Upgrading Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

This chapter contains the following sections:

Information About Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

Cisco Virtual Switch Update Manager is the graphical user interface (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 Virtual Switch Update Manager, you can upgrade 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 Virtual Switch Update Manager, you can upgrade Cisco Nexus 1000V from Release 4.2(1)SV1(4b) and later releases.

Unsupported Upgrade Paths: Using Cisco Virtual Switch Update Manager, 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.

Prerequisites for Upgrading Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

Upgrading the Cisco Nexus 1000V with Cisco Virtual Switch Update Manager 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 into 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 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 the 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 vCentre.
- 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 1000Vfrom 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 hard disk drive (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 on 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 has 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) Configure 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 on 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 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**. 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 hard disk drive (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, shutdown 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 you have a minimum of 3-GB of hard disk drive 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 Virtual Switch Update Manager

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 Virtual Switch Update Manager 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 Virtual Switch Update Manager

You can upgrade the Cisco Nexus 1000V using Cisco Virtual Switch Update Manager.

Step 1 Log in to the VMware vSphere Web Client.

Step 2 In the vSphere Client, choose **Cisco Virtual Switch Update Manager** > **Configure and Manage Nexus 1000V and Application Virtual Switch** > **Datacenter** > **Distributed Virtual Switch** > **Manage**.

Note If the switch is not managed by Cisco Virtual Switch Update Manager, you are prompted to enter the switch credentials in the **Make Managed** window.

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

Step 4 (Optional) In case of multiple vCenter Servers, choose **Home** > **Cisco Virtual Switch Update Manager** > **vCenter Server** > **Configure and Manage Nexus 1000V and Application Virtual Switch** .

Step 5 (Optional) You can also access the Cisco Virtual Switch Update Manager in the vSphere Client by navigating to **vCenter** > **Distributed Switches**.

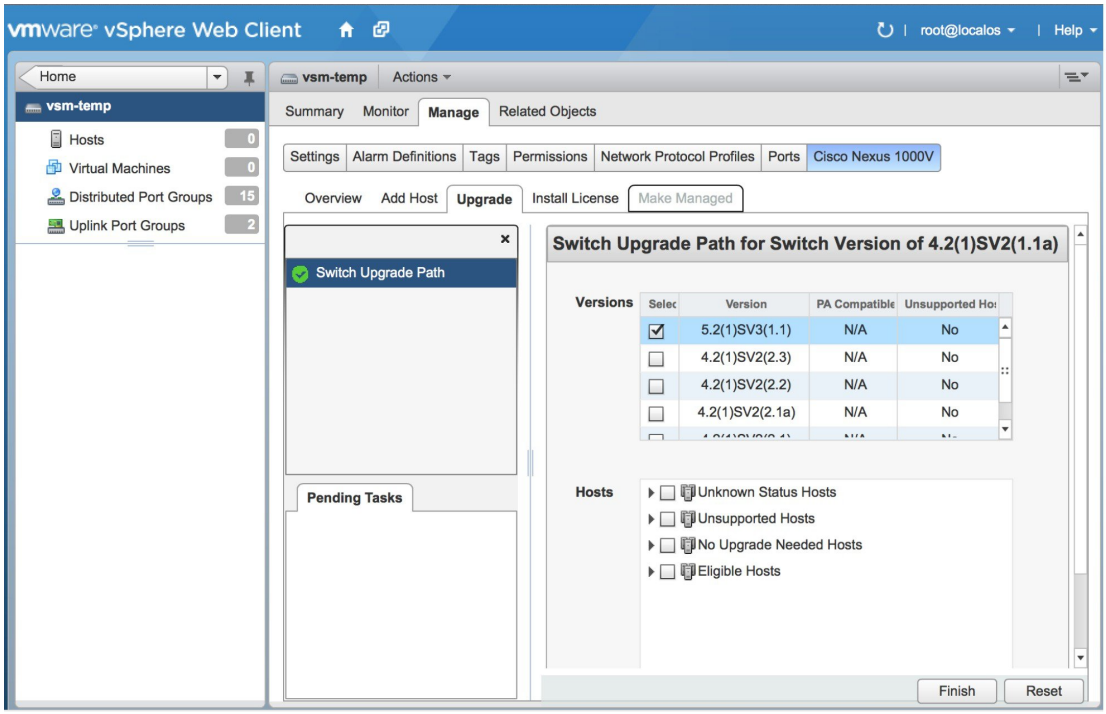
Step 6 (Optional) In the switch pane, click **Manage** > **Cisco Nexus 1000V** > **Upgrade**.

Note If the policy agent has been installed on the VSM, then do the following:

1. Enter the PNSC version number in the PNSC field.
2. Enter the VSG version number in the VSG field.
3. Click **OK**. The upgrade path displays the selected PNSC version and PA Compatible option as **Yes**.
4. From the Eligible Hosts drop-down list, choose the host and click **Finish**. This upgrades the VSMs along with the Policy Agent and the VEM.

Step 7 In the **Switch Upgrade Path** area, the **Switch Upgrade Path** for the selected switch displays the switch to be upgraded.

Figure 1: Cisco Virtual Switch Update Manager—Upgrading Cisco Nexus 1000V



Step 8 In the **Versions** area, the following information is pre configured.

Name	Description
Suggested Upgrade field	Displays if the upgrade is supported .
Version field	Displays the version number of the Cisco Nexus 1000V switch suggested for upgrade.
PA Compatble field	Displays if the Cisco PNSC version is compatible with the Cisco Nexus 1000V switch version suggested for upgrade.
Unsupported Hosts field	Displays if the ESX host has to be upgraded manually.

Step 9 In the **Hosts** area, the hosts that are associated with the Cisco Nexus 1000V version suggested for upgrade are displayed. 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 version of the host is not compatible with the ESX 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 versions supported by the Cisco Nexus 1000V. See the *Cisco Nexus 1000V and VMware Compatibility Information* for more information about supported ESX versions.

- No Upgrade Needed Hosts—The hosts already have the correct VEM version installed.
- Eligible Hosts—The ESX 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 10 Click **Finish** to upgrade the Cisco Nexus 1000V.

Step 11 In vSphere Web Client, choose **vCenter** > **Datacenter** > **Switch** > **Monitor** > **Tasks** to view the status of the upgrade. You can also view the tasks in the vSphere Web Client by choosing **Cisco Virtual Switch Update Manager** > **Select vCenter Host** > **Mange DVS** > **Select Datacenter** > **Select Switch** > **Monitor** > **Tasks**.
A typical upgrade of the host takes a few minutes. In vCenter Web Client, you can view the tasks by the task object, user, or task status.

Feature History for Upgrading the Cisco Nexus 1000V Using Cisco Virtual Switch Update Manager

This table includes only the updates for those releases that have resulted in additions or changes to the feature.

Feature Name	Releases	Feature Information
Upgrading Cisco Nexus 1000V using Cisco Virtual Switch Update Manager	Release 1.0	This feature was introduced.