



Installing the Cisco Nexus 1000V

This chapter contains the following sections:

- [Installing the Cisco Nexus 1000V Software using the Installer Application, page 1](#)
- [Installing the Cisco Nexus 1000V Software Manually, page 14](#)

Installing the Cisco Nexus 1000V Software using the Installer Application

Cisco Nexus 1000V Installer App

The Cisco Nexus 1000V Installer App is the graphical user interface (GUI) that you use to install the VSMs in high availability (HA) mode and the VEMs on ESX/ESXi hosts.

To prevent a disruption in connectivity, all port profiles are created with a system VLAN. You can change this after migration if needed.

The host and adapter migration process moves all physical network interface cards (PNICs) used by the VSM from the VMware vSwitch to the Cisco Nexus 1000V Distributed Virtual Switch (DVS).

The migration process supports Layer 2 and Layer 3 topologies.

The installer app does the following:

- Creates port profiles for the control, management, and packet port groups.
- Creates uplink port profiles.
- Creates port profiles for VMware kernel NICs.
- Specifies a VLAN to be used for system login, and configuration, and control and packet traffic.



Note You can use the same VLAN for control, packet, and management port groups, but you can also use separate VLANs for flexibility. If you use the same VLAN, make sure that the network segment where the VLAN resides has adequate bandwidth and latency.

- Enables Telnet and Secure Shell (SSH) and configures an SSH connection.
- Creates a Cisco Nexus 1000V plug-in and registers it on vCenter Server.
- Migrates each VMware port group or kernel NIC to the correct port profile.
- Migrates each PNIC from the VMware vSwitch to the correct uplink on the DVS.
- Adds the host to the DVS.
- Enables you to quickly deploy VSMS and VEMs with minimal or custom inputs on a single screen and expect a fully functional Cisco Nexus 1000V setup. See the following link for more information: Cisco Nexus 1000V: http://www.cisco.com/en/US/prod/collateral/switches/ps9441/ps9902/guide_c07-556626.html.

Cisco Nexus 1000V Installer App Prerequisites



Note The Installation Application requires you to satisfy all the prerequisites.

If you migrate the host and adapters from the VMware vSwitch to the Cisco Nexus 1000V DVS:

- The host must have one or more physical NICs on each VMware vSwitch in use.
- The VMware vSwitch must not have any active VMs.
To prevent a disruption in connectivity during migration, any VMs that share a VMware vSwitch with port groups used by the VSM must be powered off.
- Make sure no VEMs were previously installed on the host where the VSM resides.
- You must have administrative credentials for the vCenter Server.
- The java.exe file must be located within the search path defined in your system.

The ESX or ESXi hosts to be used for the Cisco Nexus 1000V have the following prerequisites:

- You have already installed and prepared the vCenter Server for host management using the instructions from VMware.
- You have already installed the VMware Enterprise Plus license on the hosts.
- The host must have one or more physical NICs on each VMware vSwitch that is being used.
- All VEM hosts must be running ESX/ESXi 5.0 or later releases.
- You have installed the appropriate vCenter Server and VMware Update Manager (VUM) versions.
- You are familiar with the Cisco Nexus 1000V topology diagram that is shown in [Layer 3](#).
- When you perform any VUM operation on hosts that are a part of a cluster, ensure that VMware HA, VMware fault tolerance (FT), and VMware distributed power management (DPM) features are disabled for the entire cluster. Otherwise, VUM cannot install the hosts in the cluster.
- If the hosts are in ESXi stateless mode, then enable the Pxe Booted ESXi host settings available under **Home > Update Manager > Configuration > ESXi host/cluster**.
- You have a copy of your VMware documentation available for installing software on a host.

Upstream Switch Prerequisites

The upstream switch from the Cisco Nexus 1000V has the following prerequisites:

- If you are using a set of switches, make sure that the interswitch trunk links carry all relevant VLANs, including the control and packet VLANs. The uplink must be a trunk port that carries all the VLANs that are configured on the host.
- The following spanning tree prerequisites apply to the upstream switch from the Cisco Nexus 1000V on the ports that are connected to the VEM.
 - On upstream switches, the following configuration is mandatory:
 - On your Catalyst series switches with Cisco IOS software, enter the **spanning-tree portfast trunk** or **spanning-tree portfast edge trunk** command.
 - On your Cisco Nexus 5000 series switches with Cisco NX-OS software, enter the **spanning-tree port type edge trunk** command.
 - On upstream switches we highly recommend that you enable Global BPDU Filtering and Global BPDU Guard globally.
 - On upstream switches, where you cannot globally enable BPDU Filtering and BPDU Guard, we highly recommend that you enter the **spanning-tree bpdu filter** and **spanning-tree bpdu guard** commands.

For more information about spanning tree and its supporting commands, see the documentation for your upstream switch.

- Enter the following commands on the upstream switch:

```
show running interface interface number
interface GigabitEthernet interface number
  description description of interface
switchport
switchport trunk encapsulation dot1q
switchport trunk native VLAN native VLAN
switchport trunk allowed vlan list of VLANs
switchport mode trunk

end
```

Guidelines and Limitations of the Cisco Nexus 1000V Installer App

The Cisco Nexus 1000V Installer app has the following configuration guidelines and limitations:

- For a complete list of port profile guidelines and limitations, see the *Cisco Nexus 1000V Port Profile Configuration Guide*.



Caution

Host management connectivity might be interrupted if the management vmknic or vswif are migrated and the uplink's native VLAN is not correctly specified in the setup process.

- If you are installing a Cisco Nexus 1000V in an environment where the upstream switch does not support static port channels, such as the Cisco Unified Computing System (UCS), you must use the **channel-group auto mode** on the **mac-pinning** command instead of the **channel-group auto mode** command.
- We recommend that you install redundant VSMs on the Cisco Nexus 1000V. For information about high availability and redundancy, see the *Cisco Nexus 1000V High Availability and Redundancy Configuration Guide*.
- If you are using the VC Connection installer, after the SVS connection is completed, you must check the VSM by using the **show svcs connection** command to view an accurate status.
- To install VEM using the Installer App, ensure the SVS Connection is connected and active.
- Layer 3 mode of deployment is supported by the Cisco Nexus 1000V Installer App with ESXi host only.
- The Cisco Nexus 1000V Installer App can support 14 different subnets during module additions when reusing port profiles.
- The Cisco Nexus 1000V Installer App always deploys with VSM HA pairs.
- If you are executing the Installer App on a Ubuntu operating system, ensure you have installed Oracle JRE.
- When you move a VSM from the VMware vSwitch to the Cisco Nexus 1000V DVS, it is possible that the connectivity between the active and standby VSM is temporarily lost. In that situation, both active and standby VSMs assume the active role.

The reboot of the VSM is based on the following conditions:

1 The number of modules attached to the VSM

- If more modules are attached on one of the VSMs and there is no VC connectivity on both VSMs, the VSM that has the lesser number of modules is rebooted.
- If modules are attached to both VSMs and one of the VSMs has VC connectivity, the VSM without connectivity is rebooted.

2 VC connectivity



Note

This option is invoked when the previous condition is not met.

- If both VSMs have the same number of modules, the software makes a selection that is based on the VC connectivity status.

For example, this action is taken if both VSMs have two modules attached or both VSMs have no modules attached.

3 Last configuration change



Note

This condition is invoked when the previous two conditions are not met.

- If both VSMs have the same number of modules and no VC connectivity, the VSM with the latest configuration remains active and the other VSM is rebooted.

4 Last active VSM

- If the previous three conditions are not met, the VSM that became active most recently is rebooted.

To improve redundancy, install primary and secondary VSM VMs on separate hosts that are connected to different upstream switches.

Installing the Cisco Nexus 1000V Software using the Installer Application

Installing VSM Software Using the Cisco Nexus 1000V Installer App

There are two procedures for installing the Cisco Nexus 1000V VSMs. The standard procedure is for the novice administrator. The custom procedure is for the more experienced administrator. The custom procedure has more configuration inputs to be used by administrators already familiar with the installation process and requiring more installation options.

- [Installing the Cisco Nexus 1000V in Standard Mode \(Layer 3 Mode\)](#), on page 5
- [Installing the Cisco Nexus 1000V in Custom Mode \(Layer 3 and Layer 2 Mode\)](#), on page 7

Installing the Cisco Nexus 1000V in Standard Mode (Layer 3 Mode)

Before You Begin

- You have the following information:



Note The VSM IP address must be in the same management VLAN as the host.

- Management VLAN ID
 - Domain ID
 - Management IP address
 - Subnet mask
 - Gateway IP address
- You have the JDK version 1.6 or later installed on the host running the Cisco Nexus 1000V Installer App.
 - The VSM will be deployed with the following credentials:
 - username: admin
 - password: admin
 - If you select the migration to DVS option as yes, the migration of hosts that have VSMs migrate all the interfaces under the vSwitch that have the ESXi management interface (for example, vmk0).

Procedure

- Step 1** Double-click the installation file icon or at the command-line interface, enter the following command to start the Cisco Nexus 1000V Installer App:
- ```
java -jar Nexus1000V-install_CNX.jar
```
- Step 2** Click the **Cisco Nexus 1000V Complete Installation** radio button.
- Step 3** Click the **Standard** radio button.
- Step 4** After reading the prerequisites, click **Next**.
- Step 5** In the **vCenter Server Credentials** screen, do the following:
- Enter the following vCenter credentials:
    - **IP Address**
    - **Port (https only)**
      - Note** This field is prepopulated but can be modified.
    - **User ID**
    - **Password**
  - Click **Next**.
- Step 6** In the **Standard Configuration Data** screen, click the **Browse** button for the Host 1 IP address.
- Step 7** In the **vCenter Inventory** screen, do the following:
- Choose the host for the primary VSM.
  - Click **Select Host**.
- The **IP Address / Name** and **Data Store** for Host 1 populate.
- Step 8** In the **Standard Configuration Data** screen, click the **Browse** button for the Host 2 IP address.
- Step 9** In the **vCenter Inventory** screen, do the following:
- Choose the host for the secondary VSM.
  - Click **Select Host**.
- Step 10** In the **Standard Configuration Data** screen, enter the Virtual Machine Name.
- Step 11** In the **Standard Configuration Data** screen, do the following:
- Click the **Browse** button for the OVA Image Location field.
  - Browse to the OVA file.
  - Choose the OVA file.
  - Click **Open**.
- Step 12** In the **Standard Configuration Data** screen, do the following:
- Enter the remaining configuration data:
    - **VSM IP Address**
    - **Subnet Mask**
    - **Gateway IP Address**
    - **Domain ID**

- **Management VLAN**

- b) Click **Yes** or **No** to migrate the hosts to the DVS.
- c) (Optional) Click **Save Configuration**.
  - Note** The save configuration option allows you to create an XML configuration file for later use. This step allows you to import and prepopulate common values in the template for later use.
- d) Click **Next**.

**Step 13** After reviewing the values in the **Standard Configuration Review** screen, choose one of the following:

- Click **Next** to continue.
- Click **Prev** to return to the previous screens and modify the entries.

The **Standard Installation Progress** screen opens.

When the installation process completes, the **Confirmation** screen is displayed. A typical installation of the VSM takes about 6 to 8 minutes.

**Step 14** In the **Confirmation** screen, do one of the following:

- Click **Yes** if you want to add more modules and continue to the next step.
- Click **No** if you do not want to add more modules and continue with Step 18.

**Step 15** In the **Adding Modules** screen, do the following:

- a) Do one of the following:
  - Click **Install VIB** to install VIBs on this host.
  - Click **Install VIB and add module to Nexus 1000V** to install VIBs on this host and move them to the Cisco Nexus 1000V.
- b) In the **Management VLAN** field, enter a VLAN ID.

**Step 16** In the **Hosts Selection** screen, do the following:

- a) Choose the hosts that you want to add.
- b) Click **Next**.

**Step 17** In the **Host Review** screen, do the following:

- Review the entries.
- Click **Finish**.

**Step 18** In the **Summary** screen, click **Close**.

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## Installing the Cisco Nexus 1000V in Custom Mode (Layer 3 and Layer 2 Mode)

### Before You Begin

- You have the following information:

- Control VLAN ID
  - Packet VLAN ID
  - Management VLAN ID
  - Domain ID
  - Management IP address
  - Subnet mask
  - Gateway IP address
  - SVS datacenter name
  - Control, packet, and management port groups
  - Management VLAN ID of ESXi hosts
- You have the JDK version 1.6 or later installed on the host running the Cisco Nexus 1000V Installer App.

## Procedure

- 
- Step 1** Double-click the application icon or at the command-line interface, enter the following command to start the Cisco Nexus 1000V Installer App:
- ```
java -jar Nexus1000V-install_CNX.jar
```
- Step 2** Click the **Cisco Nexus 1000V Complete Installation** radio button.
- Step 3** Click the **Custom** radio button.
- Step 4** After reading the prerequisites, click **Next**.
- Step 5** In the **vCenter Server Credentials** screen, do the following:
- a) Enter the following vCenter credentials:
 - **IP Address**
 - **Port (https only)**
Note This field is prepopulated but can be modified.
 - **User ID**
 - **Password**
 - b) Click **Next**.
- Step 6** In the **Custom Configuration Data** screen, click the **Browse** button for the **Host 1 IP Address / Name** field.
- Step 7** In the **Host 1 Selection vCenter Inventory** screen, do the following:
- a) Choose the host for the primary VSM.
 - b) Click **Select Host**.

The **Host 1 IP Address / Name** and **Data Store** fields are populated.

Step 8 In the **Host 1 vSwitch Custom Configuration Data** screen, click the **Browse** button for the **Host 1 vSwitch** field.

Step 9 In the **Host 1 vSwitch Selection** screen, do the following:

- Choose a vSwitch.
- Click **Select**.

The **Host 1 vSwitch** field is populated.

Step 10 In the **Host 2 IP Address Custom Configuration Data** screen, click the **Browse** button for the **Host 2 IP Address / Name** field.

Step 11 In the **Host 2 Selection vCenter Inventory Screen** screen, do the following:

- Choose the host for the secondary VSM.
- Click **Select Host**.

Step 12 In the **Host 2 vSwitch Custom Configuration Data** screen, click the **Browse** button for the **Host 2 vSwitch** field.

Step 13 In the **Host 2 vSwitch Make a Selection** screen, do the following:

- Choose a vSwitch.
- Click **Select**.

Step 14 In the **Switch Name Custom Configuration** screen, do the following:

- a) Enter the **Switch Name**.
- b) Enter the **Admin User Name**.
- c) Enter the **Admin Password**.
- d) Enter the **Confirm the Admin Password**.
- e) Enter the **Virtual Machine Name**.

Step 15 In the **OVA Image Custom Configuration Data** screen, click the **Browse** button for the **OVA Image Location** field.

Step 16 In the **OVA File Location** screen, do the following:

- a) Browse to the OVA file.
- b) Choose the OVA file.
- c) Click **Open**.

Step 17 In the **VSM IP Address Custom Configuration Data** screen, do the following:

- a) Click the **Layer L2** or **Layer L3** radio button.
The Layer 3 mode is selected by default.
- b) Enter the remaining configuration data:
 - **VSM IP Address**
 - **Subnet Mask**
 - **Gateway IP Address**

- **Domain ID**

- c) Check the **Enable Telnet** check box if you want to enable Telnet.
By default, only SSH is enabled.

Step 18 Click the **Browse** button for the **Data Center Name**.

Step 19 In the **Choose a Data Center** screen, do the following:

- a) Choose a data center.
- b) Click **Select**.

Step 20 Click the **Browse** button for the Control Port Group **Port Group Name** field.

Step 21 In the **Make a selection** screen, do the following:

- Choose a VLAN ID.
- Click **Select**.

Step 22 In the **Custom Configuration Data** screen, do the following to create a new Management Port Group:

Note The Installer App assumes the use of dot1q trunking and requires you to specify the management VLAN.

- a) Choose the **Create New** radio button.
- b) Enter the **Port Group Name**.
- c) Enter the **VLAN ID**.
- d) Enter a VLAN ID in the **Management VLAN ID** field.
- e) Click **Yes** or **No** to migrate the hosts to the DVS.
- f) Click the **Save Configuration** button if you want to save the settings to a configuration file.
- g) Click **Next**.

Step 23 In the **Custom Configuration Review** screen, do the following:

- Validate the input.
- Click **Next**.

The **Custom Configuration Review Installation Progress** screen opens.

When the installation completes, the **Confirmation** screen opens.

Step 24 In the **Custom Confirmation** screen, do one of the following:

- Click **Yes** if you want to add more modules and continue to the next step.
- Click **No** if you do not want to add more modules, and proceed with the steps as prompted to complete the process.

Step 25 In the **Confirmation** screen, complete the tasks as follows:

- a) Do one of the following:
 - Click **Install VIB** to install VIBs on this host.
 - Click **Install VIB and add module to Nexus 1000V** to install VIBS on this host and move them to the Cisco Nexus 1000V.

- b) In the **Management VLAN** field, enter a VLAN ID.

Note In the Management VLAN field, add the same VLAN that is assigned to your vmkernel interface.

Step 26 In the **Hosts Selection** screen, do the following:

- a) Choose the hosts you want to add.
- b) Click **Next**.

Step 27 In the **Host Review** screen, do the following:

- Review the entries.
- Click **Finish**.

Step 28 In the **Custom Summary** screen, click **Close**.

Installing the VEM Software Using the Cisco Nexus 1000V Installer App

- When the Cisco Nexus 1000V Installer App installs VEMs, it migrates all VEM kernels and their corresponding vmnics across vSwitches to the Cisco Nexus 1000V VEMs
- If a particular VEM is capable of hosting VSMS, the network administrator must manually allow a control VLAN in the uplink port profile of VEMs in Layer 3 deployment mode for VSM HA communication.

Before You Begin

- You have the following information:
 - vCenter IP address
 - vCenter user ID
 - vCenter password
 - VSM IP address
 - VSM password



Note

The hosts that will be installed as VEMs should not have any Cisco Nexus 1000V vSphere Installation Bundle (VIB) files. Uninstall any Cisco Nexus 1000V VIBs before starting the Cisco Nexus 1000V Installer App.

Procedure

Step 1 Double-click the installation application icon or at the command-line interface, enter the following command to start the Cisco Nexus 1000V Installer App.

```
java -jar Nexus1000V-install_CNX.jar
```

- Step 2** In the **Cisco Nexus 1000V Installer App** screen, click the **Virtual Ethernet Module Installation** radio button.
- Step 3** After reading the prerequisites, click **Next**.
- Step 4** In the **VEM Enter vCenter Credentials** screen, do the following:
- Enter the following vCenter Credentials:
 - IP address**
 - Port (https only)**
Note This field is prepopulated but can be modified.
 - User ID** (for a vCenter user with administrator-level privileges)
 - Password** (for a vCenter user with administrator-level privileges)
 - Click **Next**.
- Step 5** In the **Enter VSM IP & Credentials** screen, do the following:
- Enter the following credentials:
 - VSM IP address**
 - VSM Password**
 - Click **Next**.
- Step 6** In the **Confirmation** screen, do one of the following:
- Click **Yes** if you want to add more modules and continue to the next step.
 - Click **No** if you do not want to add more modules and continue with Step 10.
- Step 7** In the **Adding Modules** screen, do the following:
- Do one of the following:
 - Click **Install VIB** to install VIBs on this host.
 - Click **Install VIB and add module to Nexus 1000V** to install VIBs on this host and move them to the Cisco Nexus 1000V.
 - In the **Management VLAN** field, enter a VLAN ID.
- Step 8** In the **VEM Hosts Selection** screen, do the following:
- Choose the hosts that you want to add.
 - Click **Next**.
- Step 9** In the **VEM Host Review** screen, do the following:
- Review the entries.
 - Click **Finish**.
- Step 10** In the **VEM Summary** screen, click **Close**.

- Note**
- If the VEM software fails to install on a host, "Install status: Failure" message appears.
 - Once the Cisco Nexus 1000V Installer App completes the VEM installation, verify the current status of modules from the VSM by using the **show module** command.

For more information about troubleshooting VSMs and VEMs, see the *Cisco Nexus 1000V Troubleshooting Guide*.

Connecting to the vCenter Server

To establish connection between the VSM and the vCenter Server, perform the following steps:

Before You Begin

- You have the following information:
 - vCenter IP address
 - vCenter User ID
 - vCenter Password
 - VSM IP Address
 - VSM Password

Procedure

- Step 1** Double-click on the installation application icon. Or, at the command-line interface, enter the following command to start the Cisco Nexus 1000V.
- ```
java -jar Nexus1000V-install_CNX.jar
```
- Step 2** In the **Cisco Nexus 1000V Installer App** screen, click the **VC Connection** radio button.
- Step 3** After reading the Prerequisites, click **Next**.
- Step 4** In the **Enter vCenter Credentials** screen, do the following:
- a) Enter the following vCenter Credentials:
    - **IP address**
    - **Port (https only)**

**Note** This field is prepopulated but can be modified.
    - **User ID** (for a vCenter user with administrator-level privileges)
    - **Password** (for a vCenter user with administrator-level privileges)
  - b) Click **Next**.
- Step 5** In the **Enter VSM IP & Credentials** screen, do the following:
- a) Enter the following credentials:

- VSM IP address
- VSM Password
- SVS Datacenter Name

b) Click **Finish**.

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# Installing the Cisco Nexus 1000V Software Manually

## Prerequisites for Installing the Cisco Nexus 1000V

### ESX or ESXi Host Prerequisites

ESX or ESXi hosts have the following prerequisites:

- You have already installed and prepared vCenter Server for host management using the instructions from VMware.
- You should have VMware vSphere Client installed.
- You have already installed the VMware Enterprise Plus license on the hosts.
- All VEM hosts must be running ESX/ESXi 5.0 or later releases.
- You have two physical NICs on each host for redundancy. Deployment is also possible with one physical NIC.
- If you are using a set of switches, make sure that the interswitch trunk links carry all relevant VLANs, including control and packet VLANs. The uplink should be a trunk port that carries all VLANs that are configured on the host.
- You must configure control and management VLANs on the host to be used for the VSM VM.
- Make sure that the VM to be used for the VSM meets the minimum requirements listed in the following table.
- All the vmnics should have the same configuration upstream.



#### Caution

The VSM VM might fail to boot if RAM and CPU are not properly allocated. This document includes procedures for allocating RAM and setting the CPU speed.

This table lists the minimum requirements for hosting a VSM.

**Table 1: Minimum Requirements for a VM Hosting a VSM**

| VSM VM Component              | Minimum Requirement                  |
|-------------------------------|--------------------------------------|
| Platform                      | 64 bit                               |
| Type                          | Other 64-bit Linux (recommended)     |
| Processor                     | 1                                    |
| RAM (configured and reserved) | 3 GB <sup>1</sup>                    |
| NIC                           | 3                                    |
| SCSI Hard Disk                | 3 GB with LSI Logic Parallel adapter |
| CPU speed                     | 2048 MHz <sup>2</sup>                |

<sup>1</sup> If you are installing the VSM using an OVA file, the correct RAM setting is made automatically during the installation of this file. If you are using the CD ISO image, see [Installing the Software from the ISO Image, on page 18](#) to reserve RAM and set the memory size.

<sup>2</sup> If you are installing the VSM using an OVA file, the correct CPU speed setting is made automatically during the installation. If you are using the CD ISO image, see [Installing the Software from the ISO Image, on page 18](#) to reserve RAM and set the memory size.

## VSM Prerequisites

The Cisco Nexus 1000V VSM software has the following prerequisites:

- You have the VSM IP address.
- You have installed the appropriate vCenter Server and VMware Update Manager (VUM) versions.
- If you are installing redundant VSMS, make sure that you first install and set up the software on the primary VSM before installing and setting up the software on the secondary VSM.
- You have already identified the HA role for this VSM from the list in the following table.

**Table 2: HA Roles**

| HA Role                            | Single Supervisor System | Dual Supervisor System |
|------------------------------------|--------------------------|------------------------|
| Standalone (test environment only) | X                        |                        |
| HA                                 |                          | X                      |



### Note

A standalone VSM is not supported in a production environment.

- You are familiar with the Cisco Nexus 1000V topology diagram that is shown in [Layer 3](#).

## Upstream Switch Prerequisites

The upstream switch from the Cisco Nexus 1000V has the following prerequisites:

- If you are using a set of switches, make sure that the interswitch trunk links carry all relevant VLANs, including the control and packet VLANs. The uplink must be a trunk port that carries all the VLANs that are configured on the host.
- The following spanning tree prerequisites apply to the upstream switch from the Cisco Nexus 1000V on the ports that are connected to the VEM.
  - On upstream switches, the following configuration is mandatory:
 

On your Catalyst series switches with Cisco IOS software, enter the **spanning-tree portfast trunk** or **spanning-tree portfast edge trunk** command.

On your Cisco Nexus 5000 series switches with Cisco NX-OS software, enter the **spanning-tree port type edge trunk** command.
  - On upstream switches we highly recommend that you enable Global BPDU Filtering and Global BPDU Guard globally.
  - On upstream switches, where you cannot globally enable BPDU Filtering and BPDU Guard, we highly recommend that you enter the **spanning-tree bpdu filter** and **spanning-tree bpdu guard** commands.

For more information about spanning tree and its supporting commands, see the documentation for your upstream switch.

- Enter the following commands on the upstream switch:

```
show running interface interface number
interface GigabitEthernet interface number
 description description of interface
 switchport
 switchport trunk encapsulation dot1q
 switchport trunk native VLAN native VLAN
 switchport trunk allowed vlan list of VLANs
 switchport mode trunk

end
```

## VEM Prerequisites

The Cisco Nexus 1000V VEM software has the following prerequisites:



### Note

If VMware vCenter Server is hosted on the same ESX/ESXi host as a Cisco Nexus 1000V VEM, a VUM-assisted upgrade on the host will fail. You should manually VMotion the vCenter Server VM to another host before you perform an upgrade.

- When you perform any VUM operation on hosts that are a part of a cluster, ensure that VMware HA, VMware fault tolerance (FT), and VMware distributed power management (DPM) features are disabled for the entire cluster. Otherwise, VUM cannot install the hosts in the cluster.



- If the hosts are in ESXi stateless mode, enable the PXE booted ESXi host settings under **Home > Update Manager > Configuration > ESXi host/cluster**.
- You have a copy of your VMware documentation available for installing software on a host.
- You have already obtained a copy of the VEM software file from one of the sources listed in [Cisco Nexus 1000V Download Software page](#).
- You have already downloaded the correct VEM software based on the current ESX/ESXi host patch level. For more information, see the *Cisco Nexus 1000V and VMware Compatibility Information*.
- For a VUM-based installation, you must deploy VUM and make sure that the VSM is connected to vCenter Server.

## Guidelines and Limitations for Installing the Cisco Nexus 1000V

The Cisco Nexus 1000V software installation has the following configuration guidelines and limitations:

- Do not enable VMware fault tolerance (FT) for the VSM VM because it is not supported. Instead, Cisco NX-OS HA provides high availability for the VSM.
- The VSM VM supports VMware HA. However, we strongly recommend that you deploy redundant VSMs and configure Cisco NX-OS HA between them. Use the VMware recommendations for the VMware HA.
- Do not enable VM monitoring for the VSM VM because it is not supported, even if you enable the VMware HA on the underlying host. Cisco NX-OS redundancy is the preferred method.
- When you move a VSM from the VMware vSwitch to the Cisco Nexus 1000V DVS, the connectivity between the active and standby VSM might get temporarily lost. In that situation, both active and standby VSMs assume the active role.



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**Note** We recommend you to monitor and install all the relevant patch applications from VMware ESX host server.

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The reboot of the VSM is based on the following conditions:

### 1 The number of modules attached to the VSM

- If more modules are attached on one of the VSMs and there is no virtual channel (VC) connectivity on both VSMs, the VSM that has the smaller number of modules is rebooted.
- If modules are attached to both VSMs and one of the VSMs has VC connectivity, the VSM without connectivity is rebooted.

### 2 VC connectivity



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**Note** This option is invoked when the previous condition is not met.

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- If both VSMs have the same number of modules, the software makes a selection that is based on the VC connectivity status.

For example, this action is taken if both VSMS have two modules attached or both VSMS have no modules attached.

### 3 Last configuration change




---

**Note** This condition is invoked when the previous two conditions are not met.

---

- If both VSMS have the same number of modules and no VC connectivity, the VSM with the latest configuration remains active and the other VSM is rebooted.

### 4 Last active VSM

- If the previous three conditions are not met, the VSM that became active most recently is rebooted.
- If the VSM is moved from the VMware vSwitch to the Cisco Nexus 1000V DVS, we recommend that you configure port security on the VSM vEthernet interfaces to secure control/packet MAC addresses.
- To improve redundancy, install primary and secondary VSM VMs on separate hosts that are connected to different upstream switches.
- The Cisco Nexus 1000V VSM always uses the following three network interfaces in the same order as specified below:
  - 1 Control Interface
  - 2 Management Interface
  - 3 Packet Interface
- There is no dependency on the VM hardware version, so the VM hardware version can be upgraded if required.

## Installing the Cisco Nexus 1000V Software Using ISO or OVA Files

### Installing the VSM Software

#### Installing the Software from the ISO Image

##### Before You Begin

- Know the location and image name of the ISO image you require for the installation.
- You have already read the [Prerequisites for Installing the Cisco Nexus 1000V](#), on page 14.
- You have already manually provisioned the VM to be used for the VSM. For more information, see the *vSphere Virtual Machine Administration Guide*.
- The VSM VM requires the following and this procedure includes steps for updating these properties:
  - Minimum of 3 GB of RAM reserved and allocated.

- Minimum CPU speed of 2048 MHz.
- Do not create more than one virtual CPU. The Cisco Nexus 1000V supports only one virtual CPU.

## Procedure

- 
- Step 1** Using your VMware documentation, attach the VSM ISO image to the virtual CD-ROM and copy the software to a virtual machine (VM).
- Step 2** Make sure that the VSM VM is powered off.
- Step 3** In the vSphere client **Virtual Machine Properties** window **Hardware** tab, choose **Memory**.
- Step 4** In the **Memory Size** field, choose 3 GB.
- Step 5** In the **Resources** tab, choose **Memory**.  
The Resource Allocation settings display in the right-hand pane.
- Step 6** In the **Reservation** field, choose 2048 MB.
- Step 7** In the **Resources** tab, choose CPU.  
The Resource Allocation settings display in the right-hand pane.
- Step 8** In the **Reservation** field, choose 2048 MHz.
- Step 9** Click **OK**.  
The VSM VM memory and CPU speed settings are saved in VMware vSphere Client.
- Step 10** Right-click the VSM and choose **Open Console**.
- Step 11** Choose **Install Nexus1000V and bring up the new image** entry and press **Enter**.
- Step 12** Enter and confirm the Administrator password.

**Note** All alphanumeric characters and symbols on a standard US keyboard are allowed except for these three: \$ \ ?

- Step 13** Enter the domain ID.  
Enter the domain id<1-4095>: 152

- Step 14** Enter the HA role.  
If you do not specify a role, standalone is assigned by default.  
This example shows the HA role as primary.

```
Enter HA role[standalone/primary/secondary]: primary
```

```
[#####] 100%
```

```
---- Basic System Configuration Dialog ----
```

```
This setup utility will guide you through the basic configuration of
the system. Setup configures only enough connectivity for management
of the system.
```

```
*Note: setup is mainly used for configuring the system initially,
when no configuration is present. So setup always assumes system
defaults and not the current system configuration values.
```

```
Press Enter at anytime to skip a dialog. Use ctrl-c at anytime
to skip the remaining dialogs.
```

Would you like to enter the basic configuration dialog (yes/no):

This example shows the HA role as secondary.  
Enter HA role[standalone/primary/secondary]: secondary

Setting HA role to secondary will cause a system reboot. Are you sure (yes/no) ? :

**Step 15** Do one of the following:

- If you are setting up the primary/active VSM, go to Step 18.
- If you are setting up the secondary/standby VSM, then continue with the next step.

**Step 16** If you have set up the VSM virtual machine (VM) to boot from the CD-ROM, and are installing the secondary VSM from the ISO image attached to your CD-ROM, remove the virtual CD-ROM now so that the VSM does not boot from the CD.

This step is necessary if you have set up the VSM VM to boot from the CD-ROM before the hard drive.

**Step 17** If you are setting up the secondary/standby VSM, when prompted to reboot the VSM, answer yes. The secondary VSM VM is rebooted and brought up in standby mode.

The password on the secondary VSM is synchronized with the password on the active/primary VSM.

Any configuration made on the active/primary VSM is now automatically synchronized with the standby.

This example show the system rebooting when the HA role is set to secondary.

Setting HA role to secondary will cause a system reboot. Are you sure (yes/no) ? :y

[#####] 100%

HA mode set to secondary. Rebooting now...

You have completed this procedure for the secondary VSM.

**Step 18** Enter yes to enter the basic configuration dialog.

Would you like to enter the basic configuration dialog (yes/no): **yes**

**Step 19** Enter no to create another Login account.

Create another login account (yes/no) [n]: **no**

**Step 20** Enter no to configure a read-only SNMP community string.

Configure read-only SNMP community string (yes/no) [n]: **no**

**Step 21** Enter no to configure a read-write SNMP community string.

Configure read-write SNMP community string (yes/no) [n]: **no**

**Step 22** Enter a name for the switch.

Enter the switch name: **n1000v**

**Step 23** Enter yes to configure out-of-band management and then enter the mgmt0 IPv4 address and subnet mask.

Continue with Out-of-band (mgmt0) management configuration? [yes/no] [y]: **yes**

Mgmt0 IPv4 address: **172.28.15.152**

Mgmt0 IPv4 netmask: **255.255.255.0**

**Step 24** Enter yes to configure the default gateway.

Configure the default-gateway: (yes/no) [y]: **yes**

IPv4 address of the default gateway : **172.23.233.1**

**Step 25** Enter no to configure advanced IP options.

```
Configure Advanced IP options (yes/no)? [n]: no
```

**Step 26** Enter yes to enable the Telnet service.

```
Enable the telnet service? (yes/no) [y]: yes
```

**Step 27** Enter yes to enable the SSH service and then enter the key type and number of key bits.

```
Enable the ssh service? (yes/no) [y]: yes
```

```
Type of ssh key you would like to generate (dsa/rsa) : rsa
```

```
Number of key bits <768-2048> : 1024
```

For more information, see the document, *Cisco Nexus 1000V Security Configuration Guide*.

**Step 28** Enter yes to enable the HTTP server.

```
Enable the http-server? (yes/no) [y]: yes
```

**Step 29** Enter no to configure the NTP server.

```
Configure NTP server? (yes/no) [n]: no
```

**Step 30** Enter yes to configure the SVS domain parameters and then enter the mode (L2 or L3), and the control and packet VLAN IDs.

```
Configure svcs domain parameters? (yes/no) [y]: yes
```

```
Enter SVS Control mode (L2 / L3) [L3] : Press Return
```

**Step 31** Enter yes to configure the VEM feature level and then enter 0 or 1.

```
Vem feature level will be set to 4.2(1)SV2(2.2),
```

```
Do you want to reconfigure? (yes/no) [n] yes
```

```
Current vem feature level is set to 4.2(1)SV2(2.2)
```

```
You can change the feature level to:
```

```
vem feature level is set to the highest value possible
```

**Note** The feature level is the least VEM release that the VSM can support. For example, if the feature level is set to the 4.2(1)SV1(5.1) release, any VEMs with an earlier release are not attached to the VSM. The system now summarizes the complete configuration and asks if you want to edit it.

The following configuration will be applied:

```
Switchname n1000v
interface Mgmt0
ip address 172.28.15.152 255.255.255.0
no shutdown
no telnet server enable
ssh key rsa 1024 force
ssh server enable
feature http-server
svs-domain
no control vlan
no packet vlan
svs mode L3 interface mgmt0
```

**Step 32** Do one of the following:

- If you do not want to edit the configuration enter no and continue with the next step.
- If you want to edit the configuration, enter yes and return to Step 19 to revisit each command.

```
Would you like to edit the configuration? (yes/no) [n]:no
```

**Step 33** Enter yes to use and save this configuration, answer yes.

**Caution** If you do not save the configuration now, none of your changes will be part of the configuration the next time that the switch is rebooted. Enter yes to save the new configuration and to ensure that the kickstart and system images are also automatically configured.

```
Use this configuration and save it? (yes/no) [y]: yes
```

```
[#####] 100%
```

The new configuration is saved into nonvolatile storage.

**Note** You can use the setup routine to update the configuration done in Step 18 through Step 33 at any time by entering the setup command in EXEC mode. Once setup begins, press **Enter** to skip a command. Press **Ctrl-C** to skip the remaining commands.

If you are installing redundant VSMs, make sure that you configure the software on the primary VSM before installing the software on the secondary VSM.

**Step 34** Create the SVS connection manually or go to [Establishing the SVS Connection, on page 28](#).

---

## Installing the Software from an OVA Image

### Before You Begin

Before beginning this procedure, you must know or do the following:

- Know the location and image name of the OVA image you require for the installation.
- You have already read the [Prerequisites for Installing the Cisco Nexus 1000V, on page 14](#).
- You have a copy of the following Cisco Nexus 1000V software image files on your local drive, depending on the installation type you are using:
- For detailed information about using the Deploy OVF Template wizard, see the *vSphere Virtual Machine Administration Guide*.
- You have the following information available for creating a VM for the VSM and mapping the required port groups:
  - A name for the new VSM that is unique within the inventory folder and up to 80 characters.
  - The name of the host where the VSM will be installed in the inventory folder.
  - The name of the datastore in which the VM files will be stored.
  - The names of the network port groups used for the VM.
  - The Cisco Nexus 1000V VSM IP address.
- If you are using the OVA file for installation, make sure that you have the following information available for creating and saving an initial configuration file on the VSM:
  - VSM domain ID
  - Admin password
  - Management IP address, subnet mask, and gateway

## Procedure

- Step 1** From the vSphere Client, choose **File > Deploy OVF Template**.
- Step 2** In the **Source** screen, specify the location of the OVA file and click **Next**.  
The OVF Template Details screen opens displaying product information, including the size of the file and the size of the VM disk.
- Step 3** Click **Next**.
- Step 4** Read the Cisco Nexus 1000V License Agreement.
- Step 5** Click **Accept** and then click **Next**.
- Step 6** In the **Name:** field, add the VSM name, choose the folder location within the inventory where it will reside, and click **Next**.  
The name for the VSM must be unique within the inventory folder and less than 80 characters.
- Step 7** From the **Configuration** drop-down list, choose **Nexus 1000V Installer**.  
This choice configures the primary VSM using the GUI setup dialog.
- Step 8** Click **Next**.
- Step 9** Choose the data center or cluster on which to install the VSM.
- Step 10** Click **Next**.
- Step 11** Choose the datastore in which to store the file if one is available.  
On this page, you choose from datastores already configured on the destination cluster or host. The virtual machine configuration file and virtual disk files are stored on the datastore. Choose a datastore large enough to accommodate the virtual machine and all of its virtual disk files.
- Step 12** Click **Next**.
- Step 13** Choose the Thick provisioned disk format for storing virtual machine virtual disks, and click **Next**.

| Format            | Description                                                                                                                                         |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Thin Provisioned  | The storage is allocated on demand as data is written to the virtual disks.<br><b>Note</b> This disk format is not supported for Cisco Nexus 1000V. |
| Thick Provisioned | All storage is immediately allocated.                                                                                                               |
| Flat Provisioned  | <b>Note</b> This format is only available with VMWare ESXi 5.0.                                                                                     |
| Flat Disk         | All storage for the virtual disk is allocated in advance.                                                                                           |

- Step 14** In the **Network Mapping** screen, choose the networks (the control, management, and packet port groups) that are present in your inventory.
- Step 15** Click **Next**
- Step 16** Do one of the following:
- If you are installing software on a primary VSM, specify the following properties for your primary VSM:

- VSM domain ID
  - Admin password
  - Management IP address
  - Management IP subnet mask
  - Management IP gateway
- If you are installing software on a secondary VSM, specify only the following properties for your secondary VSM (all other properties are acquired on synchronization with the primary VSM), and then click Next:
    - VSM domain ID (use the same domain ID entered for the primary).
    - Admin password (use the same password entered for the primary).

**Step 17** Click **Next**.

**Step 18** In the **Ready to Complete** screen, if the configuration is correct, click **Finish**. A status bar displays as the VM installation progresses.

**Step 19** Click **Close**.  
You have completed installing the Cisco Nexus 1000V software.

**Step 20** Right-click the VSM and choose **Open Console**.

**Step 21** Click the **green arrow** to power on the VSM.

**Step 22** Enter the following commands at the VSM prompt.

```
switch# configure terminal
switch(config)# setup
```

**Step 23** Enter the HA role.  
If you do not specify a role, standalone is assigned by default.

This example shows the HA role as primary.

```
Enter HA role[standalone/primary/secondary]: primary
```

```
[#####] 100%
```

```
---- Basic System Configuration Dialog ----
```

```
This setup utility will guide you through the basic configuration of
the system. Setup configures only enough connectivity for management
of the system.
```

```
*Note: setup is mainly used for configuring the system initially,
when no configuration is present. So setup always assumes system
defaults and not the current system configuration values.
```

```
Press Enter at anytime to skip a dialog. Use ctrl-c at anytime
to skip the remaining dialogs.
```

```
Would you like to enter the basic configuration dialog (yes/no):
```



This example shows the HA role as secondary.

```
Enter HA role[standalone/primary/secondary]: secondary
```

```
Setting HA role to secondary will cause a system reboot. Are you sure (yes/no) ? :
```

**Step 24** Do one of the following:

- If you are setting up the primary/active VSM, go to Step 18.
- If you are setting up the secondary/standby VSM, then continue with the next step.

**Step 25** If you have set up the VSM virtual machine (VM) to boot from the CD-ROM, and are installing the secondary VSM from the ISO image attached to your CD-ROM, remove the virtual CD-ROM now so that the VSM does not boot from the CD.

This step is necessary if you have set up the VSM VM to boot from the CD-ROM before the hard drive.

**Step 26** If you are setting up the secondary/standby VSM, when prompted to reboot the VSM, answer yes. The secondary VSM VM is rebooted and brought up in standby mode.

The password on the secondary VSM is synchronized with the password on the active/primary VSM.

Any configuration made on the active/primary VSM is now automatically synchronized with the standby.

This example shows the system rebooting when the HA role is set to secondary.

```
Setting HA role to secondary will cause a system reboot. Are you sure (yes/no) ? :y
```

```
[#####] 100%
```

```
HA mode set to secondary. Rebooting now...
```

You have completed this procedure for the secondary VSM.

**Step 27** Enter yes to enter the basic configuration dialog.

```
Would you like to enter the basic configuration dialog (yes/no): yes
```

**Step 28** Enter no to create another Login account.

```
Create another login account (yes/no) [n]: no
```

**Step 29** Enter no to configure a read-only SNMP community string.

```
Configure read-only SNMP community string (yes/no) [n]: no
```

**Step 30** Enter no to configure a read-write SNMP community string.

```
Configure read-write SNMP community string (yes/no) [n]: no
```

**Step 31** Enter a name for the switch.

```
Enter the switch name: n1000v
```

**Step 32** Enter yes to configure out-of-band management and then enter the mgmt0 IPv4 address and subnet mask.

```
Continue with Out-of-band (mgmt0) management configuration? [yes/no] [y]: yes
```

```
Mgmt0 IPv4 address: 172.28.15.152
```

```
Mgmt0 IPv4 netmask: 255.255.255.0
```

**Step 33** Enter yes to configure the default gateway.

```
Configure the default-gateway: (yes/no) [y]: yes
```

```
IPv4 address of the default gateway : 172.23.233.1
```

**Step 34** Enter no to configure advanced IP options.

```
Configure Advanced IP options (yes/no)? [n]: no
```

**Step 35** Enter yes to enable the Telnet service.

```
Enable the telnet service? (yes/no) [y]: yes
```

**Step 36** Enter yes to enable the SSH service and then enter the key type and number of key bits.

```
Enable the ssh service? (yes/no) [y]: yes
```

```
Type of ssh key you would like to generate (dsa/rsa) : rsa
```

```
Number of key bits <768-2048> : 1024
```

For more information, see the document, *Cisco Nexus 1000V Security Configuration Guide*.

**Step 37** Enter yes to enable the HTTP server.

```
Enable the http-server? (yes/no) [y]: yes
```

**Step 38** Enter no to configure the NTP server.

```
Configure NTP server? (yes/no) [n]: no
```

**Step 39** Enter yes to configure the SVS domain parameters and then enter the mode (L2 or L3), and the control and packet VLAN IDs.

```
Configure svcs domain parameters? (yes/no) [y]: yes
```

```
Enter SVS Control mode (L2 / L3) : L2
```

```
Enter control vlan <1-3967, 4048-4093> : 100
```

```
Enter packet vlan <1-3967, 4048-4093> : 101
```

**Step 40** Enter yes to configure the VEM feature level and then enter 0 or 1.

```
Vem feature level will be set to 4.2(1)SV2(1.1),
```

```
Do you want to reconfigure? (yes/no) [n] yes
```

```
Current vem feature level is set to 4.2(1)SV2(1.1)
```

```
You can change the feature level to:
```

```
vem feature level is set to the highest value possible
```

The system now summarizes the complete configuration and asks if you want to edit it.

```
The following configuration will be applied:
```

```
Switchname n1000v
interface Mgmt0
ip address 172.28.15.152 255.255.255.0
no shutdown
no telnet server enable
ssh key rsa 1024 force
ssh server enable
feature http-server
svcs-domain
svcs mode L2
control vlan 100
packet vlan 101
domain id 101
vlan 100
vlan 101
```

**Step 41** Do one of the following:

- If you do not want to edit the configuration enter no and continue with the next step.
- If you want to edit the configuration, enter yes and return to Step 19 to revisit each command.

```
Would you like to edit the configuration? (yes/no) [n]:no
```

**Step 42** Enter yes to use and save this configuration.

**Caution** If you do not save the configuration now, none of your changes will be part of the configuration the next time that the switch is rebooted. Enter yes to save the new configuration and to ensure that the kickstart and system images are also automatically configured.

```
Use this configuration and save it? (yes/no) [y]: yes
```

```
[#####] 100%
```

The new configuration is saved into nonvolatile storage.

**Note** You can use the setup routine to update the configuration done in Step 18 through Step 33 at any time by entering the **setup** command in EXEC mode. Once setup begins, press **Enter** to skip a command. Press **Ctrl-C** to skip the remaining commands.

**Note** If you are installing redundant VSMS, make sure that you configure the software on the primary VSM before installing the software on the secondary VSM.

**Step 43** Create the SVS connection manually or go to [Establishing the SVS Connection](#), on page 28.

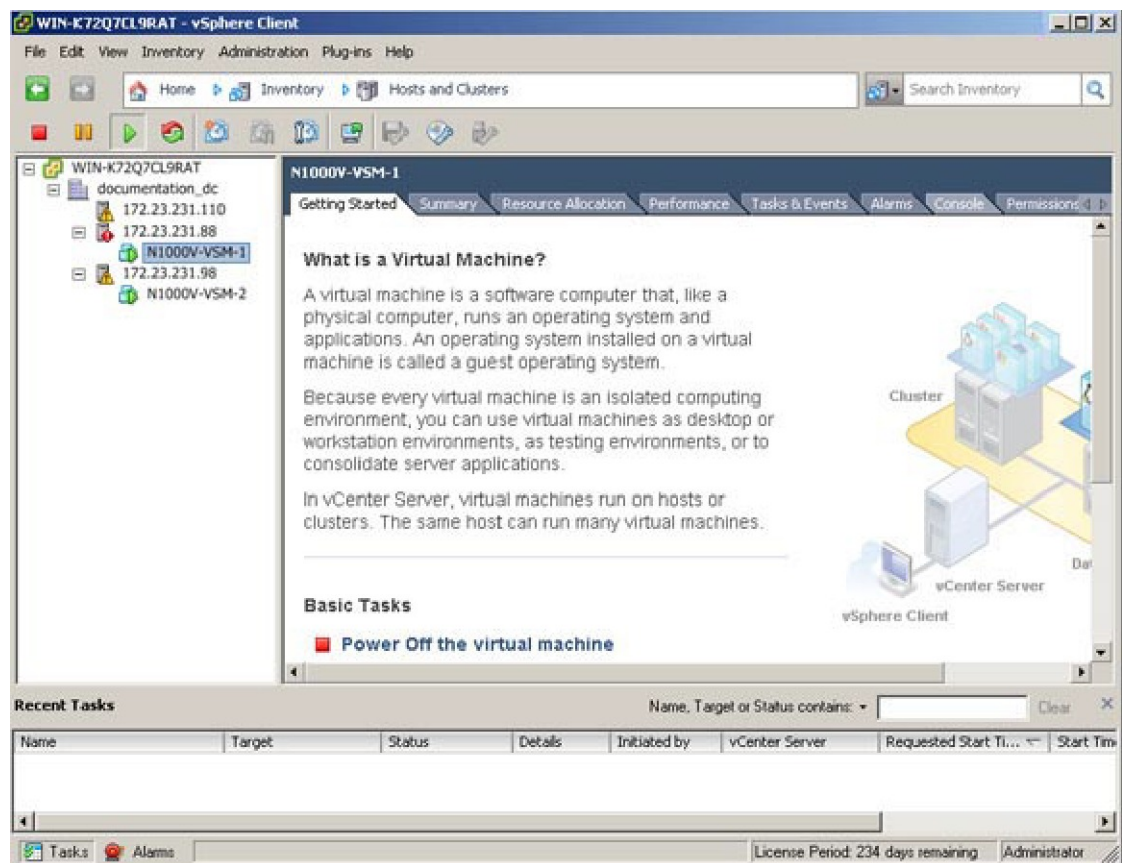
---

## Establishing the SVS Connection

### Procedure

- Step 1** Open the vSphere Client.
- Step 2** Choose the primary VSM.

**Figure 1: vSphere Client Window**



- Step 3** Choose the **Console** tab.
- Step 4** Enter the **show svcs connections** command to confirm that there is not an SVS connection.
- Step 5** Open a command window.
- Step 6** In the **VSM Console**, enter the following command:
 

```
svs connection < Name of the Connection >
 protocol vmware-vim
 remote ip address <VC Ip address > port 80
 vmware dvs datacenter-name <name>
 max-ports 8192
 Connect
```
- Step 7** In the **vSphere Console** window, enter the **show svcs connections** command.

The operational status is Connected.

---

You have completed establishing the SVS connection.

## Setting Virtual Machine Startup and Shutdown Parameters

### Before You Begin

- You have the following information:
  - Number of seconds for the default startup delay
  - Number of seconds for the default shutdown delay

### Procedure

---

- Step 1** In the **vSphere Client** window, choose a host and click the **Configuration** tab.
  - Step 2** In the **Configuration** pane, choose **Virtual Machine Startup/Shutdown**.
  - Step 3** In the **Virtual Machine Startup and Shutdown** pane, click the **Properties** link.
  - Step 4** In the **System Settings** dialog box, do the following:
    - a) Check the **Allow virtual machines to start and stop automatically with the system** check box.
    - b) In the System Settings pane, do the following:
      - Enter the number of seconds in the **Default Startup Delay seconds** field.
      - Enter the number of seconds in the **Default Shutdown Delay seconds** field.
    - c) In the **Startup Order** pane, do the following:
      - Choose the VM.
      - Click the **Move Up** button until the VM is under Automatic Startup.
    - d) Click **OK**.
    - e) Repeat Step 2 through Step 4 for the other VM.
- 

Startup and shutdown settings are complete.

## Adding VEM Hosts to the Distributed Virtual Switch

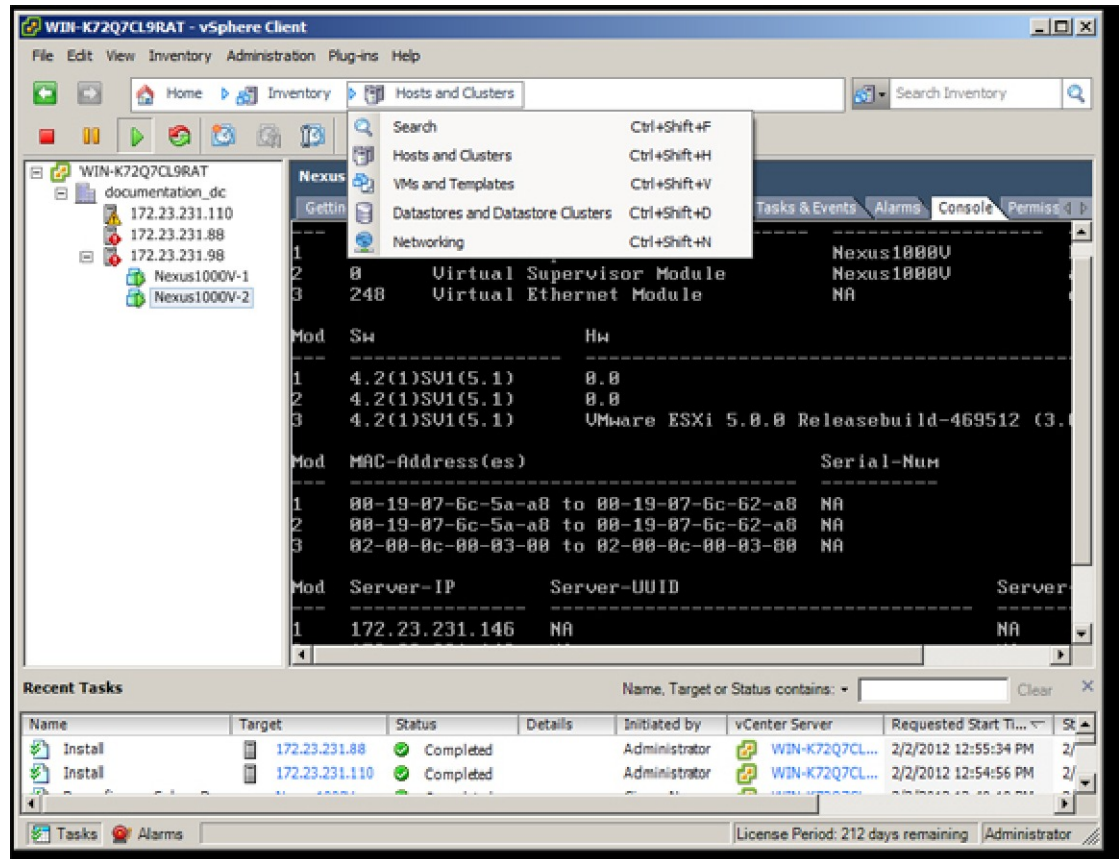
### Before You Begin

- You have the following information:
  - Physical adapters
  - Uplink port groups

## Procedure

- Step 1** In the vSphere Client window, choose **Hosts and Clusters > Networking**.

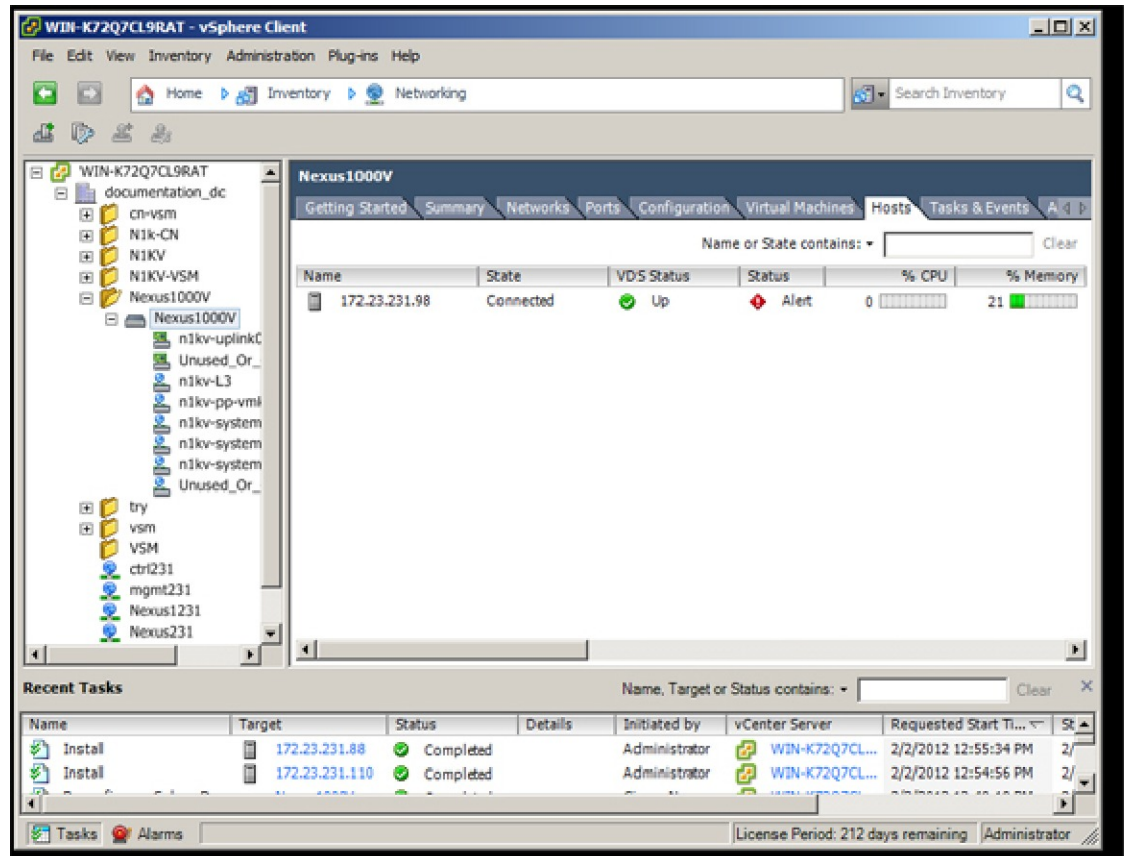
*Figure 2: vSphere Client Window*



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**Step 2** In the vSphere Client Hosts window, choose the DVS and click the **Hosts** tab.

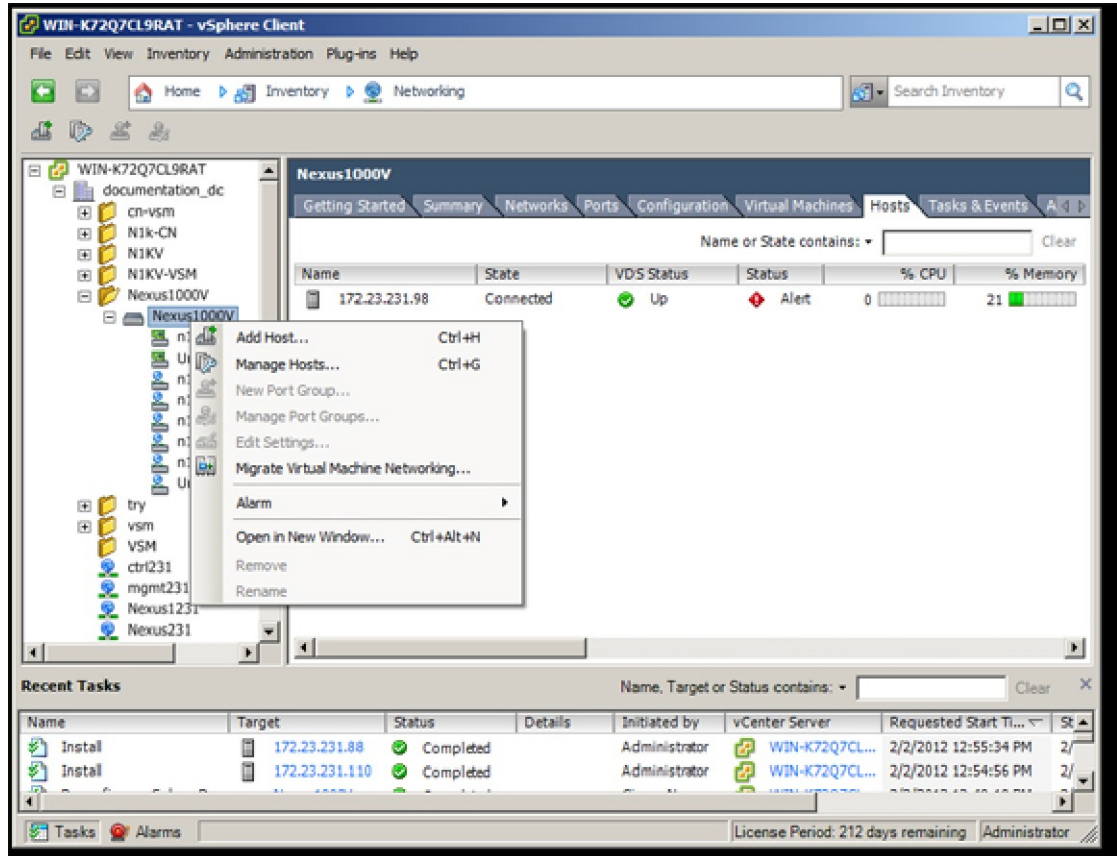
**Figure 3: vSphere Client Hosts Window**



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**Step 3** In the **Add Hosts to DVS** window, right-click the DVS and from the drop-down list, choose **Add Host**.

**Figure 4: Add Hosts to DVS**



**Step 4** In the **Select Hosts and Physical Adapters** screen, choose the hosts and the uplink port groups, and click **Next**.

**Step 5** In the **Network Connectivity** screen, do the following tasks:

**Note** For Layer 3 communication, you must migrate or create a new Layer 3 vmkernel interface. Migrate your management vmkernel interface into the Layer 3 capable port-profile. Do not use multiple vmkernel interfaces on the same subnet.

- Highlight the vmkernel interface that you want to migrate, and choose the destination port group that you created for management traffic earlier.
- Click **Next**.

**Step 6** In the **Virtual Machine Networking** screen, click **Next**.

**Step 7** In the **Ready to Complete** screen, click **Finish**.

**Step 8** In the **vSphere Client Hosts** window, confirm that the hosts are in the **Connected** state.

The host connection process is complete.



## Installing the VEM Software Using VUM

### Before You Begin

VMware Update Manager (VUM) automatically selects the correct VEM software to be installed on the host when the host is added to the DVS.



**Note** Make sure that you read the [VEM Prerequisites](#), on page 16 to ensure that the VUM operation proceeds without failure.

## Installing the VEM Software Using the CLI

Based on the version of VMware ESX/ESXi software that is running on the server, there are different installation paths.

## Installing the VEM Software Locally on a VMware Host by Using the CLI



**Note** This procedure applies for VMware 5.0 host and later ESXi versions.

### Procedure

- Step 1** Copy the VEM software to the `/tmp` directory.
- Step 2** `~ # esxcli software vib install -v /tmp/VIB_FILE`  
Begin the VEM installation procedure.
- Step 3** Verify that the VEM software is installed on the host.
- Step 4** `vem status -v`  
Verify that the installation was successful by checking for the “VEM Agent (vemdpa) is running” statement in the output of the `vem status` command.
- Step 5** Do one of the following:
  - If the installation was successful, the installation procedure is complete.
  - If the installation was not successful, see the "Recreating the Cisco Nexus 1000V Installation" section in the *Cisco Nexus 1000V Troubleshooting Guide*.

The following example shows how to install VEM software locally on a VMware 5.0 host using the CLI.

```
~ # esxcli software vib install -v /Cisco_bootbank_cisco-vem-v164-esx_4.2.1.2.2.2.0-3.0.1.vib
```

```
Installation Result
Message: Operation finished successfully.
Reboot Required: false
```

```

VIBs Installed: Cisco_bootbank_cisco-vem-v164-esx_4.2.1.2.2.0-3.0.1.vib
VIBs Removed: Cisco_bootbank_cisco-vem-v144-esx_4.2.1.1.5.2.0-3.0.1
VIBs Skipped

~ # vem status -v
Package vssnet-esxmn-release
Version 4.2.1.2.2.0-3.0.1
Build 1
Date Sat Jan 25 04:56:14 PDT 2014

VEM modules are loaded

Switch Name Num Ports Used Ports Configured Ports MTU Uplinks
vSwitch0 128 4 128 1500 vmnic4
DVS Name Num Ports Used Ports Configured Ports MTU Uplinks
p-1 256 19 256 1500 vmnic7,vmnic6,vmnic3,vmnic2,vmnic1,vmnic0

VEM Agent (vemdpa) is running

~ # esxcli software vib list | grep cisco
cisco-vem-v164-esx 4.2.1.2.2.0-3.0.1 Cisco PartnerSupported
2014-01-25

~ # vemcmd show version
VEM Version: 4.2.1.2.2.0-3.0.1
VSM Version: 4.2(1)SV2(2.2) [build 4.2(1)SV2(2.2)]
System Version: VMware ESXi 5.0.0 Releasebuild-843203

```

## Installing VEM Software Remotely on a VMware Host by Using the CLI



**Note** This procedure applies for VMware 5.0 host and later ESXi versions.

### Procedure

- 
- Step 1** Copy the VEM software to the NFS storage which is mounted on the ESXi 5.0 host.
- Step 2** **esxcli --server=[server ip] software vib install --depot=Path\_to\_NFS\_storage\_mounted\_on\_ESXi\_5.0\_host**  
Enter this command from the remote device where the vCLI is installed.
- Note** See the official VMware documentation for further information on the **esxcli** command.
- Step 3** **esxcli --server=host\_ip\_address software vib list**  
Verify that the VEM software is installed on the host. Look for the installation summary and bulletin ID.
- Step 4** Do one of the following:
- If the installation was successful, the installation procedure is complete.
  - If the installation was not successful, see the "Recreating the Cisco Nexus 1000V Installation" section in the *Cisco Nexus 1000V Troubleshooting Guide*.
-

This example shows how to install VEM software remotely on a VMware 5.0 host using the CLI.

```
vi-admin@localhost:~> esxcli --server=192.0.2.2 software vib
install--depot=/vmfs/volumes/newnfs/MN-patch01/
CY-FCS/VEM500-201401164100-BG-release.zip
Enter username: root
Enter password:
Installation Result
Message: Operation finished successfully.
Reboot Required: false
VIBs Installed: Cisco_bootbank_cisco-vem-v164-esx_4.2.1.2.2.0-3.0.1
VIBs Removed:
VIBs Skipped:
vi-admin@localhost:~> esxcli --server=192.0.2.1 software vib list
Enter username:
```

## Installing the VEM Software on a Stateless ESXi Host

The following list outlines the VEM installation process on a stateless ESXi host.

### Procedure

- 
- Step 1** See the procedure for [Adding the Cisco Nexus 1000V to an ESXi Image Profile](#), on page 36.
  - Step 2** Installing the VEM software using one of the two following procedures:
    - [Installing the VEM Software on a Stateless ESXi Host Using esxcli](#), on page 40
    - [Installing the VEM Software on a Stateless ESXi Host Using VUM](#), on page 41
  - Step 3** See the procedure for [Configuring Layer 2 Connectivity](#).
- 

### Stateless ESXi Host



**Note** For stateless ESXi, the VLAN that you use for the Preboot Execution Environment (gPXE) and Management must be a native VLAN in the Cisco Nexus 1000V management uplink. It must also be a system VLAN on the management VMkernel NIC and on the uplink.

VMware vSphere 5.0.0 introduces the VMware Auto Deploy, which provides the infrastructure for loading the ESXi image directly into the host's memory. The software image of a stateless ESXi is loaded from the Auto Deploy Server after every boot. In this context, the image with which the host boots is identified as the image profile.

An image profile is a collection of vSphere Installation Bundles (VIBs) required for the host to operate. The image profile includes base VIBs from VMware and additional VIBs from partners.

On a stateless host, you can install or upgrade the VEM software using either the VUM or CLI.

In addition, you should bundle the new or modified VEM in the image profile from which the stateless host boots. If it is not bundled in the image profile, the VEM does not persist across reboots of the stateless host.

For more information about the VMware Auto Deploy Infrastructure and stateless boot process, see the “Installing ESXi using VMware Auto Deploy” chapter of the *vSphere Installation and Setup, vSphere 5.0.0* document.

## Adding the Cisco Nexus 1000V to an ESXi Image Profile

### Before You Begin

- Install and set up the VMware Auto Deploy Server. See the *vSphere Installation and Setup* document.
- Install the VMware PowerCLI on a Windows platform. This step is required for bundling the VEM into the image profile. For more information, see the *vSphere PowerCLI Installation Guide*.
- On the same Windows platform where VMware PowerCLI is installed, do the following:
  - Download the image profile offline bundle, which is a ZIP file, to a local file path.
  - Download the VEM offline bundle, which is a ZIP file, to a local file path.

### Procedure

- 
- Step 1** Start the vSphere PowerCLI application.
- Step 2** Connect to vCenter Server by entering the following command:  
**Connect-VIServer** *IP\_address* **-User Administrator -Password XXXXX**.
- Step 3** Load the image profile offline bundle by entering the following command:  
**Add-ESXSoftwareDepot** *image\_profile\_bundle*  
**Note** Each image profile bundle can include multiple image profiles.
- Step 4** List the image profiles by entering the following command:  
 [vSphere PowerCLI] > **Get-EsxImageProfile**
- Step 5** Choose the image profile into which the VEM is to be bundled by entering the following command:  
**New-EsxImageProfile -CloneProfile** *image\_profile\_name* **-Name n1kv-Image**  
**Note** The image profiles are in read-only format. You must clone the image profile before adding the VEM into it. The n1kv-Image is the cloned image profile of the ESXi-5.0.0-standard.
- Step 6** change to Load the Cisco Nexus 1000V offline bundle by entering the following command:  
**Add-EsxSoftwareDepot** *VEM\_bundle*  
**Note** The offline bundle is a zip file that includes the n1kv-vib file.
- Step 7** Confirm that the n1kv-vib package is loaded by entering the following command:  
**Get-EsxSoftwarePackage -Name** *cisco\**
- Step 8** Bundle the n1kv-package into the cloned image profile by entering the following command:  
**Add-EsxSoftwarePackage -ImageProfile** *n1kv-Image* **-SoftwarePackage** *n1kv\_package\_name*
- Step 9** List all the VIBs into the cloned image profile by entering the following command:  
 a) **\$img = Get-EsxImageProfile n1kv-Image**

b) `$img.vibList`

- Step 10** Export the image profile to a depot file for future use by entering the following command:  
**Export-EsxImageProfile -ImageProfile n1kv-Image -FilePath C:\n1kv-Image.zip -ExportToBundle**
- Step 11** Set up the rule for the host to bott with the image profile by entering the following commands
- Note** Any of the host parameters, such as the MAC address, IPV4 IP address, or domain name, can be used to associate an image profile with the host.
- a) **New-deployrule -item \$img -name rule-test -Pattern "mac=00:50:56:b6:03:c1"**  
b) **Add-DeployRule -DeployRule rule-test**
- Step 12** Display the configured rule to make sure that the correct image profile is associated with the host by entering the following command:  
**Get-DeployRuleSet**
- Step 13** Reboot the host.  
The host contacts the Auto-Deploy Server and presents the host boot parameters. The Auto Deploy server checks the rules to find the image profile associated with this host and loads the image to the host's memory. The host boots from the image.

---

This example shows how to add the Cisco Nexus 1000V to an ESXi image profile:

```
vSphere PowerCLI> Set-ExecutionPolicy unrestricted

Execution Policy Change
The execution policy helps protect you from scripts that you do not trust.
Changing the execution policy might expose you to the security risks described
in the about_Execution_Policies help topic. Do you want to change the execution
policy?
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): Y
vSphere PowerCLI> Connect-VIServer 10.105.231.40 -User administrator -Password 'xxxxxxxx'

Working with multiple default servers?

Select [Y] if you want to work with more than one default servers. In this
case, every time when you connect to a different server using Connect-VIServer,
the new server connection is stored in an array variable together with the
previously connected servers. When you run a cmdlet and the target servers
cannot be determined from the specified parameters, the cmdlet runs against all
servers stored in the array variable.

Select [N] if you want to work with a single default server. In this case,
when you run a cmdlet and the target servers cannot be determined from the
specified parameters, the cmdlet runs against the last connected server.

WARNING: WORKING WITH MULTIPLE DEFAULT SERVERS WILL BE ENABLED BY DEFAULT
IN A FUTURE RELEASE. You can explicitly set your own preference at any time by
using the DefaultServerMode parameter of Set-PowerCLIConfiguration.

[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): Y

Name Port User
---- -
10.105.231.40 443 administrator

vSphere PowerCLI> Add-EsxSoftwareDepot 'C:\Documents and
Settings\Administrator\Desktop\upgrade\229\VMware-ESXi-
5.1.0-799733-depot.zip'

Depot Url

zip:C:\Documents and Settings\Administrator\Desktop\upgrade\229\VMware-ESXi...
```

```
vSphere PowerCLI> Get-EsxImageProfile
```

| Name                                     | Vendor                | Last Modified                                                                                                  | Acceptance Level                                                                                                     |
|------------------------------------------|-----------------------|----------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|
| ESXi-5.1.0-20121201001s-no-...<br>CN1-CY | VMware, Inc.<br>CISCO | 12/7/2012 7:...<br>4/22/2013 11...                                                                             | PartnerSupported<br>PartnerSupported                                                                                 |
| ESXi-5.1.0-20121204001-stan...           | VMware, Inc.          | 12/7/2012 7:...<br>12/7/2012 7:...<br>12/7/2012 7:...<br>8/2/2012 3:0...<br>12/7/2012 7:...<br>8/2/2012 3:0... | PartnerSupported<br>PartnerSupported<br>PartnerSupported<br>PartnerSupported<br>PartnerSupported<br>PartnerSupported |

```
vSphere PowerCLI> New-EsxImageProfile -CloneProfile ESXi-5.1.0-799733-standard -Name FINAL
```

```
cmdlet New-EsxImageProfile at command pipeline position 1
Supply values for the following parameters:
(Type !? for Help.)
Vendor: CISCO
```

| Name  | Vendor | Last Modified   | Acceptance Level |
|-------|--------|-----------------|------------------|
| FINAL | CISCO  | 8/2/2012 3:0... | PartnerSupported |

```
vSphere PowerCLI> Add-EsxSoftwareDepot 'C:\Documents and
Settings\Administrator\Desktop\upgrade\229\cisco-vem-v1
64-4.2.1.2.2.0-3.1.1.zip'
```

```
Depot Url
```

```
zip:C:\Documents and Settings\Administrator\Desktop\upgrade\229\cisco-vem-v1...
```

```
vSphere PowerCLI> Get-EsxSoftwarePackage cisco*
```

| Name               | Version           | Vendor | Creation Date |
|--------------------|-------------------|--------|---------------|
| cisco-vem-v164-esx | 4.2.1.2.2.0-3.1.1 | Cisco  | 1/24/2014...  |

```
vSphere PowerCLI> Add-EsxSoftwarePackage -SoftwarePackage cisco-vem-v164-esx -ImageProfile
FINAL
```

| Name  | Vendor | Last Modified   | Acceptance Level |
|-------|--------|-----------------|------------------|
| FINAL | CISCO  | 1/24/2014 3:... | PartnerSupported |

```
vSphere PowerCLI> $img = Get-EsxImageProfile FINAL
```

| Name                | Version                        | Vendor | Creation Date |
|---------------------|--------------------------------|--------|---------------|
| scsi-bnx2i          | 1.9.1d.v50.1-5vmw.510.0.0.7... | VMware | 8/2/2012 ...  |
| sata-sata-promise   | 2.12-3vmw.510.0.0.799733       | VMware | 8/2/2012 ...  |
| net-forcedeth       | 0.61-2vmw.510.0.0.799733       | VMware | 8/2/2012 ...  |
| esx-xserver         | 5.1.0-0.0.799733               | VMware | 8/2/2012 ...  |
| misc-cnric-register | 1.1-1vmw.510.0.0.799733        | VMware | 8/2/2012 ...  |
| net-tg3             | 3.110h.v50.4-4vmw.510.0.0.7... | VMware | 8/2/2012 ...  |
| scsi-megaraid-sas   | 5.34-4vmw.510.0.0.799733       | VMware | 8/2/2012 ...  |
| scsi-megaraid-mbox  | 2.20.5.1-6vmw.510.0.0.799733   | VMware | 8/2/2012 ...  |
| scsi-ips            | 7.12.05-4vmw.510.0.0.799733    | VMware | 8/2/2012 ...  |
| net-e1000e          | 1.1.2-3vmw.510.0.0.799733      | VMware | 8/2/2012 ...  |
| sata-ahci           | 3.0-13vmw.510.0.0.799733       | VMware | 8/2/2012 ...  |
| sata-sata-svw       | 2.3-3vmw.510.0.0.799733        | VMware | 8/2/2012 ...  |
| net-cnric           | 1.10.2j.v50.7-3vmw.510.0.0.... | VMware | 8/2/2012 ...  |
| net-e1000           | 8.0.3.1-2vmw.510.0.0.799733    | VMware | 8/2/2012 ...  |

|                          |                                |        |              |
|--------------------------|--------------------------------|--------|--------------|
| ata-pata-serverworks     | 0.4.3-3vmw.510.0.0.799733      | VMware | 8/2/2012 ... |
| scsi-mptspi              | 4.23.01.00-6vmw.510.0.0.799733 | VMware | 8/2/2012 ... |
| ata-pata-hpt3x2n         | 0.3.4-3vmw.510.0.0.799733      | VMware | 8/2/2012 ... |
| net-s2io                 | 2.1.4.13427-3vmw.510.0.0.79... | VMware | 8/2/2012 ... |
| esx-base                 | 5.1.0-0.0.799733               | VMware | 8/2/2012 ... |
| net-vmxnet3              | 1.1.3.0-3vmw.510.0.0.799733    | VMware | 8/2/2012 ... |
| net-bnx2                 | 2.0.15g.v50.11-7vmw.510.0.0... | VMware | 8/2/2012 ... |
| cisco-vem-vl64-esx       | 4.2.1.2.2.2.0-3.1.1            | Cisco  | 1/24/2014... |
| scsi-megaraid2           | 2.00.4-9vmw.510.0.0.799733     | VMware | 8/2/2012 ... |
| ata-pata-amd             | 0.3.10-3vmw.510.0.0.799733     | VMware | 8/2/2012 ... |
| ipmi-ipmi-si-drv         | 39.1-4vmw.510.0.0.799733       | VMware | 8/2/2012 ... |
| scsi-lpfc820             | 8.2.3.1-127vmw.510.0.0.799733  | VMware | 8/2/2012 ... |
| ata-pata-atiixp          | 0.4.6-4vmw.510.0.0.799733      | VMware | 8/2/2012 ... |
| esx-dvfilter-generic-... | 5.1.0-0.0.799733               | VMware | 8/2/2012 ... |
| net-sky2                 | 1.20-2vmw.510.0.0.799733       | VMware | 8/2/2012 ... |
| scsi-qla2xxx             | 902.k1.1-9vmw.510.0.0.799733   | VMware | 8/2/2012 ... |
| net-r8169                | 6.011.00-2vmw.510.0.0.799733   | VMware | 8/2/2012 ... |
| sata-sata-sil            | 2.3-4vmw.510.0.0.799733        | VMware | 8/2/2012 ... |
| scsi-mpt2sas             | 10.00.00.00-5vmw.510.0.0.79... | VMware | 8/2/2012 ... |
| sata-ata-piix            | 2.12-6vmw.510.0.0.799733       | VMware | 8/2/2012 ... |
| scsi-hpsa                | 5.0.0-21vmw.510.0.0.799733     | VMware | 8/2/2012 ... |
| ata-pata-via             | 0.3.3-2vmw.510.0.0.799733      | VMware | 8/2/2012 ... |
| scsi-aacraid             | 1.1.5.1-9vmw.510.0.0.799733    | VMware | 8/2/2012 ... |
| scsi-rste                | 2.0.2.0088-1vmw.510.0.0.799733 | VMware | 8/2/2012 ... |
| ata-pata-cmd64x          | 0.2.5-3vmw.510.0.0.799733      | VMware | 8/2/2012 ... |
| ima-qla4xxx              | 2.01.31-1vmw.510.0.0.799733    | VMware | 8/2/2012 ... |
| net-igb                  | 2.1.11.1-3vmw.510.0.0.799733   | VMware | 8/2/2012 ... |
| scsi-qla4xxx             | 5.01.03.2-4vmw.510.0.0.799733  | VMware | 8/2/2012 ... |
| block-cciss              | 3.6.14-10vmw.510.0.0.799733    | VMware | 8/2/2012 ... |
| scsi-aic79xx             | 3.1-5vmw.510.0.0.799733        | VMware | 8/2/2012 ... |
| tools-light              | 5.1.0-0.0.799733               | VMware | 8/2/2012 ... |
| uhci-usb-uhci            | 1.0-3vmw.510.0.0.799733        | VMware | 8/2/2012 ... |
| sata-sata-nv             | 3.5-4vmw.510.0.0.799733        | VMware | 8/2/2012 ... |
| sata-sata-sil24          | 1.1-1vmw.510.0.0.799733        | VMware | 8/2/2012 ... |
| net-ixgbe                | 3.7.13.6iov-10vmw.510.0.0.7... | VMware | 8/2/2012 ... |
| ipmi-ipmi-msghandler     | 39.1-4vmw.510.0.0.799733       | VMware | 8/2/2012 ... |
| scsi-adp94xx             | 1.0.8.12-6vmw.510.0.0.799733   | VMware | 8/2/2012 ... |
| scsi-fnic                | 1.5.0.3-1vmw.510.0.0.799733    | VMware | 8/2/2012 ... |
| ata-pata-pdc2027x        | 1.0-3vmw.510.0.0.799733        | VMware | 8/2/2012 ... |
| misc-drivers             | 5.1.0-0.0.799733               | VMware | 8/2/2012 ... |
| net-enic                 | 1.4.2.15a-1vmw.510.0.0.799733  | VMware | 8/2/2012 ... |
| net-be2net               | 4.1.255.11-1vmw.510.0.0.799733 | VMware | 8/2/2012 ... |
| net-nx-nic               | 4.0.558-3vmw.510.0.0.799733    | VMware | 8/2/2012 ... |
| esx-xlibs                | 5.1.0-0.0.799733               | VMware | 8/2/2012 ... |
| net-bnx2x                | 1.61.15.v50.3-1vmw.510.0.0.... | VMware | 8/2/2012 ... |
| ehci-ehci-hcd            | 1.0-3vmw.510.0.0.799733        | VMware | 8/2/2012 ... |
| ohci-usb-ohci            | 1.0-3vmw.510.0.0.799733        | VMware | 8/2/2012 ... |
| net-r8168                | 8.013.00-3vmw.510.0.0.799733   | VMware | 8/2/2012 ... |
| esx-tboot                | 5.1.0-0.0.799733               | VMware | 8/2/2012 ... |
| ata-pata-sil680          | 0.4.8-3vmw.510.0.0.799733      | VMware | 8/2/2012 ... |
| ipmi-ipmi-devintf        | 39.1-4vmw.510.0.0.799733       | VMware | 8/2/2012 ... |
| scsi-mptsas              | 4.23.01.00-6vmw.510.0.0.799733 | VMware | 8/2/2012 ... |

```

vSphere PowerCLI> Export-ESXImageProfile -ImageProfile FINAL -FilePath 'C:\Documents and
Settings\Administrator\Desktop\FINAL.zip' -ExportToBundle
vSphere PowerCLI> New-deployrule -item $img -name rule-test -Pattern "mac=00:50:16:26:13:c2"
vSphere PowerCLI] > Add-DeployRule -DeployRule rule-test
[vSphere PowerCLI] > Get-DeployRuleSet
Name : rule-test
PatternList : {mac=00:50:16:26:13:c2}
ItemList : {FINAL}

```

## Installing the VEM Software on a Stateless ESXi Host Using esxcli

### Before You Begin

- When you enter the **esxcli software vib install** command on an ESXi 5.0.0 host, note that the following message appears:

Message: WARNING: Only live system was updated, the change is not persistent.

### Procedure

---

**Step 1** Display the VMware version and build number by entering the following commands:

- vmware -v**
- vmware -l**

**Step 2** Log in to the ESXi stateless host.

**Step 3** Copy the offline bundle to the host by entering the the following command:

**esxcli software vib install -d file\_path/offline\_bundle**

**Note** If the host is an ESXi 5.0.0 stateful host, the “Message: Operation finished successfully” line appears.

**Step 4** Verify that the VIB has installed by entering the following command:

**esxcli software vib list | grep cisco**

**Step 5** Change to Check that the VEM agent is running by entering the following command:

**vem status -v**

**Step 6** Display the VEM version, VSM version, and ESXi version by entering the following command:

**vemcmd show version**

**Step 7** Display the ESXi version and details about passthrough NICs by entering the following command:

**vem version -v**

**Step 8** Add the host to the DVS by using the vCenter Server.

**Step 9** On the VSM, verify that the VEM software has been installed by entering the following command:

**show module**

---

This example shows how to install VEM software on a stateless host using esxcli.

```

~ # vmware -v
VMware ESXi 5.0.0 build-843203
~ #
~ # vmware -l
VMware ESXi 5.0.0 U2

~ # esxcli software vib install -d
/vmfs/volumes/newnfs/MN-VEM/VEM500-201401164100-BG-release.zip
Installation Result
Message: WARNING: Only live system was updated, the change is not persistent.
Reboot Required: false
VIBs Installed: Cisco_bootbank_cisco-vem-v164-esx_4.2.1.2.2.0-3.0.1
VIBs Removed:
VIBs Skipped:

```



```

~ # esxcli software vib list | grep cisco
cisco-vem-vl64-esx 4.2.1.2.2.2.0-3.0.1 Cisco PartnerSupported
2014-01-24

~ # vem status -v
Package vssnet-esxmn-release
Version 4.2.1.2.2.2.0-3.0.1
Build 1
Date Sat Jan 24 04:56:14 PDT 2014
VEM modules are loaded
Switch Name Num Ports Used Ports Configured Ports MTU Uplinks
vSwitch0 128 4 128 1500 vmnic4
DVS Name Num Ports Used Ports Configured Ports MTU Uplinks
p-1 256 19 256 1500
vmnic7,vmnic6,vmnic3,vmnic2,vmnic1,vmnic0
 VEM Agent (vemdpa) is running

~ # vemcmd show version
vemcmd show version
VEM Version: 4.2.1.2.2.2.0-3.0.1
VSM Version: 4.2(1)SV2(2.2) [build 4.2(1)SV2(2.2)]
System Version: VMware ESXi 5.0.0 Releasebuild-843203

p-1# show module
Mod Ports Module-Type Model Status

1 0 Virtual Supervisor Module Nexus1000V active *
2 0 Virtual Supervisor Module Nexus1000V ha-standby
3 332 Virtual Ethernet Module NA ok
6 248 Virtual Ethernet Module NA ok

Mod Sw Hw

4.2(1) SV2(2.2) 0.0
4.2(1) SV2(2.2) 0.0
3 4.2(1)SV2(2.2) VMware ESXi 5.0.0 Releasebuild-843203 (3.0)
6 4.2(1)SV2(2.2) VMware ESXi 5.1.0 Releasebuild-843203 (3.0)

Mod Server-IP Server-UUID Server-Name

1 10.105.232.25 NA NA
2 10.105.232.25 NA NA
3 10.105.232.72 e6c1a563-bc9e-11e0-bd1d-30e4dbc2baba 10.105.232.72
6 10.105.232.70 ecebdf42-bc0e-11e0-bd1d-30e4dbc2b892 10.105.232.70

```

## Installing the VEM Software on a Stateless ESXi Host Using VUM

### Before You Begin

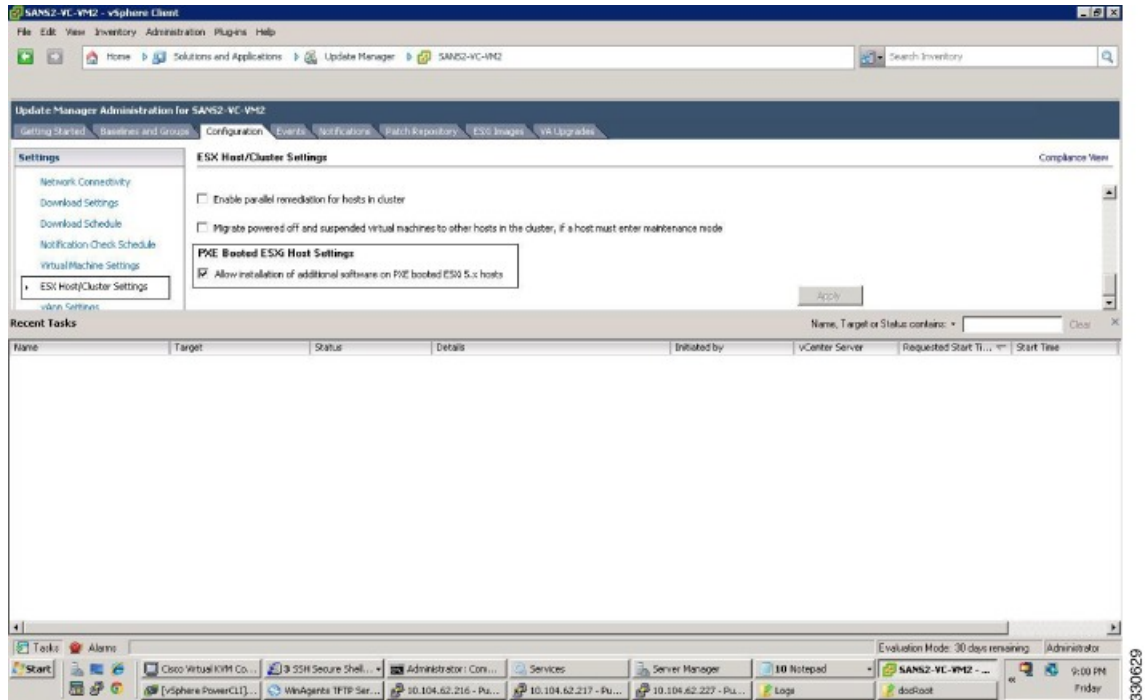
- Make sure that the VUM patch repository has the VEM software downloaded.

### Procedure

- Step 1** In vCenter Server, choose **Home > Update Manager > Configuration > ESX host/Cluster settings**. The ESX Host/Cluster Settings window opens.

**Step 2** Check the **PXE Booted ESXi Host Settings** check box.

**Figure 5: ESX Host/Cluster Settings Window**



**Step 3** Add the host to the DVS by using vCenter Server.

## Installing a VSM on the Cisco Nexus Cloud Services Platform

You can install the VSM on the Cisco Nexus Cloud Services Platform and move from Layer 2 to Layer 3 connectivity.



### Note

VEMs do not register to the VSM before a vmkernel interface (vmk) is migrated to a Layer 3 control-capable port profile. You must migrate a vmk to the Layer 3 port profile after migrating host vmnics to Ethernet port profiles.

The example may contain Cisco Nexus 1000V versions and filenames that are not relevant to your release. Refer to the *Cisco Nexus 1000V and VMware Compatibility Information* for your specific versions and filenames.

### Before You Begin

Copy the ISO file to the bootflash:repository/ of the Cisco Nexus Cloud Services Platform.

## Procedure

### Step 1 Create a virtual service blade.

```
switch(config)# show virtual-service-blade summary
```

```

Name HA-Role HA-Status Status Location

```

```
switch(config)# virtual-service-blade vsm-1
```

```
switch(config-vsbl-config)# virtual-service-blade-type new nexus-1000v.4.2.1.SV2.2.2.iso
```

```
switch(config-vsbl-config)# show virtual-service-blade summary
```

```

Name HA-Role HA-Status Status Location

```

```
vsm-1 PRIMARY NONE VSB NOT PRESENT PRIMARY
```

```
vsm-1 SECONDARY NONE VSB NOT PRESENT SECONDARY
```

```
switch(config-vsbl-config)#
```

### Step 2 Configure the control, packet, and management interface VLANs for static and flexible topologies.

```
switch(config-vsbl-config)# interface management vlan 100
```

```
switch(config-vsbl-config)# interface control vlan 101
```

```
switch(config-vsbl-config)# interface packet vlan 101
```

### Step 3 Configure the Cisco Nexus 1000V on the Cisco Nexus 1010.

```
switch(config-vsbl-config)# enable
```

```
Enter vsb image: [nexus-1000v.4.2.1.SV2.2.2.iso]
```

```
Enter domain id[1-4095]: 127
```

```
Enter SVS Control mode (L2 / L3): [L3] L2
```

```
Management IP version [V4/V6]: [V4]
```

```
Enter Management IP address: 192.0.2.79
```

```
Enter Management subnet mask: 255.255.255.0
```

```
IPv4 address of the default gateway: 192.0.2.1
```

```
Enter HostName: n1000v
```

```
Enter the password for 'admin': *****
```

```
Note: VSB installation is in progress, please use show virtual-service-blade commands to check the installation status.
```

```
switch(config-vsbl-config)#
```

### Step 4 Display the primary and secondary VSM status.

```
switch(config-vsbl-config)# show virtual-service-blade summary
```

```

Name HA-Role HA-Status Status Location

```

```
vsm-1 PRIMARY NONE VSB POWER ON IN PROGRESS PRIMARY
```

```
vsm-1 SECONDARY ACTIVE VSB POWERED ON SECONDARY
```

### Step 5 Log in to the VSM.

```

switch(config)# virtual-service-blade vsm-1
switch(config-vs-b-config)# login virtual-service-blade vsm-1
Telnet escape character is '^\'
Trying 192.0.2.18...
Connected to 192.0.2.18.
Escape character is '^\'

Nexus 1000v Switch
n1000v login: admin
Password:
Cisco Nexus operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
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such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://www.opensource.org/licenses/lgpl-2.1.php
switch#

```

**Step 6** Change svcs mode from Layer 2 to Layer 3 in the Cisco Nexus 1000V.

**Note** The configuration in the highlighted code is optional.

```

switch(config)# svcs-domain
switch(config-svcs-domain)# no control vlan
Warning: Config saved but not pushed to vCenter Server due to inactive connection!
switch(config-svcs-domain)# no packet vlan
Warning: Config saved but not pushed to vCenter Server due to inactive connection!
switch(config-svcs-domain)# svcs mode L3 interface mgmt0
Warning: Config saved but not pushed to vCenter Server due to inactive connection!
switch(config-svcs-domain)# show svcs domain
switch(config-svcs-domain)# show svcs domain
SVS domain config
Domain id: 101
Control vlan: NA
Packet vlan: NA
L2/L3 Control mode: L3
L3 control interface: mgmt0
Status: Config push to VC successful.
switch(config-svcs-domain)#

```

## Feature History for Installing the Cisco Nexus 1000V

The following table lists the release history for installing the Cisco Nexus 1000V.

| <b>Feature Name</b>                          | <b>Releases</b> | <b>Feature Information</b>                                                                       |
|----------------------------------------------|-----------------|--------------------------------------------------------------------------------------------------|
| VEM Installation 5.1                         | 4.2(1)SV2(2.1)  | Installing VEM software remotely or locally on a VMware 5.1 host using the CLI is now supported. |
| Standard and Custom installation application | 4.2(1)SV2(1.1)  | Installation Application updated with a Standard and Custom version                              |
| Updated installation application             | 4.2(1)SV1(5.2)  | Added screens to the Java application.                                                           |
| VSM and VEM Installation                     | 4.2(1)SV1(5.1)  | Java applications introduced for VSM and VEM installation.                                       |
| Installing the Cisco Nexus 1000V             | 4.0(1)SV1(1)    | Introduced in this release.                                                                      |

