



# Deploying the Cisco Application Services Engine in VMware vCenter (OVA) (Fabric External Mode)

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## Prerequisites

Complete the following one time pre-requisites before you start:

- Ensure that the NTP server is configured and reachable from the Orchestrator VMs and the VMware Tools periodic time synchronization is disabled.
- Ensure that you have the required system requirements for each VM service node:
  - vCPU: 16
  - RAM : 48GB
  - Disk space: 600 GB
  - ESX version 5.5 and above

## Deploying the Cisco Application Services Engine in VMware vCenter (OVA)

This section describes how to deploy the Cisco Application Services Engine using an OVA in the VMware vCenter.

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- Step 1** Download the Cisco Application Services Engine image.
- a) Navigate to the [Software Download](#) page.
  - b) Choose the Cisco Application Services Engine OVA image (apic-sn-dk9-1.1.2h.ova).
- Step 2** Deploy OVA using the VMware vCenter GUI or the VMware vSphere Client.
- a) Right-click and select **Deploy OVF Template**.

- b) The **Deploy OVF Template** wizard appears.

**Step 3**

On the **Select an OVF Template** page, specify the location of the source OVF or OVA template and click **Next**

- a) Choose the **local file** tab.
- b) Click **choose file** and select the OVA file already downloaded in Step 1. If you do not select the required files, a warning message displays.

**Step 4**

For Cisco Application Services Engine, we must deploy three nodes to form a cluster. On the **Select a name and folder** page, enter a unique name for the first node. Select a deployment location, and click **Next**.

**Step 5**

On the **Select a compute resource** page, select a resource where to run the deployed VM template, and click **Next**.

**Step 6**

On the **Review details** page, verify the OVF or OVA template details and click **Next**.

**Step 7**

On the **Select storage** page, define where and how to store the files for the deployed OVF or OVA template.

- a) Select the disk format for the virtual machine virtual disks. Choose **Thick Provision Lazy Zeroed**.
- b) Select the local datastore which has enough capacity to deploy the OVA.

The configuration file and virtual disk files are stored on the datastore. Select a datastore large enough to accommodate the virtual machine and all associated virtual disk files.

**Note** Unique datastore should be assigned to each node.

**Step 8**

On the **Select networks** page, select a source network and map it to a destination network and click **Next**.

Choose **Source Network** and **Destination Network**. All the network communications occur through this portal.

**Step 9**

In the **Customize Template** page configure the OVA properties.

In the **Node Configuration** dialog box, enter the appropriate information for each node:

- a. In the **Node ID** field, enter the node number.

Node ID 1

- b. In the **Node Serial Number** field, enter the serial number which is unique across the cluster.

CiscoSN01

- c. In the **Hostname** field, enter the hostnames for each node. Use any valid Linux hostname.

CiscoSN01

- d. In the **Rescue User Password** field, select a password. Re-enter the password to confirm.

- e. In the **Domain Name** field, enter the domain name of the node.

sn.cisco.com

**Note** User must configure the same domain name for all the nodes in the cluster.

In the **Network Configuration** dialog box, enter the appropriate information for each node:

- a. In the **Management Address and Subnet** (network address) field, enter the Out-of-Band Management network address and enter the IP address and subnet.

10.197.145.244/24

**Note** This field is not validated prior to installation. Providing an invalid value for this field will cause the deployment to fail.

- b. In the **Gateway IP** (network gateway) field, enter the Out-of-Band Management network gateway IP address.

10.197.145.1

- c. In the **Application overlay Network IP Subnet** field, enter the IP/subnet to be used for Docker internal bridge networks.

2.2.0.0/16

Application overlay and the service network must be a /16 network. Both the networks must not overlap with management or external networks.

**Note** This field is not validated prior to installation. Providing an invalid value for this field will cause the deployment to fail.

- d. In the **Service Network IP subnet** field, enter the IP/subnet.

1.1.0.0/16

- e. In the **NTP-servers** field, enter the Network Time Protocol servers separated by space.

10.197.145.2

- f. In the **Name Server IP list**, enter the IP address of the name server

10.197.145.3

- g. In the **Domain Search List** field, enter the list of domains to search separated by space.

cisco.com

In the **Cluster Configuration** dialog box, enter the appropriate information for each node:

- a. In the **First Master** field, check the First Master check-box if it is the first node to be configured.

Is this node the first master node? Y

- b. In the **Number of cluster masters** for Cisco Application Services Engine, enter 3.

Number of masters in the cluster 3

- c. In the **List of IP serial numbers** field, enter the list of IP address of peer nodes in the cluster separated by a comma.

10.197.145.245,CiscoSN02 10.197.145.246,CiscoSN03

- d. In the **Enter the latest dgbtoken from the master node in the cluster** field, enter any string of at least length 11 characters for the master node. For the peer nodes, enter the latest dgbtoken from the master node.

aaabbbcccd

- e. Click **Next**.

- f. Reboot the VM, log-in as a rescue userlog in to the first node, execute the **acdiag dgbtoken** command to obtain the dgbtoken.

## Step 10

The second node in the cluster needs to be configured in a similar manner.

In the **Cluster Configuration** dialog box, enter the appropriate information for each node:

- In the **First Master** field, check the check-box only if it is the first node to be configured.

Is this node the first master node? N

- The **Number of cluster masters** for Cisco Application Services Engine is always 3.

Number of masters in the cluster 3

- In the **List of IP serial numbers** field, enter the list of IP serial number of peer nodes in the cluster separated by a comma.

```
10.197.145.245,CiscoSN01 10.197.145.246,CiscoSN03
```

- For the **Enter the latest dgbtoken from the master node in the cluster**, enter the value for node 2 as acquired in step 9(f).

```
0HSQETJXWDHC
```

- Click **Next**.

**Step 11** The third node in the cluster needs to be configured in a similar manner.

In the **Cluster Configuration** dialog box, enter the appropriate information for each node.

- In the **First Master** field, check the box only if it is the first node to be configured.

```
Is this node the first master node? N
```

- The **Number of cluster masters** for Cisco Application Services Engine is always 3.

```
Number of masters in the cluster 3
```

- In the **List of IP, serial numbers** field, enter the list of IP and serial number of peer nodes in the cluster separated by a comma.

```
10.197.145.244,CiscoSN01 10.197.145.245,CiscoSN02
```

- For the **Enter the latest dgbtoken from the master node in the cluster**, enter the value for node 3 as acquired in step 9(f).

```
0HSQETJXWDHC
```

- Click **Next**.

**Step 12** On the **Ready to complete** page, review the settings and click **Finish**.

**Step 13** Re-boot all the VMs to form the cluster.

**Step 14** After all three nodes are bootstrapped, wait for 15-30 mins, log in to SSH and execute the following command:

```
Server # acidiag health
cluster is healthy
```

Verify that a “healthy” status is displayed to indicate that the installation was performed successfully.

**Step 15** Cisco Application Services Engine is available to deploy the apps that can be hosted on the Cisco Application Services Engine.

**Note** Cisco Application Services Engine, Release 1.1.2 supports the deployment of only the Cisco ACI Multi-Site Orchestrator application (starting with Release 2.2(3)). Refer to the [ACI Multi-Site Orchestrator Cisco ACI Multi-Site Orchestrator Installation and Upgrade Guide](#) for more information