazon elastic IP) with the private IP address of the network interface. You can now use this interface to access the management console.

Connect to the Instance using SSH

The Cisco Catalyst 8000V instance on AWS requires SSH for console access. To access the Cisco Catalyst 8000V AMI, perform the following steps:

Procedure

Step 1 After you launch the Cisco Catalyst 8000V instance and the status is displayed as `Running`, select the instance from the **Instances** window.

Step 2 Run the **ssh -i** *pem-file-name* **ec2-user**@[*public-ipaddress* | *DNS-name*] UNIX shell command to connect to the Cisco Catalyst 8000V console using SSH:

- Use the default user name for your AMI, **`ec2-user`**, to access the instance for the first time.
- Use the private key stored in the .pem file to authenticate the access to the instance.

Step 3 Start the Cisco Catalyst 8000V instance.

For information on downloading and activating the license for the BYOL AMI, see Licensing.

Create SSH Key Pairs

When you deploy a Cisco Catalyst 8000V instance in AWS, you can provide an SSH key as the method of authentication to access your instance. In this case, you must create key pairs.

To create a key pair, you can use the Amazon EC2 to create an RSA or an ED25519 key pair. Alternatively, you can use a third-party tool to create a key pair and then import the public key to the Amazon EC2 instance.

After you create and configure the key pair, the new VM starts and the system displays a `status passes 2/2 check` message. You can access the new VM's console using the .pem key and use the private key to authenticate the access to the new VM console.