Upgrading Cisco Nexus 1000V Using Cisco VSUM

This chapter contains the following sections:

Information About Upgrading the Cisco Nexus 1000V Using Cisco VSUM

Cisco VSUM is the GUI that you can use to upgrade the Virtual Supervisor modules (VSMs) and the VEMs on ESX/ESXi hosts.

An interactive upgrade tool has been provided to assist you in determining the correct upgrade steps based on your current environment and the one to which you want to upgrade.

See the *Cisco Nexus 1000V and VMware Compatibility Information* for more information on the compatibility information for Cisco Nexus 1000V.

You can obtain your upgrade-related software for the current release of the Cisco Nexus 1000V software from Cisco.com.

With Cisco VSUM, you can upgrade the Cisco Nexus 1000V version only with the vSphere version intact.

See the *Cisco Nexus 1000V Installation and Upgrade Guide* for information about how to upgrade both vSphere and Cisco Nexus 1000V versions together and how to upgrade the vSphere version only, with the Cisco Nexus 1000V version intact.

Supported Upgrade Paths: With Cisco VSUM, you can upgrade Cisco Nexus 1000V from Release 4.2(1)SV1(4b) and later releases.

Unsupported Upgrade Paths:

Using Cisco VSUM, you cannot upgrade the following releases of Cisco Nexus 1000V to the current release:

- Release 4.2(1)SV1(4)
- Release 4.2(1)SV1(4a)

- Release 4.2(1)SV1(3x) series

See the *Cisco Nexus 1000V Installation and Upgrade Guide* to upgrade the Cisco Nexus 1000V to the current version using the CLI.

Note Upgrades from Release 4.0(4)SV1(1), 4.0(4)SV1(2), and 4.0(4)SV1(3x) are no longer supported. VMware 4.0 and 4.1 are also not supported with this Cisco Nexus 1000V release.

Using Cisco VSUM, you cannot upgrade to following releases of Cisco Nexus 1000V:

- 4.2(1)SV1(5.2)
- 4.2(1)SV2(1.1)

Prerequisites for Upgrading Cisco Nexus 1000V Using Cisco VSUM

Upgrading the Cisco Nexus 1000V with Cisco VSUM has the following prerequisites:

- Close any active configuration sessions before upgrading the Cisco Nexus 1000V software.
- Save all changes in the running configuration to the startup configuration.
- Save a backup copy of the running configuration in the external storage.
- Perform a VSM backup. For more information, see the "Configuring VSM Backup and Recovery" chapter in the *Cisco Nexus 1000V System Management Configuration Guide*.
- Use the VSM management IP address to log in to VSM and perform management tasks.

Important If you connect to a VSM using the VSA serial port or the connect host from the Cisco Integrated Management Control (CIMC), do not initiate commands that are CPU intensive, such as copying images from the TFTP server to bootflash or generating a lot of screen output or updates. Use the VSA serial connections, including CIMC, only for operations such as debugging or basic configuration of the VSA.

- If you are upgrading Cisco Nexus 1000V from a previous release to Release 5.2(1)SV3(1.x) and you have a VSM 2-GB hard disk drive (HDD), you must upgrade VSM to a 3-GB HDD before you upgrade Cisco Nexus 1000V. See the section Upgrading VSM to a 3-GB HDD Before Upgrading Cisco Nexus 1000V for instructions.
- If you need to migrate a vSphere host from ESX to ESXi, do it before the Cisco Nexus 1000V upgrade.
- You have placed the VEM software file in `/tmp` on the vSphere host. Placing it in the root (/) directory might interfere with the upgrade. Make sure that the root RAM disk has at least 12 MB of free space by entering the **vdf** command.
- On your upstream switches, you must have the following configuration.

- On Catalyst 6500 Series switches with Cisco IOS software, enter the **portfast trunk** command or the **portfast edge trunk** command.
- On Cisco Nexus 5000 Series switches with the Cisco NX-OS software, enter the **spanning-tree port type edge trunk** command.

- On your upstream switches, we highly recommend that you globally enable the following:
  - Global BPDU Filtering
  - Global BPDU Guard
- On your upstream switches where you cannot globally enable BPDU Filtering and BPDU Guard, we highly recommend that you enter the following commands:
  - **spanning-tree bpdu filter**
  - **spanning-tree bpdu guard**
- You must have the Distributed Switch—Create and Modify privilege permission enabled on the vCenter.
- For more information about configuring spanning tree, BPDU, or PortFast, see the documentation for your upstream switch.

Upgrading VSM to a 3-GB HDD Before Upgrading Cisco Nexus 1000V

If you are upgrading Cisco Nexus 1000V from a previous release to Release 5.2(1)SV3(1.x) and you have a VSM 2-GB HDD, you must upgrade VSM to a 3-GB HDD before you upgrade Cisco Nexus 1000V. Follow one of the following sets of instructions to upgrade VSM.

Upgrading Hard Disk Drive Space from 2 GB to 3 GB on a VSM as a VM

We recommend that you upgrade the HDD space from 2 GB to 3 GB on a VSM VM before upgrading VSM to Release 5.2(1)SV3(1.1) or later.

Before You Begin

Make sure that the Cisco Nexus 1000V VSMs are running Release 4.2(1)SV2(1.1) or 4.2(1)SV2(2.1).

Make sure that the existing Cisco Nexus 1000V VSMs are an HA pair with 2 GB HDD.

Step 1 Remove the existing standby VSM.

a) Right-click the VSM VM and power off the VM.
b) Remove it from the Virtual Center inventory.

Step 2 Bring up the new standby VSM VM (with 3-GB HDD) with the same release as the active VSM using ISO. For example, if the active VSM is running Release 4.2(1)SV2(1.1), bring up the new standby VSM with Release 4.2(1)SV2(1.1).

a) Confirm that the same port profiles are used as the primary VSM for 3 network interfaces.

b) Provision a 3-GB HDD with a minimum of 2 GB of RAM reserved and allocated, and a minimum CPU speed of 1600 MHz.

See the section "Installing the Software from the ISO Image" in the *Cisco Nexus 1000V Installation and Upgrade Guide*.

Step 3 Power on the standby VSM.

a) Confirm the HA role is set as Secondary.
b) Confirm the Domain ID is the same as the Primary VSM.

Step 4 After the HA pair is formed, perform a system switchover to make the standby VSM become the active VSM.

Step 5 Remove the current standby VSM.

a) Right-click the VSM VM and power off the VM.
b) Remove it from the Virtual Center inventory.

Step 6 Change the Active VSM system redundancy role to the Primary system by entering **system redundancy role primary**.

Step 7 Copy the config to start up and perform a reload.

Step 8 Verify the current role by entering **show system redundancy status**. The role should be set as Primary.

Step 9 Bring up the new standby VSM VM (with 3-GB HDD) using ISO following Step 2 and Step 3.

Step 10 After the HA pair is formed, verify it by entering **show system internal flash**. It should reflect the VSM with 3-GB HDD.

What to Do Next

Perform an in-service software upgrade (ISSU) to Release 5.2(1)SV3(1.1) or later.

Upgrading Hard Disk Drive Space from 2 GB to 3 GB on a VSM on a VSB

We recommend that you upgrade the VSM that is deployed on a CSP from a 2-GB HDD to a 3-GB HDD.

Step 1 Identify the standby VSM by entering the **show virtual-service-blade summary** command.

```
N1110# show virtual-service-blade summary

Name                    HA-Role     HA-Status     Status                Location
------------------------------------------------------------------------------
switch                  PRIMARY     ACTIVE      VSB POWERED ON           PRIMARY
switch                  SECONDARY   STANDBY     VSB POWERED ON           SECONDARY

N1110#
```

The output shows that the standby VSM is running on the secondary Cisco Nexus 1010 Virtual Service Blade (VSB).

Step 2 Shut down and delete the standby VSM on the secondary VSB.

a) N1110# **configure terminal**
b) N1110#(config)**virtual-service-blade** name switch
c) N1110#(config-vsb-config)**shutdown secondary**
d) N1110#(config-vsb-config)**no enable secondary**

Step 3 Bring up the new secondary VSB with Release 4.2(1)SV2(1.1) using ISO.

See the Cisco Nexus 1100 Series Virtual Services Appliances Deployment Guide White Paper for more information.

Step 4 Change the disk size to 3 GB or more.

```
N1110(config-vsb-config)# disksize 4
```

Step 5 Enable the standby VSM on the secondary VSB.
See the Cisco Nexus 1100 Series Virtual Services Appliances Deployment Guide White Paper for more information.

```
N1110# sh virtual-service-blade summary

------------------------------------------------------------------------------
Name                    HA-Role     HA-Status   Status                   Location
------------------------------------------------------------------------------
switch                  PRIMARY     ACTIVE      VSB POWERED ON           PRIMARY
switch                  SECONDARY   NONE        VSB NOT PRESENT          SECONDARY
switch1                 PRIMARY     NONE        VSB NOT PRESENT          PRIMARY
switch1                 SECONDARY   STANDBY     VSB POWERED ON           SECONDARY

N1110#
```

Step 6 Perform a system switchover to make the active VSM on the primary VSB become the standby VSM. To do this, enter the **system switchover** command on the active VSM.

```
N1110# system switchover
N1110(config-vsb-config)# show virtual-service-blade summary

------------------------------------------------------------------------------
Name                  HA-Role     HA-Status   Status                   Location
------------------------------------------------------------------------------
switch                  PRIMARY     STANDBY     VSB POWERED ON           PRIMARY
switch                  SECONDARY   NONE        VSB NOT PRESENT          SECONDARY
switch1                 PRIMARY     NONE        VSB NOT PRESENT          PRIMARY
switch1                 SECONDARY   ACTIVE      VSB POWERED ON           SECONDARY

N1110(config-vsb-config#
```

Step 7 After the HA pair is formed, shut down and delete the standby VSM on the primary VSB.

```
N1110(config)# virtual-service-blade switch
N1110(config-vsb-config)# shutdown primary
N1110(config-vsb-config)# no enable primary

N1110(config-vsb-config)# show virtual-service-blade summary

------------------------------------------------------------------------------
Name                HA-Role     HA-Status   Status                   Location
------------------------------------------------------------------------------
switch                  PRIMARY     NONE        VSB NOT PRESENT          PRIMARY
switch                  SECONDARY   NONE        VSB NOT PRESENT          SECONDARY
switch1                 PRIMARY     NONE        VSB NOT PRESENT          PRIMARY
switch1                 SECONDARY   ACTIVE      VSB POWERED ON           SECONDARY

N1110(config-vsb-config)#
```

Step 8 Bring up the new VSB with Release 4.2(2)SV2(1.1) using ISO.
See the Cisco Nexus 1100 Series Virtual Services Appliances Deployment Guide White Paper for more information.

Step 9 Enable the primary VSM.

See the Cisco Nexus 1100 Series Virtual Services Appliances Deployment Guide White Paper for more information.

```
N1110(config)# show virtual-service-blade summary

--------------------------------------------------------------------------------
Name                    HA-Role     HA-Status   Status                   Location
--------------------------------------------------------------------------------
switch                  PRIMARY     NONE        VSB NOT PRESENT          PRIMARY
switch                  SECONDARY   NONE        VSB NOT PRESENT          SECONDARY
switch1                 PRIMARY     STANDBY     VSB POWERED ON           PRIMARY
switch1                 SECONDARY   ACTIVE      VSB POWERED ON           SECONDARY

N1110(config-vsb-config)#
```

Step 10 Verify that the HDD size has changed. The following example shows that the HDD size is 4 GB.

```
N1110(config)# show system internal flash

Mount-on                 1K-blocks      Used   Available   Use%  Filesystem
        /                   307200     87628      219572     29   /dev/root
        /proc                    0         0           0      0   proc
        /isan                614400    243076      371324     40   none
        /var/sysmgr          512000     18896      493104      4   none
        /var/sysmgr/ftp      204800        40      204760      1   none
        /dev/shm             358400     30268      328132      9   none
        /volatile             20480         0       20480      0   none
        /debug                 2048         8        2040      1   none
        /dev/mqueue               0         0           0      0   none
        /mnt/cfg/0           326681      8360      301455      3   /dev/hda5
        /mnt/cfg/1           326681      8359      301456      3   /dev/hda6
        /var/sysmgr/startup-cfg      409600      1168      408432      1   none
        /dev/pts                  0         0           0      0   devpts
        /mnt/pss             326671      8625      301178      3   /dev/hda3
        /bootflash          3122988    151756     2812592      6   /dev/hda4
        /bootflash_sup-remote       3122992    151760     2812592      6   127.1.1.1:/mnt/bootflash/
```

What to Do Next

Perform an in-service software upgrade (ISSU) to Release 5.2(1)SV3(1.1) or later.

Verifying that the VSM Has 3 GB of Hard Disk Drive Storage

You can display the system internal flash to verify that have at least 3 GB of HDD space.

Step 1 Display the system internal flash.

```
switch# show system internal flash
Mount-on                 1K-blocks      Used   Available   Use%  Filesystem
/                           307200     77808      229392     26   /dev/root
/mnt/pss                    248895      8164      227879      4   /dev/sda3
```

```
/proc                         0         0         0      0   proc
/isan                    614400    372236    242164     61   none
/var/sysmgr             1048576    488704    559872     47   none
/var/sysmgr/ftp          204800        52    204748      1   none
/nxos/tmp                 20480         0     20480      0   none
/dev/shm                 358400     89660    268740     26   none
/volatile                 20480         0     20480      0   none
/debug                     2048       128      1920      7   none
/dev/mqueue                   0         0         0      0   none
/mnt/cfg/0               248895      4494    231551      2   /dev/sda5
/mnt/cfg/1               241116      4493    224175      2   /dev/sda6
/var/sysmgr/startup-cfg  409600      5892    403708      2   none
/dev/pts                      0         0         0      0   devpts
/mnt/pss                 248895      8164    227879      4   /dev/sda3
/bootflash              2332296   1918624    295196     87   /dev/sda4
/sys                          0         0         0      0   sysfs
```

Step 2 Make sure that the number of blocks allocated to the /mnt/cfg/0, /mnt/cfg/1, /mnt/pss, and /bootflash partitions equals at least 3 GB.

Guidelines and Limitations for Upgrading the Cisco Nexus 1000V Using Cisco VSUM

Caution During the upgrade process, the Cisco Nexus 1000V does not support any new additions such as modules, virtual NICs (vNICs), or VM NICs and does not support any configuration changes. VM NIC and vNIC port-profile changes might render VM NICs and vNICs in an unusable state.

Note We recommend that you use vSphere 5.0 Update 1 or later instead of vSphere 5.0.

Upgrading the Cisco Nexus 1000V with Cisco VSUM has the following guidelines and limitations:

- You are upgrading the Cisco Nexus 1000V software to the current release.
- Schedule the upgrade when your network is stable and steady. Ensure that everyone who has access to the switch or the network is not configuring the switch or the network during this time. You cannot configure a switch during an upgrade.
- Avoid power interruptions to the hosts that run the VSM VMs during any installation procedure.

Before you upgrade the VEMs, note these guidelines and limitations:

- During the VEM upgrade process, VEMs reattach to the VSM.
- Connectivity to the VSM can be lost during a VEM upgrade when the interfaces of a VSM VM connect to its own distributed virtual switch (DVS).

Upgrading the Cisco Nexus 1000V Using Cisco VSUM

You can upgrade the Cisco Nexus 1000V using Cisco VSUM.

Step 1 Log in to the VMware vSphere Web Client.

Step 2 In the vSphere Client, choose **Cisco Virtual Switch Update Manager** > **Nexus 1000V** > **Configure**, choose the data center, choose the distributed virtual switch, and then click **Manage**.

Note If the switch is not managed by Cisco VSUM, you are prompted to enter the switch credentials in the **Make Managed** window. For more information, see Managing an Existing Cisco Nexus 1000V Switch.

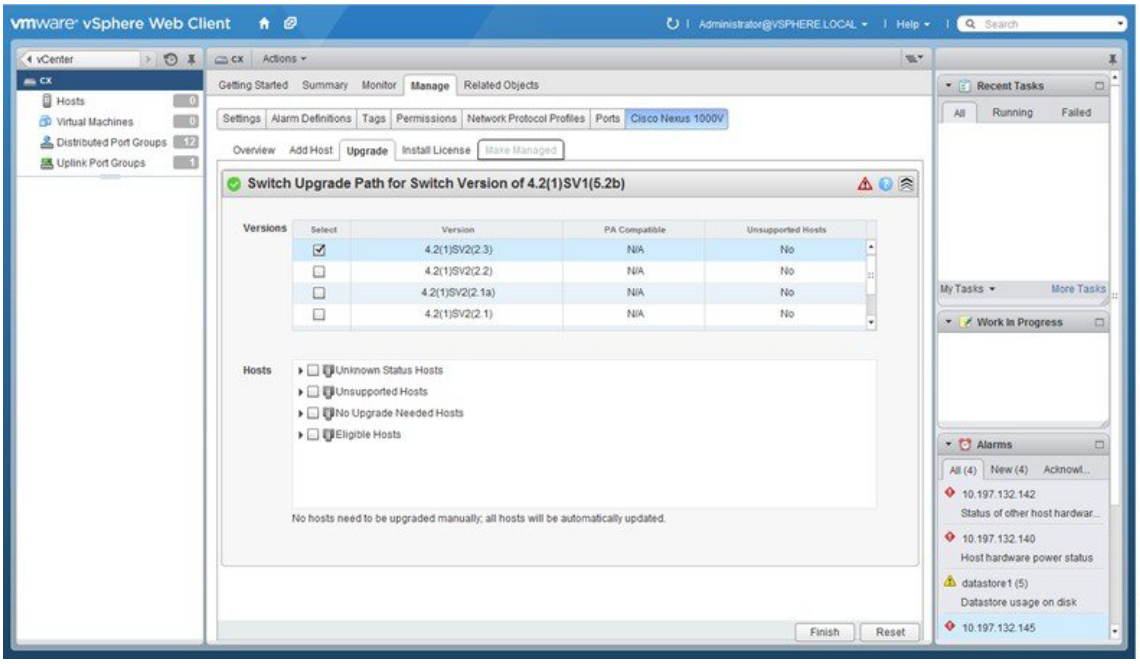
Step 3 In the switch pane, click the **Upgrade** tab.

Step 4 If the policy agent (PA) has been installed on the Virtual Supervisor Module (VSM), complete the following steps in the **Select PNSC and VSG versions** dialog box:

1. From the **Select PNSC version** drop-down list, choose the version compatible with the version of Cisco Nexus 1000V that you are upgrading to.
2. From the **Select VSG version** drop-down list, choose the version compatible with the version of Cisco Nexus 1000V that you are upgrading to.
3. Click **OK**. The upgrade path displays the selected Cisco Prime Network Services Controller (PNSC) version and PA Compatible option as **Yes**.

Step 5 Note the following elements of the **Switch Upgrade Path** window, which appears under the **Upgrade** tab:

Figure 1: Cisco VSUM—Upgrading Cisco Nexus 1000V



In the **Versions** area, note the following columns:

Name	Description
Version	Displays the version number of the Cisco Nexus 1000V switch suggested for upgrade. By default, the most recent version is selected.
PA Compatble	Displays if the Cisco PNSC version is compatible with the Cisco Nexus 1000V switch version suggested for upgrade.
Unsupported Hosts	Displays if the ESXi host has to be upgraded manually.

In the **Hosts** area, note the hosts that are associated with the Cisco Nexus 1000V version suggested for upgrade. The hosts are represented in the following four categories:

- Unknown Status Hosts—The status of the host is in nonresponding state.
- Unsupported Hosts—The ESX/ESXi version of the host is not compatible with the ESX/ESXi version of the host that is associated with the Cisco Nexus 1000V version suggested for upgrade. The unsupported hosts should be upgraded manually to the ESX/ESXi versions supported by the Cisco Nexus 1000V. See the *Cisco Nexus 1000V and VMware Compatibility Information* for more information about supported ESX/ESXi versions.
- No Upgrade Needed Hosts—The hosts already have the correct VEM version installed.
- Eligible Hosts—The ESX/ESXi version of the host is compatible with the ESX version of the host that is associated with the Cisco Nexus 1000V version suggested for upgrade. During the upgrade process, Cisco Virtual Switch Update Manager upgrades the VEM version installed on the hosts to the specified version.

Step 6 In the **Versions** area, accept the default version or choose another available version by clicking the check box next to it.

Step 7 In the **Hosts** area, from the **Eligible Hosts** drop-down list, click the check box next to the host or hosts that you want to upgrade.

Step 8 Click **Finish**.
This upgrades the VSMs along with the PA and the VEM.

Step 9 Check the upgrade status by completing the following steps:

a) In the **Recent Tasks** pane to the right of the work pane, click **More Tasks**.
The **Task Console** appears in the work pane, displaying a list of tasks with the most recent task at the top.

b) Find the task in the **Task Name** column and then view the status in the **Status** column.
The **Status** column shows whether the task is complete or in progress. You can click the refresh icon to display new tasks and learn how much of the task is complete.

Note Several tasks might appear above the primary task you just performed. They might be associated with your primary task.

The upgrade is confirmed when the primary task `Upgrade Cisco DVS` has the status `Completed`.

If you close the browser and later want to view the task's history, log in to the web client and click **Tasks** in the navigation pane to display the lists of tasks in the work pane.

Step 10 Verify the upgrade by completing the following steps:

a) Log in to the Cisco Nexus 1000V over an SSH connection.

b) At the prompt, enter the command **show module**.
The output displays information about the VSMs and VEMs that are part of the Cisco Nexus 1000V.

c) In the top section of the output, verify the state of the modules.
One VSM should be active, and one should be a standby. The VEMs that are part of the DVS are listed below the VSMs. Their status should be `OK`.

d) In the center section of the output, verify that modules show the number of the release that you upgraded to.

e) At the prompt, enter the command **show version**.

f) In the software section of the output, verify that the kickstart version and the system version have the number of the release that you upgraded to.