# Upgrading the Cisco VSG and the Cisco Prime NSC

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## Complete Upgrade Procedure

***Table 1: Refer to the Section in Table Based on your Pre-upgrade Product Release***

| You are Upgrading From | Follow The Sequential Steps in the Following Section: |
|---|---|
| Cisco VSG Release 4.2(1)VSG1(4.1) to Release 4.2(1)VSG2(1.1) and Cisco VNMC Release 2.1 to Cisco Prime NSC Release 3.0.2 | Upgrade Procedures for Cisco VSG Release 4.2(1)VSG1(4.1) to Release 4.2(1)VSG2(1.1) and Cisco VNMC 2.1 to Cisco Prime NSC Release 3.0.2.<br>This includes upgrade procedures for Cisco Nexus 1000V Release 4.2(1)SV1(5.2) to Release 4.2(1)SV2(2.1). |

| You are Upgrading From | Follow The Sequential Steps in the Following Section: |
|---|---|
| Cisco VSG Release 4.2(1)VSG1(4.1) to Release 4.2(1)VSG2(1.1) and Cisco VNMC Release 2.0 to Release 2.1 | Upgrade Procedures for Cisco VSG Release 4.2(1)VSG1(4.1) to Release 4.2(1)VSG2(1.1) and Cisco VNMC Release 2.0 to Release 2.1.<br>This includes upgrade procedures for Cisco Nexus 1000V Release 4.2(1)SV1(5.2) to Release 4.2(1)SV2(2.1). |
| Cisco VSG Release 4.2(1)VSG1(3.1) to Release 4.2(1)VSG2(1.1) and Cisco VNMC Release 1.3 to Release 2.1 | Upgrade Procedures for Cisco VSG Release 4.2(1)VSG1(3.1) to Release 4.2(1)VSG2(1.1) and Cisco VNMC Release 1.3 to Release 2.1.<br>This includes upgrade procedures for Cisco Nexus 1000V Release 4.2(1)SV1(5.2) to Release 4.2(1)SV2(2.1). |

To upgrade the Cisco Prime NSC, Cisco VSG, and Cisco Nexus 1000V, follow the steps sequentially:

1. Stage 1: Upgrading Cisco Prime NSC
2. Stage 2: Upgrading a Cisco VSG Pair
3. Stage 3: Upgrading the VSM pair and the VEMs

**Note** We highly recommend that you upgrade the Cisco VSG and the Cisco Prime NSC in the sequence listed. Any deviation from the ordered steps could cause disruption of your connectivity and data communication. The Cisco Prime NSC must be upgraded with the corresponding policy agent (PA).

**Note** To upgrade from VNMC Release 1.3 and 2.0 to Cisco Prime NSC 3.0.2, you need to first upgrade to Release VNMC Release 2.1.

# Information About Cisco Prime NSC Upgrades

When you upgrade the Cisco Prime NSC software, all current (command-line interface) CLI and (graphical user interface) GUI sessions are interrupted, which means that you must restart any CLI or GUI sessions.

# Information About Cisco VSG Upgrades

The upgrade procedure for a standalone Cisco VSG is hitful, which means that you must manually reload the Cisco VSG for the new image to become effective. In HA mode, the upgrade is hitless, which means that the standby Cisco VSG is upgraded first and then after a switchover, the previously active Cisco VSG is upgraded.

Because license information is not stored with the Cisco VSG but is maintained between the Virtual Supervisor Module (VSM) and Virtual Ethernet Module (VEM), if packets are received at the Cisco VSG, that means that the license is valid and the packets are processed.

An upgrade affects two bin files: the kickstart file and the system file.

An upgrade does not erase any of the existing information, when the Cisco VSG comes online. Because the Cisco VSG is stateless, it gets all this information from the Cisco Prime NSC at bootup.

# Upgrade Guidelines and Limitations

Before upgrading the Cisco Prime NSC, Cisco VSG, and Cisco Nexus 1000V, read the following:

- We highly recommend that you upgrade the Cisco VSG and the Cisco Prime NSC in the order provided. Any deviation from the ordered steps could cause disruption of your connectivity and data communication. The Cisco Prime NSC must be upgraded with the corresponding policy agent (PA).
- We recommend that you take a snapshot or backup (clone) of the original Cisco Prime NSC and VSM prior to the upgrade process and then perform an ISSU upgrade process on both the VSM and the Cisco VSG. We do not recommend that you perform a manual upgrade.
- For a full In-service Software Upgrade (ISSU) upgrade on both the Cisco VSG and VSM, follow these rules:
    - Install the Cisco Prime NSC before installing the Cisco VSG and VSM. The ISSU upgrade installs a new PA.
    - A new PA with an old Cisco Prime NSC is not supported and there should never be an interim stage in this state.
    - A copy run start is not required after the VSM upgrade.
- The **vn-service** command is changed to the **vservice** command on the VSM port-profile in VSM Release 4.2(1)SV1(5.2).
- Upgrade instructions include the following information:
    - Different stages of complete upgrade procedures and operations which are supported at different stages.
    - Different component versions after each stage.
    - Different operations supported after each stage.

# Upgrade Procedure for Cisco VSG Release 4.2(1)VSG1(4.1) to Release 4.2(1)VSG2(1.1), Cisco VNMC Release 2.1 to Cisco Prime

# NSC Release 3.0.2 and Cisco Nexus 1000V Release 4.2(1)SV1(5.2) to Release 4.2(1)SV2(2.1)

## Cisco VSG Release 4.2(1)VSG1(4.1) to 4.2(1)VSG2(1.1) and Cisco VNMC 2.1 to Cisco Prime NSC 3.0.2 Staged Upgrade

| Virtual Appliance | Original State | Stage 1: Cisco Prime NSC Upgrade only (no PAs upgraded) | Stage 2: Cisco VSG Upgrade (ISSU: PA upgrade) | Stage 3: VSM/VEM Upgrade (ISSU: PA upgrade) |
|---|---|---|---|---|
| Cisco Prime NSC | Old Cisco VNMC 2.1 | New Cisco Prime NSC 3.0.2 | New Cisco Prime NSC 3.0.2 | New Cisco Prime NSC 3.0.2 |
| Cisco VSG | Old 4.2(1)VSG1(4.1) | Old 4.2(1)VSG1(4.1) | New 4.2(1)VSG2(2.1) | New 4.2(1)VSG2(2.1) |
| VSG PA | Old 2.0 | Old 2.0 | New 2.1 | New 2.1 |
| VSM | 4.2(1)SV1(5.2b) | 4.2(1)SV1(5.2b) | 4.2(1)SV1(5.2b) | 4.2(1)SV2(2.1) |
| VEM | Old 4.2(1)SV1(5.2b) | Old 4.2(1)SV1(5.2b) | Old 4.2(1)SV1(5.2b) | New 4.2(1)SV2(2.1) |
| VSM PA | Old 2.0 | Old 2.0 | Old 2.0 | New 2.1 |

| Virtual Appliance | Original State | Stage 1: Cisco Prime NSC Upgrade only (no PAs upgraded) | Stage 2: Cisco VSG Upgrade (ISSU: PA upgrade) | Stage 3: VSM/VEM Upgrade (ISSU: PA upgrade) |
|---|---|---|---|---|
| Supported operations after upgrading to each stage | All operations supported | • Existing data sessions (offloaded).<br>• New data sessions.<br>• Allows Cisco Nexus 1000V switch (non-vn-service) operations including non-vn-service port profiles. | • Short disruption in new data session establishment during the Cisco VSG upgrade.<br>• Other operations are fully supported.<br>• Full Layer 3 VSG and VM VXLAN support. | • All operations are supported if all the upgrades including VEMs are successful.<br>• Restricted operations (below) apply only if all VEMs are not upgraded<br>• Disruption of data traffic during VEM upgrades.<br>• Full service chaining is supported.<br>• Layer 3 VSG and VM VXLAN support.<br>• VSG on VXLAN is supported. |

| Virtual Appliance | Original State | Stage 1: Cisco Prime NSC Upgrade only (no PAs upgraded) | Stage 2: Cisco VSG Upgrade (ISSU: PA upgrade) | Stage 3: VSM/VEM Upgrade (ISSU: PA upgrade) |
|---|---|---|---|---|
| Restricted operations after upgrading to each stage | None | • No Cisco Prime NSC policy cfg change (assuming silent drops).<br>• No VSM/VEM vn-service VM operations (shutdown/bring up existing vn-service VMs, bring down net adapters, etc).<br>• No new vn-service VMs is supported.<br>• No Vmotion of vn-service firewalled VMs on N1k<br>• No vn-service PP operations or modifications (toggles, removal, changing the PP on VSM).<br>• VSG failover not supported, VSM failover (vns-agent) not supported (All VSM to Cisco Prime NSC to VSG control operations are restricted). | • No Cisco Prime NSC policy cfg change (assuming silent drops).<br>• No VSM/VEM vn-service VM operations (shutdown/bring up existing vn-service VMs, bring down net adapters, etc).<br>• No new vn-service VMs is supported.<br>• No Vmotion of vn-service firewalled VMs on N1k.<br>• No vn-service PP operations or modifications (toggles, removal, changing the PP on VSM).<br>• VSG failover not supported, VSM failover (vns-agent) not supported (All VSM to Cisco Prime NSC to VSG control operations are restricted). | **The following restricted operations apply only if all VEMs are not upgraded:**<br>• No Cisco Prime NSC policy cfg change (assuming silent drops).<br>• No VSM/VEM vn-service VM operations (shutdown/bring up existing vn-service VMs, bring down net adapters, etc).<br>• No new vn-service VMs is supported.<br>• No boot strap of devices (VNMC, VSM,VSG).<br>• No Vmotion of vn-service VMs on N1k.<br>• No vn-service PP operations or modifications (toggles, removal, changing the PP on VSM).<br>• No N1k switch (non vn-service) operations, including non-vn-service PPs (VSM+VEM ugraded) (All VSM to Cisco Prime NSC to VSG control operations are restricted). |

**Note** Because we support full ISSU upgrade on both VSG and VSM that involves installing a new PA, you should install the Cisco Prime NSC first. The new PA may not support the old VNMC.

# Upgrading VNMC Release 2.1 to Cisco Prime NSC 3.0.2

### Before You Begin

- You are logged in to the CLI in EXEC mode.
- You have backed up the new software files to a remote server and have verified that the backup file was created on the remote server.
- You must have the Cisco Prime NSC Release 3.0.2 downloaded.
- You have added two hard disks to the VNMC VM. For more information on Cisco Prime NSC requirements, see System Requirements.

## SUMMARY STEPS

1. nsc# **connect local-mgmt**
2. (Optional) nsc (local-mgmt)# **show version**
3. (Optional) nsc (local-mgmt)# **copy scp://user@***example-server-ip/example-dir/filename* **bootflash:/**
4. nsc (local-mgmt)# **dir bootflash:/**
5. nsc (local-mgmt)# **update bootflash:/***filename*
6. (Optional) nsc (local-mgmt)# **service status**
7. (Optional) nsc (local-mgmt)# **show version**

## DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | nsc# **connect local-mgmt** | Places you in local management mode. |
| **Step 2** | nsc (local-mgmt)# **show version** | (Optional)<br>Displays the version information for the Cisco Prime NSC software. |
| **Step 3** | nsc (local-mgmt)# **copy scp://user@***example-server-ip/example-dir/filename* **bootflash:/** | (Optional)<br>Copies the Cisco Prime NSC software file to the VM. |
| **Step 4** | nsc (local-mgmt)# **dir bootflash:/** | Verifies that the desired file is copied in the directory. |
| **Step 5** | nsc (local-mgmt)# **update bootflash:/***filename* | Begins the update of the Cisco Prime NSC software. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 6** | nsc (local-mgmt)# **service status** | (Optional)<br>Allows you to verify that the server is operating as desired. |
| **Step 7** | nsc (local-mgmt)# **show version** | (Optional)<br>Allows you to verify that the Cisco Prime NSC software version is updated.<br>**Note** After you upgrade to Cisco Prime NSC Release 3.0.2, you might see the previous version of Cisco VNMC in your browser. To view the upgraded version, clear the browser cache and browsing history in the browser. This note applies to all supported browsers: Internet Explorer, Mozilla Firefox, and Chrome. |

### Configuration Example

The following example shows how to connect to the local-mgmt mode:

```
nsc# connect local-mgmt
Cisco Prime Network Services Controller
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2013, Cisco Systems, Inc. All rights reserved.
The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under
license. Certain components of this software are licensed under
the GNU General Public License (GPL) version 2.0 or the GNU
Lesser General Public License (LGPL) Version 2.1. A copy of each
such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://www.opensource.org/licenses/lgpl-2.1.php
```

The following example shows how to display version information for the Cisco VNMC:

```
nsc(local-mgmt)# show version

Name                Package             Version        GUI
----                -------             -------        ----
core                Base System         2.1            2.1
service-reg         Service Registry    2.1            2.1
policy-mgr          Policy Manager      2.1            2.1
resource-mgr        Resource Manager    2.1            2.1
vm-mgr              VM manager          2.1            none
```

The following example shows how to copy the Cisco Prime NSC software to the VM:

```
nsc(local-mgmt)# copy scp://<user@example-server-ip>/example1-dir/nsc.3.0.2e.bin bootflash:/
Enter password:
100%  143MB  11.9MB/s   00:12
```

The following example shows how to see the directory information for Cisco Prime NSC:

```
nsc(local-mgmt)# dir bootflash:/

    1.1G Oct 14 00:57 nsc.3.0.2e.bin

Usage for bootflash://

             6359716 KB used
            10889320 KB free
            18187836 KB total
```

The following example shows how to start the update for the Cisco Prime NSC:

```
nsc(local-mgmt)# update bootflash:/nsc.3.0.2e.bin
It is recommended that you perform a full-state backup before updating any VNMC component.
  Press enter to continue or Ctrl-c to exit.
```

The following example shows how to display the updated version for the Cisco Prime NSC:

```
nsc(local-mgmt)# show version

Name                Package             Version        GUI
---- ------- ------- ----
core                Base System         3.0(2e)        3.0(2e)
service-reg         Service Registry    3.0(2e)        3.0(2e)
policy-mgr          Policy Manager      3.0(2e)        3.0(2e)
resource-mgr        Resource Manager    3.0(2e)        3.0(2e)
vm-mgr              VM manager          3.0(2e)        none
cloudprovider-mgr   Cloud Provider Mgr  3.0(2e)        none
```

# Upgrading Cisco VSG from Release 4.2(1)VSG1(4.1) to 4.2(1)VSG2(1.1)

Enter the commands on all Cisco VSG nodes on your network.

### Before You Begin

- You are logged in to the CLI in EXEC mode.
- You have copied the new system image, kickstart image and the Cisco VSG policy agent image into the bootflash file system using the following commands:

```
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-kickstart-mz.VSG2.1.bin
 bootflash:nexus-1000v-kickstart-mz.VSG2.1.bin

switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-mz.VSG2.1.bin
bootflash:nexus-1000v-mz.VSG2.1.bin

switch# copy scp://user@scpserver.cisco.com/downloads/vnmc-vsgpa.2.1(1b).bin
bootflash:vnmc-vsgpa.2.1(1b).bin
```

- You have confirmed that the system is in high availability (HA) mode for an HA upgrade using the **show system redundancy status** command.

## SUMMARY STEPS

1. **configure terminal**
2. **install all kickstart bootflash:***nexus-1000v-kickstart-mz.VSG2.1.bin* **system bootflash:***nexus-1000v-mz.VSG2.1.bin* **vnmpa bootflash:***vnmc-vsgpa.2.1(1b).bin*
3. **show vnm-pa status**
4. **copy running-config startup-config**

## DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **configure terminal** | Enters global configuration mode. |
| **Step 2** | **install all kickstart bootflash:***nexus-1000v-kickstart-mz.VSG2.1.bin* | Installs the kickstart image, system image, and policy agent (PA) image. |

| | Command or Action | Purpose |
|---|---|---|
| | **system bootflash:***nexus-1000v-mz.VSG2.1.bin* **vnmpa bootflash:***vnmc-vsgpa.2.1(1b).bin* | **Note** If you do not have a policy agent installed on the Cisco VSG before the **install all** command is executed, the PA will not be upgraded (installed) with the image. Make sure that the current version of policy agent is installed before you begin the upgrade process. |
| **Step 3** | **show vnm-pa status** | Verifies that the new PA is installed and the upgrade was successful.<br>**Note** You must have an existing PA installed before upgrading the PA using the **install all** command. |
| **Step 4** | **copy running-config startup-config** | Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration. |

### Configuration Example

The following example shows how to upgrade Cisco VSG Release 4.2(1)VSG1(4.1) to Release 4.2(1)VSG2(1.1):

```
vsg # configure terminal
vsg (config)# install all kickstart bootflash:nexus-1000v-kickstart-mz.VSG2.1.bin system
bootflash:nexus-1000v-mz.VSG2.1.bin vnmpa bootflash:vnmc-vsgpa.2.1(1b).bin
vsg (config)# show vnm-pa status
VNM Policy-Agent status is - Installed Successfully. Version 2.1(1b)-vsg
vsg(config)# copy running-config startup-config
```

## Upgrading VSMs

### Upgrade Procedures

The following table lists the upgrade steps.

*Table 2: Upgrade Paths from Cisco Nexus 1000V Releases*

| If you are running this configuration | Follow these steps |
|---|---|
| Release 4.0(4)SV1(1) or 4.0(4)SV1(2) | Upgrades from these releases are not supported. |
| Releases 4.0(4)SV1(3x) Series | **1** Upgrading from Releases 4.0(4)SV1(3, 3a, 3b, 3c, 3d) to Release 4.2(1)SV1(4b)<br>**2** Upgrade from Releases 4.2(1)SV1(4x) and later releases to the current release |

| If you are running this configuration | Follow these steps |
|---|---|
| Release 4.2(1)SV1(4x) Series with a vSphere release 4.0 Update 1 or later | **1** Upgrading from VMware Release 4.0 to VMware Release 4.1<br>**2** Upgrading VSMs from Releases 4.2(1)SV1(4) and later releases to the current release<br>**3** Upgrading VEMs from Releases 4.2(1)SV1(4) and later releases to the current release |
| Release 4.2(1)SV1(4x) Series with a vSphere release 4.1 GA, patches, or updates | **1** Upgrading VSMs from Releases 4.2(1)SV1(4) and later releases to the current release<br>**2** Upgrading VEMs from Releases 4.2(1)SV1(4) and later releases to the current release |

The following table lists the upgrade steps when upgrading from Release 4.2(1)SV1(5x) and later releases to the current release.

***Table 3: Upgrade Paths from Releases 4.2(1)SV1(5x) and Later Releases***

| If you are running this configuration | Follow these steps |
|---|---|
| With vSphere 5.0 GA, patches, or updates. | **1** Upgrading VSMs from Releases 4.2(1)SV1(4) and later releases to the current release<br>**2** Upgrading VEMs from Releases 4.2(1)SV1(4) and later releases to the current release |

## Software Images

The software image install procedure is dependent on the following factors:

- Software images—The kickstart and system image files reside in directories or folders that you can access from the Cisco Nexus 1000V software prompt.
- Image version—Each image file has a version.
- Disk—The bootflash: resides on the VSM.
- ISO file—If a local ISO file is passed to the **install all** command, the kickstart and system images are extracted from the ISO file.

### In-Service Software Upgrades on Systems with Dual VSMs

The Cisco Nexus 1000V software supports in-service software upgrades (ISSUs) for systems with dual VSMs. An ISSU can update the software images on your switch without disrupting data traffic. Only control traffic is disrupted. If an ISSU causes a disruption of data traffic, the Cisco Nexus 1000V software warns you before proceeding so that you can stop the upgrade and reschedule it to a time that minimizes the impact on your network.

**Note** On systems with dual VSMs, you should have access to the console of both VSMs to maintain connectivity when the switchover occurs during upgrades. If you are performing the upgrade over Secure Shell (SSH) or Telnet, the connection will drop when the system switchover occurs, and you must reestablish the connection.

An ISSU updates the following images:

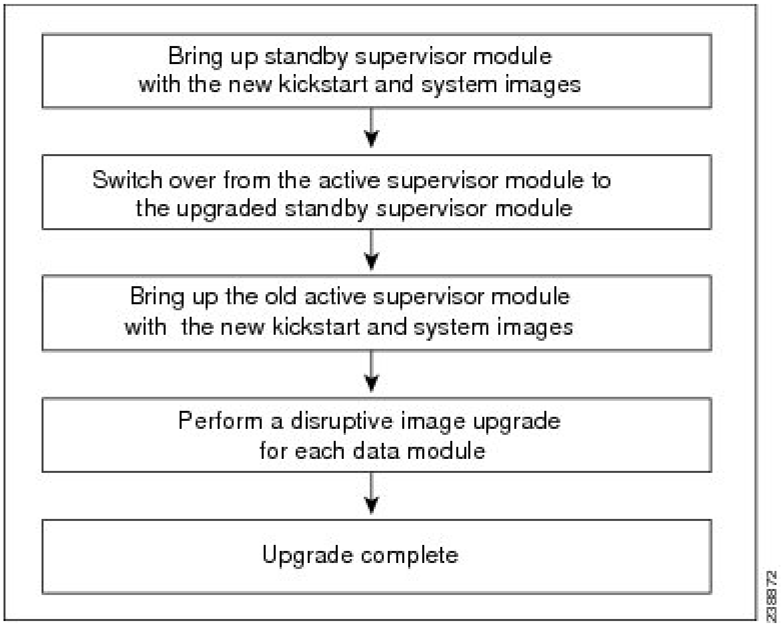
- Kickstart image
- System image
- VEM images

All of the following processes are initiated automatically by the upgrade process after the network administrator enters the **install all** command.

### ISSU Process for the Cisco Nexus 1000V

The following figure shows the ISSU process.

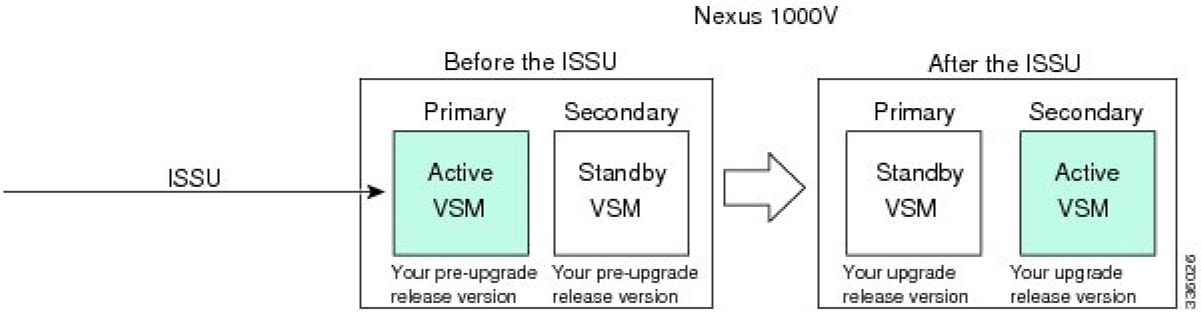
*Figure 1: ISSU Process*


Bring up standby supervisor module with the new kickstart and system images
Switch over from the active supervisor module to the upgraded standby supervisor module
Bring up the old active supervisor module with the new kickstart and system images
Perform a disruptive image upgrade for each data module
Upgrade complete
238872

## ISSU VSM Switchover

The following figure provides an example of the VSM status before and after an ISSU switchover.

*Figure 2: Example of an ISSU VSM Switchover*



## ISSU Command Attributes

### Support

The **install all** command supports an in-service software upgrade (ISSU) on dual VSMs in an HA environment and performs the following actions:

- Determines whether the upgrade is disruptive and asks if you want to continue.
- Copies the kickstart and system images to the standby VSM. Alternatively, if a local ISO file is passed to the **install all** command instead, the kickstart and system images are extracted from the file.
- Sets the kickstart and system boot variables.
- Reloads the standby VSM with the new Cisco Nexus 1000V software.
- Causes the active VSM to reload when the switchover occurs.

### Benefits

The **install all** command provides the following benefits:

- You can upgrade the VSM by using the **install all** command.
- You can receive descriptive information on the intended changes to your system before you continue with the installation.
- You have the option to cancel the command. Once the effects of the command are presented, you can continue or cancel when you see this question (the default is no):

  ```
  Do you want to continue (y/n) [n]: y
  ```

- You can upgrade the VSM using the least disruptive procedure.
- You can see the progress of this command on the console, Telnet, and SSH screens:
  - After a switchover process, you can see the progress from both the VSMs.
  - Before a switchover process, you can see the progress only from the active VSM.

- The **install all** command automatically checks the image integrity, which includes the running kickstart and system images.
- The **install all** command performs a platform validity check to verify that a wrong image is not used.
- The Ctrl-C escape sequence gracefully ends the **install all** command. The command sequence completes the update step in progress and returns to the switch prompt. (Other upgrade steps cannot be ended by using Ctrl-C.)
- After running the **install all** command, if any step in the sequence fails, the command completes the step in progress and ends.

## Upgrading VSMs from Releases 4.2(1)SV1(5x), 4.2(1)SV2(1.1x) to Release 4.2(1)SV2(2.1x)

### SUMMARY STEPS

1. Log in to the active VSM.
2. Log in to Cisco.com to access the links provided in this document. To log in to Cisco.com, go to the URL http://www.cisco.com/ and click **Log In** at the top of the page. Enter your Cisco username and password.
3. Access the Software Download Center by using this URL:
4. Navigate to the download site for your system.
5. Choose and download the Cisco Nexus 1000V zip file and extract the kickstart and system software files to a server.
6. Ensure that the required space is available for the image file(s) to be copied.
7. Verify that there is space available on the standby VSM.
8. Delete any unnecessary files to make space available if you need more space on the standby VSM.
9. If you plan to install the images from the bootflash:, copy the Cisco Nexus 1000V kickstart and system images or the ISO image to the active VSM by using a transfer protocol. You can use ftp:, tftp:, scp:, or sftp:. The examples in this procedure use scp:.
10. Check on the impact of the ISSU upgrade for the kickstart and system images or the ISO image.
11. Read the release notes for the related image file. See the *Cisco Nexus 1000V Release Notes*.
12. Determine if the Virtual Security Gateway (VSG) is configured in the deployment:
13. Save the running configuration to the startup configuration.
14. Save the running configuration on the bootflash and externally.
15. Perform the upgrade on the active VSM using the ISO or kickstart and system images.
16. Continue with the installation by pressing Y.
17. After the installation operation completes, log in and verify that the switch is running the required software version.
18. Copy the running configuration to the startup configuration to adjust the startup-cgf size.
19. Display the log of the last installation.

## DETAILED STEPS

**Step 1** Log in to the active VSM.

**Step 2** Log in to Cisco.com to access the links provided in this document. To log in to Cisco.com, go to the URL http://www.cisco.com/ and click **Log In** at the top of the page. Enter your Cisco username and password.

**Note** Unregistered Cisco.com users cannot access the links provided in this document.

**Step 3** Access the Software Download Center by using this URL: http://www.cisco.com/public/sw-center/index.shtml

**Step 4** Navigate to the download site for your system.
You see links to the download images for your switch.

**Step 5** Choose and download the Cisco Nexus 1000V zip file and extract the kickstart and system software files to a server.

**Step 6** Ensure that the required space is available for the image file(s) to be copied.

```
switch# dir bootflash:
.
.
.
Usage for bootflash://
  485830656 bytes used
 1109045248 bytes free
 1594875904 bytes total
```

**Tip** We recommend that you have the kickstart and system image files for at least one previous release of the Cisco Nexus 1000V software on the system to use if the new image files do not load successfully.

**Step 7** Verify that there is space available on the standby VSM.

```
switch# dir bootflash://sup-standby/
.
.
.
Usage for bootflash://
  485830656 bytes used
 1109045248 bytes free
 1594875904 bytes total
```

**Step 8** Delete any unnecessary files to make space available if you need more space on the standby VSM.

**Step 9** If you plan to install the images from the bootflash:, copy the Cisco Nexus 1000V kickstart and system images or the ISO image to the active VSM by using a transfer protocol. You can use ftp:, tftp:, scp:, or sftp:. The examples in this procedure use scp:.

**Note** When you download an image file, change to your FTP environment IP address or DNS name and the path where the files are located.

- Copy the ISO image.

```
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v.4.2.1.SV2.1.1a.iso
bootflash:nexus-1000v.4.2.1.SV2.1.1a.iso
```

- Copy kickstart and system images.

```
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin
bootflash:nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-4.2.1.SV2.1.1a.bin
bootflash:nexus-1000v-4.2.1.SV2.1.1a.bin
```

**Step 10** Check on the impact of the ISSU upgrade for the kickstart and system images or the ISO image.

- ISO

  switch# **show install all impact iso bootflash:nexus-1000v.4.2.1.SV2.1.1a.iso**

  ```
  Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".
  [####################] 100% -- SUCCESS

  Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".
  [####################] 100% -- SUCCESS

  Verifying image type.
  [####################] 100% -- SUCCESS

  Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
  [####################] 100% -- SUCCESS

  Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.
  [####################] 100% -- SUCCESS

  Notifying services about system upgrade.
  [####################] 100% -- SUCCESS



  Compatibility check is done:
  Module  bootable          Impact  Install-type  Reason
  ------  --------  --------------  ------------  ------
       1       yes  non-disruptive         reset
       2       yes  non-disruptive         reset


  Images will be upgraded according to following table:
  Module       Image         Running-Version             New-Version  Upg-Required
  ------  ----------  ----------------------  ----------------------  ------------
       1      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
       1   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
       2      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
       2   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes


  Module         Running-Version                                         ESX Version       VSM
  Compatibility       ESX Compatibility
  ------  ----------------------  ----------------------------------------------------
  ----------------------  ----------------------
       3          4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
    COMPATIBLE              COMPATIBLE
       4          4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
    COMPATIBLE              COMPATIBLE
  ```

- kickstart and system

  switch# **show install all impact kickstart bootflash:nexus-1000v-kickstart.4.2.1.SV2.1.1a.bin system bootflash:nexus-1000v.4.2.1.SV2.1.1a.bin**

```
Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".
[####################] 100% -- SUCCESS

Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".
[####################] 100% -- SUCCESS

Verifying image type.
[####################] 100% -- SUCCESS

Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Notifying services about system upgrade.
[####################] 100% -- SUCCESS



Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes  non-disruptive         reset
     2       yes  non-disruptive         reset



Images will be upgraded according to following table:
Module       Image         Running-Version             New-Version  Upg-Required
------  ----------  ----------------------  ----------------------  ------------
     1      system           4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes
     1   kickstart           4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes
     2      system           4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes
     2   kickstart           4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes


Module         Running-Version                                        ESX Version       VSM
Compatibility       ESX Compatibility
------  ----------------------  ----------------------------------------------------
----------------------  ----------------------
     3         4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
     4         4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
```

**Step 11** Read the release notes for the related image file. See the *Cisco Nexus 1000V Release Notes*.

**Step 12** Determine if the Virtual Security Gateway (VSG) is configured in the deployment:

- If the following output is displayed, the Cisco VSG is configured in the deployment. You must follow the upgrade procedure in the “Complete Upgrade Procedure” section in Chapter 7, “Upgrading the Cisco Virtual Security

Gateway and Cisco Virtual Network Management Center" of the *Cisco Virtual Security Gateway and Cisco Virtual Network Management Center Installation and Upgrade Guide*.

```
switch# show vnm-pa status
VNM Policy-Agent status is - Installed Successfully. Version 1.2(0.689)-vsm
switch#
```

- If the following output is displayed, continue to Step 13.

```
switch# show vnm-pa status
VNM Policy-Agent status is - Not Installed
switch#
```

**Step 13** Save the running configuration to the startup configuration.

```
switch# copy running-config startup-config
```

**Step 14** Save the running configuration on the bootflash and externally.

```
switch# copy running-config bootflash:run-cfg-backup
switch# copy running-config scp://user@tftpserver.cisco.com/n1kv-run-cfg-backup
```

**Note** You can also run a VSM backup. See the "Configuring VSM Backup and Recovery" chapter of the *Cisco Nexus 1000V System Management Configuration Guide*.

**Step 15** Perform the upgrade on the active VSM using the ISO or kickstart and system images.

- Upgrade using the ISO image.

```
switch# install all iso bootflash:nexus-1000v.4.2.1.SV2.1.1a.iso
```

- Upgrade using the kickstart and system images.

```
switch# install all kickstart bootflash:nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin system
bootflash:nexus-1000v-4.2.1.SV2.1.1a.bin
Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".
[####################] 100% -- SUCCESS

Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".
[####################] 100% -- SUCCESS

Verifying image type.
[####################] 100% -- SUCCESS

Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Notifying services about system upgrade.
[####################] 100% -- SUCCESS



Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes  non-disruptive         reset
     2       yes  non-disruptive         reset
```

```
Images will be upgraded according to following table:
Module       Image         Running-Version            New-Version  Upg-Required
------  ----------  ----------------------  ----------------------  ------------
     1      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     1   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     2      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     2   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes


Module         Running-Version                                        ESX Version       VSM
Compatibility       ESX Compatibility
------  ----------------------  ----------------------------------------------------
----------------------  ----------------------
     3          4.2(1)SV1(4a)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
     4          4.2(1)SV1(4a)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE

Do you want to continue with the installation (y/n)?  [n]
```

**Step 16** Continue with the installation by pressing Y.

**Note** If you press N, the installation exits gracefully.

```
Install is in progress, please wait.

Syncing image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin to standby.
[####################] 100% -- SUCCESS

Syncing image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin to standby.
[####################] 100% -- SUCCESS

Setting boot variables.
[####################] 100% -- SUCCESS

Performing configuration copy.
[####################] 100%2011 Mar 31 03:49:42 BL1-VSM %SYSMGR-STANDBY-5-CFGWRITE_STARTED:
Configuration copy started (PID 3660).
[####################] 100% -- SUCCESS
```

**Note** As part of the upgrade process, the standby VSM is reloaded with new images. Once it becomes the HA standby again, the upgrade process initiates a switchover. The upgrade then continues from the new active VSM with the following output:

```
Continuing with installation, please wait

Module 2: Waiting for module online
-- SUCCESS

Install has been successful
```

**Step 17** After the installation operation completes, log in and verify that the switch is running the required software version.

```
switch# show version
Nexus1000v# show version
Cisco Nexus Operating System (NX-OS) Software
```

```
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2012, Cisco Systems, Inc. All rights reserved.
The copyrights to certain works contained herein are owned by
other third parties and are used and distributed under license.
Some parts of this software are covered under the GNU Public
License. A copy of the license is available at
http://www.gnu.org/licenses/gpl.html.

Software
  loader:    version unavailable [last: loader version not available]
  kickstart: version 4.2(1)SV2(1.1a) [build 4.2(1)SV2(1.1a)]
  system:    version 4.2(1)SV2(1.1a) [build 4.2(1)SV2(1.1a)]
  kickstart image file is: bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin
  kickstart compile time:  1/11/2012 3:00:00 [01/11/2012 12:49:49]
  system image file is:    bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin
  system compile time:     1/11/2012 3:00:00 [01/11/2012 13:42:57]


Hardware
  cisco Nexus 1000V Chassis ("Virtual Supervisor Module")
  Intel(R) Xeon(R) CPU         with 2075740 kB of memory.
  Processor Board ID T5056B1802D

  Device name: Nexus1000v
  bootflash:    1557496 kB

Kernel uptime is 4 day(s), 8 hour(s), 31 minute(s), 3 second(s)


plugin
  Core Plugin, Ethernet Plugin, Virtualization Plugin
...
```

**Step 18** Copy the running configuration to the startup configuration to adjust the startup-cgf size.

```
switch# copy running-config startup-config
[########################################] 100%
switch#
```

**Step 19** Display the log of the last installation.

```
switch# show install all status
This is the log of last installation.

Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".

 -- SUCCESS

Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".

 -- SUCCESS

Verifying image type.

 -- SUCCESS

Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
```

```
 -- SUCCESS

Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.

 -- SUCCESS

Notifying services about system upgrade.

 -- SUCCESS


Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes  non-disruptive         reset
     2       yes  non-disruptive         reset



Images will be upgraded according to following table:
Module       Image         Running-Version             New-Version  Upg-Required
------  ----------  ----------------------  ----------------------  ------------
     1      system           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes
     1   kickstart           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes
     2      system           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes
     2   kickstart           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes


Images will be upgraded according to following table:
Module         Running-Version                                        ESX Version       VSM
Compatibility       ESX Compatibility
------  ----------------------  ----------------------------------------------------
----------------------  ----------------------
     3           4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
COMPATIBLE              COMPATIBLE
     4           4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
COMPATIBLE              COMPATIBLE


Install is in progress, please wait.

Syncing image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin to standby.
 -- SUCCESS

Syncing image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin to standby.
 -- SUCCESS

Setting boot variables.
 -- SUCCESS

Performing configuration copy.
 -- SUCCESS
```

```
Module 2: Waiting for module online.
 -- SUCCESS

Notifying services about the switchover.
 -- SUCCESS


"Switching over onto standby".
switch#
switch#
switch#

switch# attach module 2
Attaching to module 2 ...
To exit type 'exit', to abort type '$.'
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2011, Cisco Systems, Inc. All rights reserved.
The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under
license. Certain components of this software are licensed under
the GNU General Public License (GPL) version 2.0 or the GNU
Lesser General Public License (LGPL) Version 2.1. A copy of each
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(standby)#
switch(standby)# show install all status
This is the log of last installation.

Continuing with installation, please wait
Trying to start the installer...

Module 2: Waiting for module online.
 -- SUCCESS

Install has been successful.
switch(standby)#
```

# Upgrading VEMs

## VEM Upgrade Procedures

- VUM Upgrade Procedures
  - Set up VUM baselines. See Upgrading the ESXi Hosts to Release 5.x.
  - Initiate an upgrade from VUM. See Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24.

  - ◦ Upgrade VEM from VSM. See Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24.

- Manual upgrade procedures
  - ◦ Upgrading VIB Manually from the CLI. See Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 27

- Installing or upgrading stateless ESXi. See Installing the VEM Software on a Stateless ESXi Host.

VEM upgrades fall into three types:

- An upgrade of stateful ESXi host, without a migration from ESX (with a console OS) to ESXi. This upgrade type is described further in this section.
- An upgrade of a stateless ESXi host. This involves installing a new image on the host by updating the image profile and rebooting the host. The upgrade is described in Installing the VEM Software on a Stateless ESXi Host.

An upgrade of stateful ESXi host without a migration from ESX (which has a console OS) to ESXi falls into two separate workflows.

1. Upgrade the VEM alone, while keeping the ESXi version intact. The first figure shows this flow.
2. Upgrade the ESX/ESXi without a change of the Cisco Nexus 1000V version. This process is addressed in the Workflow 2 figure.

If you are using VUM, set up a host patch baseline with the VEM's offline bundle. Then follow Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24.

If you are upgrading from the command line, see Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 27.

- If you are using VUM version 5.0 or later, use the following method (independent of whether the VEM version is being changed as well):
  - ◦ If you are upgrading the ESXi host to a new update within a release, use a host upgrade baseline. For example, vSphere 5.0 GA to 5.0 U1.
  - ◦ If you are upgrading the ESXi host to a major release (for example, vSphere 4.1 U2 to 5.0 U1), generate an upgrade ISO and set up a host upgrade baseline. The upgrade ISO must have the desired final images for both ESXi and VEM. The procedure to generate an upgrade ISO is in Creating an Upgrade ISO with a VMware ESX Image and a Cisco Nexus 1000V VEM Image.
  - ◦ You can upgrade the ESXi version and VEM version simultaneously if you are using VUM 5.0 Update 1 or later. VUM 5.0 GA does not support a combined upgrade.

## VEM Upgrade Methods from Release 4.2(1)SV1(5x), or Release 4.2(1)SV2(1.1x) to the Current Release

There are two methods for upgrading the VEMs.

- Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24

- Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 27

### *Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release*

**Caution** If removable media is still connected (for example, if you have installed the VSM using ISO and forgot to remove the media), host movement to maintenance mode fails and the VUM upgrade fails.

## SUMMARY STEPS

1. switch# **show vmware vem upgrade status**
2. switch# **vmware vem upgrade notify**
3. switch# **show vmware vem upgrade status**
4. switch# **show vmware vem upgrade status**
5. Initiate the VUM upgrade process with the following commands.
6. switch# **show vmware vem upgrade status**
7. Clear the VEM upgrade status after the upgrade process is complete with the following commands.
8. switch# **show module**

## DETAILED STEPS

**Step 1** switch# **show vmware vem upgrade status**
Display the current configuration.

**Note** The minimum release of Cisco Nexus 1000V for VMware ESXi 5.0.0 hosts is Release 4.2(1)SV1(5).

**Step 2** switch# **vmware vem upgrade notify**
Coordinate with and notify the server administrator of the VEM upgrade process.

**Step 3** switch# **show vmware vem upgrade status**
Verify that the upgrade notification was sent.

**Note** Verify that the Upgrade Status contains the highlighted text. If the text is not present, check the Upgrade Error line and consult the *Cisco Nexus 1000V Troubleshooting Guide*.

**Step 4** switch# **show vmware vem upgrade status**
Verify that the server administrator has accepted the upgrade in the vCenter. For more information about how the server administrator accepts the VEM upgrade, see Accepting the VEM Upgrade, on page 30. Coordinate the notification acceptance with the server administrator. After the server administrator accepts the upgrade, proceed with the VEM upgrade.

**Note** Verify that the Upgrade Status contains the highlighted text. If the text is not present, check the Upgrade Error line and consult the *Cisco Nexus 1000V Troubleshooting Guide*.

**Step 5** Initiate the VUM upgrade process with the following commands.

**Note** Before entering the following commands, communicate with the server administrator to confirm that the VUM process is operational.

The vCenter Server locks the DVS and triggers VUM to upgrade the VEMs.

a) switch# **vmware vem upgrade proceed**

b) switch# **show vmware vem upgrade status**

**Note** The DVS bundle ID is updated and is highlighted.

If the ESXi host is using ESXi 4.1.0 or a later release and your DRS settings are enabled to allow it, VUM automatically VMotions the VMs from the host to another host in the cluster and places the ESXi in maintenance mode to upgrade the VEM. This process is continued for other hosts in the DRS cluster until all the hosts are upgraded in the cluster. For details about DRS settings required and vMotion of VMs, visit the VMware documentation related to Creating a DRS Cluster.

**Step 6** switch# **show vmware vem upgrade status**
Check for the upgrade complete status.

**Step 7** Clear the VEM upgrade status after the upgrade process is complete with the following commands.

a) switch# **vmware vem upgrade complete**

b) switch# **show vmware vem upgrade status**

**Step 8** switch# **show module**
Verify that the upgrade process is complete.

The upgrade is complete.

---

The following example shows how to upgrade VEMs using VUM.

**Note** 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.

```
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG
switch#
switch# vmware vem upgrade notify
Warning:
Please ensure the hosts are running compatible ESX versions for the upgrade. Refer to
corresponding
"Cisco Nexus 1000V and VMware Compatibility Information" guide.
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Availability Notified in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM:  VEM500-201306160100-BG
    DVS:  VEM410-201301152101-BG
```

```
switch#
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Accepted by vCenter Admin
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG
switch#
switch# vmware vem upgrade proceed
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade In Progress in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter) : Tue Apr 23 02:06:53 2013
Upgrade Start Time: : Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG
switch#
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Complete in vCenter
Upgrade Notification Sent Time: : Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): : Tue Apr 23 02:06:53 2013
Upgrade Start Time: : Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter): : Tue Apr 23 10:09:08 2013
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM410-201304160104-BG
    DVS: VEM410-201304160104-BG
switch#
switch# vmware vem upgrade complete
switch# show vmware vem upgrade status


Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG
switch#
switch# show module
Mod  Ports  Module-Type                       Model               Status
---  -----  --------------------------------  ------------------  ------------
1    0      Virtual Supervisor Module         Nexus1000V          ha-standby
2    0      Virtual Supervisor Module         Nexus1000V          active *
3    248    Virtual Ethernet Module           NA                  ok
4    248    Virtual Ethernet Module           NA                  ok

Mod  Sw                  Hw
---  ------------------  ------------------------------------------------
1    4.2(1)SV2(2.1)      0.0
2    4.2(1)SV2(2.1)      0.0
3    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
4    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-623860 (3.0)

Mod  MAC-Address(es)                         Serial-Num
```

```
---  ------------------------------------  ----------
1    00-19-07-6c-5a-a8 to 00-19-07-6c-62-a8  NA
2    00-19-07-6c-5a-a8 to 00-19-07-6c-62-a8  NA
3    02-00-0c-00-03-00 to 02-00-0c-00-03-80  NA
4    02-00-0c-00-04-00 to 02-00-0c-00-04-80  NA

Mod  Server-IP        Server-UUID                           Server-Name
---  ---------------  ------------------------------------  --------------------
1    10.104.249.171   NA                                    NA
2    10.104.249.171   NA                                    NA
3    10.104.249.172   7d41e666-b58a-11e0-bd1d-30e4dbc299c0  10.104.249.172
4    10.104.249.173   17d79824-b593-11e0-bd1d-30e4dbc29a0e  10.104.249.173

* this terminal session
switch#
```

**Note** The lines with the bold characters in the preceding example display that all VEMs are upgraded to the current release.

### *Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release*

#### Before You Begin

**Note** If VUM is installed, it should be disabled.

To manually install or upgrade the Cisco Nexus 1000V VEM on an ESXi host, follow the steps in Upgrading the VEM Software Using the vCLI, on page 31.

To upgrade the VEMs manually, perform the following steps as network administrator:

**Note** This procedure is performed by the network administrator. Before proceeding with the upgrade, make sure that the VMs are powered off if you are not running the required patch level.

**Caution** If removable media is still connected, (for example, if you have installed the VSM using ISO and forgot to remove the media), host movement to maintenance mode fails and the VEM upgrade fails.

## SUMMARY STEPS

1. switch# **vmware vem upgrade notify**
2. switch# **show vmware vem upgrade status**
3. switch# **show vmware vem upgrade status**
4. Perform one of the following tasks:
5. switch# **vmware vem upgrade proceed**
6. switch# **show vmware vem upgrade status**
7. Coordinate with and wait until the server administrator upgrades all ESXi host VEMs with the new VEM software release and informs you that the upgrade process is complete.
8. switch# **vmware vem upgrade complete**
9. switch# **show vmware vem upgrade status**
10. switch# **show module**

## DETAILED STEPS

**Step 1** switch# **vmware vem upgrade notify**
Coordinate with and notify the server administrator of the VEM upgrade process.

**Step 2** switch# **show vmware vem upgrade status**
Verify that the upgrade notification was sent.

**Step 3** switch# **show vmware vem upgrade status**
Verify that the server administrator has accepted the upgrade in vCenter Server. For details about the server administrator accepting the VEM upgrade, see Accepting the VEM Upgrade, on page 30. After the server administrator accepts the upgrade, proceed with the VEM upgrade.

**Step 4** Perform one of the following tasks:

- If the ESXi host is not hosting the VSM, proceed to Step 5.
- If the ESXi host is hosting the VSM, coordinate with the server administrator to migrate the VSM to a host that is not being upgraded. Proceed to Step 5.

**Step 5** switch# **vmware vem upgrade proceed**
Initiate the Cisco Nexus 1000V Bundle ID upgrade process.

**Note** If VUM is enabled in the vCenter environment, disable it before entering the **vmware vem upgrade proceed** command to prevent the new VIBs from being pushed to all the hosts.

Enter the **vmware vem upgrade proceed** command so that the Cisco Nexus 1000V Bundle ID on the vCenter Server gets updated. If VUM is enabled and you do not update the Bundle ID, an incorrect VIB version is pushed to the VEM when you next add the ESXi to the VSM.

**Note** If VUM is not installed, the “The object or item referred to could not be found” error appears in the vCenter Server task bar. You can ignore this error message.

**Step 6** switch# **show vmware vem upgrade status**
Check for the upgrade complete status.

**Step 7** Coordinate with and wait until the server administrator upgrades all ESXi host VEMs with the new VEM software release and informs you that the upgrade process is complete.

The server administrator performs the manual upgrade by using the **vihostupdate** command or the **esxcli** command. For more information, see Upgrading the VEM Software Using the vCLI, on page 31.

**Step 8** switch# **vmware vem upgrade complete**
Clear the VEM upgrade status after the upgrade process is complete.

**Step 9** switch# **show vmware vem upgrade status**
Check the upgrade status once again.

**Step 10** switch# **show module**
Verify that the upgrade process is complete.

**Note** The line with the bold characters in the preceding example display that all VEMs are upgraded to the current release.

The upgrade is complete.

The following example shows how to upgrade VEMs manually.

**Note** 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.

```
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG
switch#
switch# vmware vem upgrade notify
Warning:
Please ensure the hosts are running compatible ESX versions for the upgrade. Refer to
corresponding
"Cisco Nexus 1000V and VMware Compatibility Information" guide.

switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Accepted by vCenter Admin
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG

switch#
switch# vmware vem upgrade proceed
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade In Progress in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time: Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG

switch# show vmware vem upgrade status
Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Complete in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time: Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter):
Upgrade Error
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG

switch#
switch# vmware vem upgrade complete
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG

switch#
switch# 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
---  ------------------  ------------------------------------------------
1    4.2(1)SV2(2.1)   0.0
2    4.2(1)SV2(2.1)   0.0
3    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-843203 (3.0)
6    4.2(1)SV2(2.1)      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

* this terminal session
switch#
```

### *Accepting the VEM Upgrade*

#### Before You Begin

- The network and server administrators must coordinate the upgrade procedure with each other.

- You have received a notification in the vCenter Server that a VEM software upgrade is available.

## SUMMARY STEPS

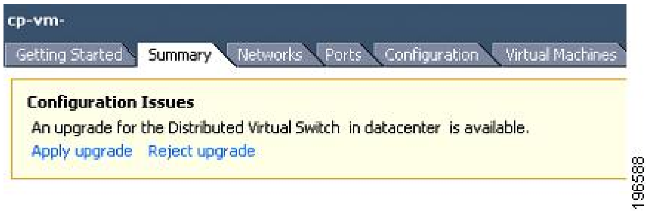
1. In the vCenter Server, choose **Inventory > Networking**.
2. Click the **vSphere Client DVS Summary** tab to check for the availability of a software upgrade.
3. Click **Apply upgrade**.

## DETAILED STEPS

**Step 1** In the vCenter Server, choose **Inventory > Networking**.

**Step 2** Click the **vSphere Client DVS Summary** tab to check for the availability of a software upgrade.

*Figure 3: vSphere Client DVS Summary Tab*



Configuration Issues

An upgrade for the Distributed Virtual Switch in datacenter is available.

**Step 3** Click **Apply upgrade**.
The network administrator is notified that you are ready to apply the upgrade to the VEMs.

### *Upgrading the VEM Software Using the vCLI*

You can upgrade the VEM software by using the vCLI.

### Before You Begin

- If you are using vCLI, do the following:
  - You have downloaded and installed the VMware vCLI. For information about installing the vCLI, see the VMware vCLI documentation.
  - You are logged in to the remote host where the vCLI is installed.

**Note** The vSphere command-line interface (vCLI) command set allows you to enter common system administration commands against ESXi systems from any machine with network access to those systems. You can also enter most vCLI commands against a vCenter Server system and target any ESXi system that the vCenter Server system manages. vCLI commands are especially useful for ESXi hosts because ESXi does not include a service console.

- Check *Cisco Nexus 1000V and VMware Compatibility Information* for compatible versions.
- You have already copied the VEM software installation file to the `/tmp` directory. Do not copy the files to the root (/) folder.
- You know the name of the VEM software file to be installed.

## SUMMARY STEPS

1. [root@serialport -]# **cd tmp**
2. Determine the upgrade method that you want to use and enter the appropriate command.
    - **vihostupdate**
      Installs the ESXi and VEM software simultaneously if you are using the vCLI.
3. For ESXi 5.0.0 or later hosts, enter the appropriate commands as they apply to you.
4. Display values with which to compare to *Cisco Nexus 1000V and VMware Compatibility Information* by typing the following commands.
5. switch# **show module**

## DETAILED STEPS

**Step 1** [root@serialport -]# **cd tmp**
Go to the directory where the new VEM software was copied.

**Step 2** Determine the upgrade method that you want to use and enter the appropriate command.

- **vihostupdate**
  Installs the ESXi and VEM software simultaneously if you are using the vCLI.

**Step 3** For ESXi 5.0.0 or later hosts, enter the appropriate commands as they apply to you.

a) ~ # **esxcli software vib install -d** *path/VEM_bundle*
b) ~ # **esxcli software vib install -v** *path/vib_file*

**Step 4** Display values with which to compare to *Cisco Nexus 1000V and VMware Compatibility Information* by typing the following commands.

a) [root@serialport tmp]# **vmware -v**
b) root@serialport tmp]# # **esxupdate query**
c) [root@host212 ~]# . ~ # **vem status -v**
d) [root@host212 ~]# **vemcmd show version**

**Step 5** switch# **show module**
Display that the VEMs were upgraded by entering the command on the VSM.

If the upgrade was successful, the installation procedure is complete.

The following example shows how to upgrade the VEM software using the vCLI.

**Note** 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.

```
[root@serialport -]# cd tmp
[root@serialport tmp]#
esxupdate -b [VMware offline update bundle] update
~ # esxcli software vib install -d /var/log/vmware/VEM500-201306160100-BG-zip
Installation Result
   Message: Operation finished successfully.
   Reboot Required: false
   VIBs Installed: Cisco_bootbank_cisco-vem-v160-esx_4.2.1.2.2.1.0-3.0.1
   VIBs Removed:
   VIBs Skipped:
~ #

~ # esxcli software vib install -v
/var/log/vmware/cross_cisco-vem-v160-4.2.1.2.2.1.0-3.0.1.vib
Installation Result
   Message: Operation finished successfully.
   Reboot Required: false
   VIBs Installed: Cisco_bootbank_cisco-vem-v160-esx_4.2.1.2.2.1.0-3.0.1
   VIBs Removed:
   VIBs Skipped:
~ #
[root@serialport tmp]# vmware -v
VMware ESXi 5.0.0 build-843203
root@serialport tmp]# # esxupdate query
------Bulletin ID------- -----Installed----- --------------Summary---------------
VEM500-201306160100 2013-04-21T08:18:22 Cisco Nexus 1000V 4.2(1)SV2(2.1)


[root@host212 ~]# . ~ # vem status -v
Package vssnet-esxmn-release
Version 4.2.1.2.2.1.0-3.0.1
Build 1
Date Sun Apr 21 04:56:14 PDT 2013

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
~ #


[root@host212 ~]# vemcmd show version
vemcmd show version
VEM Version: 4.2.1.2.2.1.0-3.0.1
VSM Version: 4.2(1)SV2(2.1) [build 4.2(1)SV2(2.1)]
System Version: VMware ESXi 5.0.0 Releasebuild-843203

~ #
switch# 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
---  ------------------  ------------------------------------------------
1    4.2(1)SV2(2.1)  0.0
2    4.2(1)SV2(2.1)  0.0
```

```
3    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-843203 (3.0)
6    4.2(1)SV2(2.1)      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

switch#
```

**Note** The highlighted text in the previous command output confirms that the upgrade was successful.

# Upgrade Procedure for Cisco VSG Release 4.2(1)VSG1(4.1) to Release 4.2(1)VSG2(1.1), Cisco VNMC Release 2.0 to Release 2.1 and Cisco Nexus 1000V Release 4.2(1)SV1(5.2) to Release 4.2(1)SV2(2.1)

## Cisco VSG Release 4.2(1)VSG1(4.1) to 4.2(1)VSG2(1.1) and Cisco VNMC 2.0 to 2.1 Staged Upgrade

**Note** The **vn-service** command is changed to the **vservice** command on the VSM port-profile in VSM Release 4.2(1)SV1(5.2).

| Virtual Appliance | Original State | Stage 1: Cisco VNMC Upgrade only (no PAs upgraded) | Stage 2: Cisco VSG Upgrade (ISSU: PA upgrade) | Stage 3: VSM/VEM Upgrade (ISSU: PA upgrade) |
|---|---|---|---|---|
| VNMC | Old 2.0 | New 2.1 | New 2.1 | New 2.1 |
| Cisco VSG | Old 4.2(1)VSG1(4.1) | Old 4.2(1)VSG1(4.1) | New 4.2(1)VSG2(2.1) | New 4.2(1)VSG2(2.1) |
| VSG PA | Old 2.0 | Old 2.0 | New 2.1 | New 2.1 |
| VSM | 4.2(1)SV1(5.2b) | 4.2(1)SV1(5.2b) | 4.2(1)SV1(5.2b) | 4.2(1)SV2(2.1) |
| VEM | Old 4.2(1)SV1(5.2b) | Old 4.2(1)SV1(5.2b) | Old 4.2(1)SV1(5.2b) | New 4.2(1)SV2(2.1) |
| VSM PA | Old 2.0 | Old 2.0 | Old 2.0 | New 2.1 |

| Virtual Appliance | Original State | Stage 1: Cisco VNMC Upgrade only (no PAs upgraded) | Stage 2: Cisco VSG Upgrade (ISSU: PA upgrade) | Stage 3: VSM/VEM Upgrade (ISSU: PA upgrade) |
|---|---|---|---|---|
| Supported operations after upgrading to each stage | All operations supported | • Existing data sessions (offloaded).<br>• New data sessions.<br>• Allows Cisco Nexus 1000V switch (non-vn-service) operations including non-vn-service port profiles. | • Short disruption in new data session establishment during the Cisco VSG upgrade.<br>• Other operations are fully supported.<br>• Full Layer 3 VSG and VM VXLAN support. | • All operations are supported if all the upgrades including VEMs are successful.<br>• Restricted operations (below) apply only if all VEMs are not upgraded<br>• Disruption of data traffic during VEM upgrades.<br>• Full service chaining is supported.<br>• Layer 3 VSG and VM VXLAN support.<br>• VSG on VXLAN is supported. |

| Virtual Appliance | Original State | Stage 1: Cisco VNMC Upgrade only (no PAs upgraded) | Stage 2: Cisco VSG Upgrade (ISSU: PA upgrade) | Stage 3: VSM/VEM Upgrade (ISSU: PA upgrade) |
|---|---|---|---|---|
| Restricted operations after upgrading to each stage | None | • No VNMC policy cfg change (assuming silent drops).<br>• No VSM/VEM vn-service VM operations (shutdown/bring up existing vn-service VMs, bring down net adapters, etc).<br>• No new vn-service VMs is supported.<br>• No Vmotion of vn-service firewalled VMs on N1k<br>• No vn-service PP operations or modifications (toggles, removal, changing the PP on VSM).<br>• VSG failover not supported, VSM failover (vns-agent) not supported (All VSM to VNMC to VSG control operations are restricted). | • No VNMC policy cfg change (assuming silent drops).<br>• No VSM/VEM vn-service VM operations (shutdown/bring up existing vn-service VMs, bring down net adapters, etc).<br>• No new vn-service VMs is supported.<br>• No Vmotion of vn-service firewalled VMs on N1k.<br>• No vn-service PP operations or modifications (toggles, removal, changing the PP on VSM).<br>• VSG failover not supported, VSM failover (vns-agent) not supported (All VSM to VNMC to VSG control operations are restricted). | **The following restricted operations apply only if all VEMs are not upgraded:**<br>• No VNMC policy cfg change (assuming silent drops).<br>• No VSM/VEM vn-service VM operations (shutdown/bring up existing vn-service VMs, bring down net adapters, etc).<br>• No new vn-service VMs is supported.<br>• No boot strap of devices (VNMC, VSM,VSG).<br>• No Vmotion of vn-service VMs on N1k.<br>• No vn-service PP operations or modifications (toggles, removal, changing the PP on VSM).<br>• No N1k switch (non vn-service) operations, including non-vn-service PPs (VSM+VEM ugraded) (All VSM to VNMC to VSG control operations are restricted). |

**Note** Because we support full ISSU upgrade on both VSG and VSM that involves installing a new PA, you should install the VNMC first. The new PA may not support the old VNMC.

## Upgrading VNMC from Release 2.0 to Release 2.1

### Before You Begin

- You are logged in to the CLI in EXEC mode.
- You have backed up the new software files to a remote server and have verified that the backup file was created on the remote server.
- You must have the Cisco VNMC Release 2.1 downloaded.

### SUMMARY STEPS

1. vnmc# **connect local-mgmt**
2. (Optional) vnmc (local-mgmt)# **show version**
3. (Optional) vnmc (local-mgmt)# **copy scp://user@***example-server-ip/example-dir/filename* **bootflash:/**
4. vnmc (local-mgmt)# **dir bootflash:/**
5. vnmc (local-mgmt)# **update bootflash:/***filename*
6. vnmc (local-mgmt)# **service restart**
7. (Optional) vnmc (local-mgmt)# **service status**
8. (Optional) vnmc (local-mgmt)# **show version**

### DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | vnmc# **connect local-mgmt** | Places you in local management mode. |
| **Step 2** | vnmc (local-mgmt)# **show version** | (Optional)<br>Displays the version information for the Cisco VNMC software. |
| **Step 3** | vnmc (local-mgmt)# **copy scp://user@***example-server-ip/example-dir/filename* **bootflash:/** | (Optional)<br>Copies the Cisco VNMC software file to the VM. |
| **Step 4** | vnmc (local-mgmt)# **dir bootflash:/** | Verifies that the desired file is copied in the directory. |
| **Step 5** | vnmc (local-mgmt)# **update bootflash:/***filename* | Begins the update of the Cisco VNMC software. |
| **Step 6** | vnmc (local-mgmt)# **service restart** | Restarts the server. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 7** | vnmc (local-mgmt)# **service status** | (Optional)<br>Allows you to verify that the server is operating as desired. |
| **Step 8** | vnmc (local-mgmt)# **show version** | (Optional)<br>Allows you to verify that the Cisco VNMC software version is updated.<br>**Note** After you upgrade to Cisco VNMC Release 2.1, you might see the previous version of Cisco VNMC in your browser. To view the upgraded version, clear the browser cache and browsing history in the browser. This note applies to all supported browsers: Internet Explorer, Mozilla Firefox, and Chrome. |

### Configuration Example

The following example shows how to connect to the local-mgmt mode:

```
vnmc# connect local-mgmt
Cisco Virtual Network Management Center
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2013, Cisco Systems, Inc. All rights reserved.
The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under
license. Certain components of this software are licensed under
the GNU General Public License (GPL) version 2.0 or the GNU
Lesser General Public License (LGPL) Version 2.1. A copy of each
such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://www.opensource.org/licenses/lgpl-2.1.php
```

The following example shows how to display version information for the Cisco VNMC:

```
vnmc(local-mgmt)# show version

Name                Package             Version        GUI
----                -------             -------        ----
core                Base System         2.0(1)         2.0(1)
service-reg         Service Registry    2.0(1)         2.0(1)
policy-mgr          Policy Manager      2.0(1)         2.0(1)
resource-mgr        Resource Manager    2.0(1)         2.0(1)
vm-mgr              VM manager          2.0(1)         none
```

The following example shows how to copy the Cisco VNMC software to the VM:

```
vnmc(local-mgmt)# copy scp://<user@example-server-ip>/example1-dir/vnmc.2.1.bin bootflash:/
Enter password:
100%  143MB  11.9MB/s   00:12
```

The following example shows how to see the directory information for Cisco VNMC:

```
vnmc(local-mgmt)# dir bootflash:/
14M Jul 28 2011  gui-automation.tgz

            887 May 28 2013  vnmc-dplug.2.0.1.bin
            20M May 28 2013  vnmc-vsgpa.2.0.1.bin
            20M May 28 2013  vnmc-vsmpa.2.0.1.bin
           403M Jan 31 01:58 vnmc.2.0.bin


Usage for bootflash://
```

```
   18187836 bytes used
            3842128 bytes free
           22029964 bytes total
```

The following example shows how to start the update for the Cisco VNMC:

```
vnmc(local-mgmt)# update bootflash:/vnmc.2.1.1a.bin
It is recommended that you perform a full-state backup before updating any VNMC component.
  Press enter to continue or Ctrl-c to exit.
```

The following example shows how to display the updated version for the Cisco VNMC:

```
vnmc(local-mgmt)# show version

Name                Package             Version        GUI
----                -------             -------        ----
core                Base System         2.1            2.1
service-reg         Service Registry    2.1            2.1
policy-mgr          Policy Manager      2.1            2.1
resource-mgr        Resource Manager    2.1            2.1
vm-mgr              VM manager          2.1            none
```

# Upgrading Cisco VSG from Release 4.2(1)VSG1(4.1) to 4.2(1)VSG2(1.1)

Enter the commands on all Cisco VSG nodes on your network.

### Before You Begin

- You are logged in to the CLI in EXEC mode.
- You have copied the new system image, kickstart image and the Cisco VSG policy agent image into the bootflash file system using the following commands:

```
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-kickstart-mz.VSG2.1.bin
 bootflash:nexus-1000v-kickstart-mz.VSG2.1.bin

switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-mz.VSG2.1.bin
bootflash:nexus-1000v-mz.VSG2.1.bin

switch# copy scp://user@scpserver.cisco.com/downloads/vnmc-vsgpa.2.1(1b).bin
bootflash:vnmc-vsgpa.2.1(1b).bin
```

- You have confirmed that the system is in high availability (HA) mode for an HA upgrade using the **show system redundancy status** command.

## SUMMARY STEPS

1. **configure terminal**
2. **install all kickstart bootflash:***nexus-1000v-kickstart-mz.VSG2.1.bin* **system bootflash:***nexus-1000v-mz.VSG2.1.bin* **vnmpa bootflash:***vnmc-vsgpa.2.1(1b).bin*
3. **show vnm-pa status**
4. **copy running-config startup-config**

## DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **configure terminal** | Enters global configuration mode. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 2** | **install all kickstart bootflash:***nexus-1000v-kickstart-mz.VSG2.1.bin* **system bootflash:***nexus-1000v-mz.VSG2.1.bin* **vnmpa bootflash:***vnmc-vsgpa.2.1(1b).bin* | Installs the kickstart image, system image, and policy agent (PA) image.<br>**Note** If you do not have a policy agent installed on the Cisco VSG before the **install all** command is executed, the PA will not be upgraded (installed) with the image. Make sure that the current version of policy agent is installed before you begin the upgrade process. |
| **Step 3** | **show vnm-pa status** | Verifies that the new PA is installed and the upgrade was successful.<br>**Note** You must have an existing PA installed before upgrading the PA using the **install all** command. |
| **Step 4** | **copy running-config startup-config** | Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration. |

### Configuration Example

The following example shows how to upgrade Cisco VSG Release 4.2(1)VSG1(4.1) to Release 4.2(1)VSG2(1.1):

```
vsg # configure terminal
vsg (config)# install all kickstart bootflash:nexus-1000v-kickstart-mz.VSG2.1.bin system
bootflash:nexus-1000v-mz.VSG2.1.bin vnmpa bootflash:vnmc-vsgpa.2.1(1b).bin
vsg (config)# show vnm-pa status
VNM Policy-Agent status is - Installed Successfully. Version 2.1(1b)-vsg
vsg(config)# copy running-config startup-config
```

# Upgrading VSMs

## Upgrade Procedures

The following table lists the upgrade steps.

*Table 4: Upgrade Paths from Cisco Nexus 1000V Releases*

| If you are running this configuration | Follow these steps |
|---|---|
| Release 4.0(4)SV1(1) or 4.0(4)SV1(2) | Upgrades from these releases are not supported. |
| Releases 4.0(4)SV1(3x) Series | **1** Upgrading from Releases 4.0(4)SV1(3, 3a, 3b, 3c, 3d) to Release 4.2(1)SV1(4b)<br>**2** Upgrade from Releases 4.2(1)SV1(4x) and later releases to the current release |

| If you are running this configuration | Follow these steps |
|---|---|
| Release 4.2(1)SV1(4x) Series with a vSphere release 4.0 Update 1 or later | **1** Upgrading from VMware Release 4.0 to VMware Release 4.1<br>**2** Upgrading VSMs from Releases 4.2(1)SV1(4) and later releases to the current release<br>**3** Upgrading VEMs from Releases 4.2(1)SV1(4) and later releases to the current release |
| Release 4.2(1)SV1(4x) Series with a vSphere release 4.1 GA, patches, or updates | **1** Upgrading VSMs from Releases 4.2(1)SV1(4) and later releases to the current release<br>**2** Upgrading VEMs from Releases 4.2(1)SV1(4) and later releases to the current release |

The following table lists the upgrade steps when upgrading from Release 4.2(1)SV1(5x) and later releases to the current release.

*Table 5: Upgrade Paths from Releases 4.2(1)SV1(5x) and Later Releases*

| If you are running this configuration | Follow these steps |
|---|---|
| With vSphere 5.0 GA, patches, or updates. | **1** Upgrading VSMs from Releases 4.2(1)SV1(4) and later releases to the current release<br>**2** Upgrading VEMs from Releases 4.2(1)SV1(4) and later releases to the current release |

## Software Images

The software image install procedure is dependent on the following factors:

- Software images—The kickstart and system image files reside in directories or folders that you can access from the Cisco Nexus 1000V software prompt.
- Image version—Each image file has a version.
- Disk—The bootflash: resides on the VSM.
- ISO file—If a local ISO file is passed to the **install all** command, the kickstart and system images are extracted from the ISO file.

### In-Service Software Upgrades on Systems with Dual VSMs

The Cisco Nexus 1000V software supports in-service software upgrades (ISSUs) for systems with dual VSMs. An ISSU can update the software images on your switch without disrupting data traffic. Only control traffic is disrupted. If an ISSU causes a disruption of data traffic, the Cisco Nexus 1000V software warns you before proceeding so that you can stop the upgrade and reschedule it to a time that minimizes the impact on your network.

**Note** On systems with dual VSMs, you should have access to the console of both VSMs to maintain connectivity when the switchover occurs during upgrades. If you are performing the upgrade over Secure Shell (SSH) or Telnet, the connection will drop when the system switchover occurs, and you must reestablish the connection.

An ISSU updates the following images:

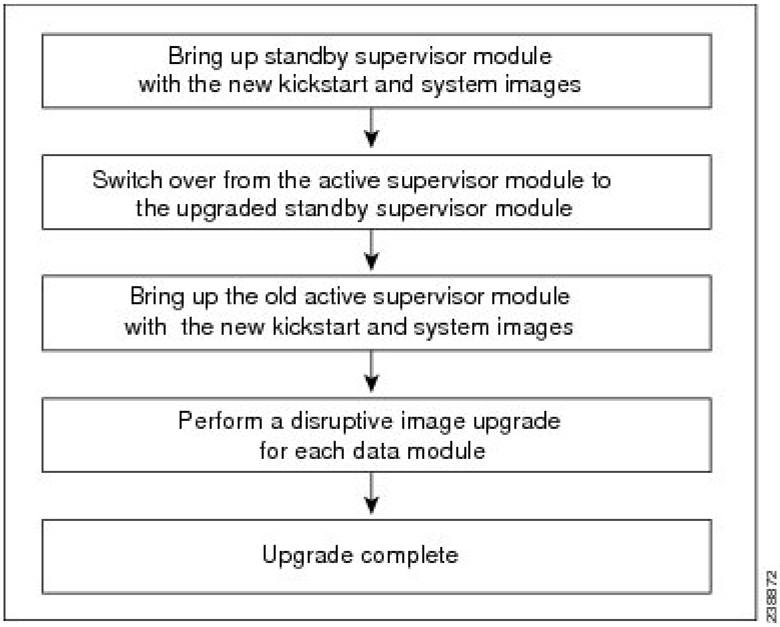
- Kickstart image
- System image
- VEM images

All of the following processes are initiated automatically by the upgrade process after the network administrator enters the **install all** command.

### ISSU Process for the Cisco Nexus 1000V

The following figure shows the ISSU process.

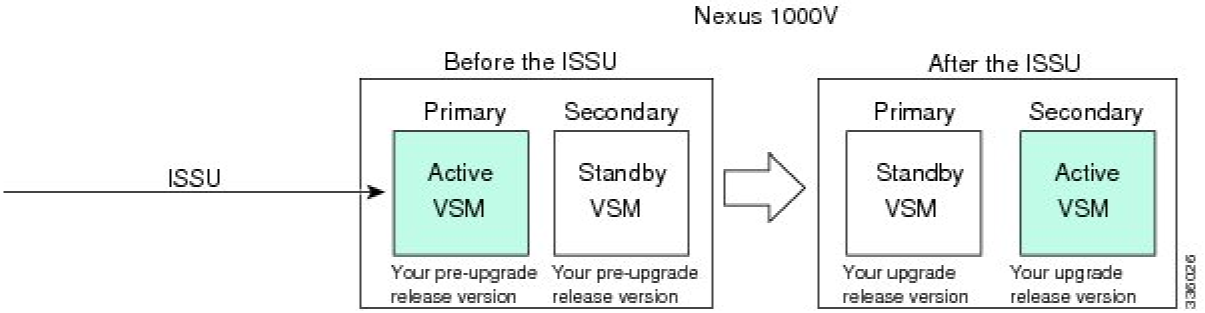
*Figure 4: ISSU Process*


Bring up standby supervisor module with the new kickstart and system images
Switch over from the active supervisor module to the upgraded standby supervisor module
Bring up the old active supervisor module with the new kickstart and system images
Perform a disruptive image upgrade for each data module
Upgrade complete
238872

## ISSU VSM Switchover

The following figure provides an example of the VSM status before and after an ISSU switchover.

*Figure 5: Example of an ISSU VSM Switchover*



## ISSU Command Attributes

### Support

The **install all** command supports an in-service software upgrade (ISSU) on dual VSMs in an HA environment and performs the following actions:

- Determines whether the upgrade is disruptive and asks if you want to continue.
- Copies the kickstart and system images to the standby VSM. Alternatively, if a local ISO file is passed to the **install all** command instead, the kickstart and system images are extracted from the file.
- Sets the kickstart and system boot variables.
- Reloads the standby VSM with the new Cisco Nexus 1000V software.
- Causes the active VSM to reload when the switchover occurs.

### Benefits

The **install all** command provides the following benefits:

- You can upgrade the VSM by using the **install all** command.
- You can receive descriptive information on the intended changes to your system before you continue with the installation.
- You have the option to cancel the command. Once the effects of the command are presented, you can continue or cancel when you see this question (the default is no):

```
Do you want to continue (y/n) [n]: y
```

- You can upgrade the VSM using the least disruptive procedure.
- You can see the progress of this command on the console, Telnet, and SSH screens:
  - After a switchover process, you can see the progress from both the VSMs.
  - Before a switchover process, you can see the progress only from the active VSM.

- The **install all** command automatically checks the image integrity, which includes the running kickstart and system images.
- The **install all** command performs a platform validity check to verify that a wrong image is not used.
- The Ctrl-C escape sequence gracefully ends the **install all** command. The command sequence completes the update step in progress and returns to the switch prompt. (Other upgrade steps cannot be ended by using Ctrl-C.)
- After running the **install all** command, if any step in the sequence fails, the command completes the step in progress and ends.

### Upgrading VSMs from Releases 4.2(1)SV1(5x), 4.2(1)SV2(1.1x) to Release 4.2(1)SV2(2.1x)

#### SUMMARY STEPS

1. Log in to the active VSM.
2. Log in to Cisco.com to access the links provided in this document. To log in to Cisco.com, go to the URL http://www.cisco.com/ and click **Log In** at the top of the page. Enter your Cisco username and password.
3. Access the Software Download Center by using this URL:
4. Navigate to the download site for your system.
5. Choose and download the Cisco Nexus 1000V zip file and extract the kickstart and system software files to a server.
6. Ensure that the required space is available for the image file(s) to be copied.
7. Verify that there is space available on the standby VSM.
8. Delete any unnecessary files to make space available if you need more space on the standby VSM.
9. If you plan to install the images from the bootflash:, copy the Cisco Nexus 1000V kickstart and system images or the ISO image to the active VSM by using a transfer protocol. You can use ftp:, tftp:, scp:, or sftp:. The examples in this procedure use scp:.
10. Check on the impact of the ISSU upgrade for the kickstart and system images or the ISO image.
11. Read the release notes for the related image file. See the *Cisco Nexus 1000V Release Notes*.
12. Determine if the Virtual Security Gateway (VSG) is configured in the deployment:
13. Save the running configuration to the startup configuration.
14. Save the running configuration on the bootflash and externally.
15. Perform the upgrade on the active VSM using the ISO or kickstart and system images.
16. Continue with the installation by pressing Y.
17. After the installation operation completes, log in and verify that the switch is running the required software version.
18. Copy the running configuration to the startup configuration to adjust the startup-cgf size.
19. Display the log of the last installation.

## DETAILED STEPS

**Step 1** Log in to the active VSM.

**Step 2** Log in to Cisco.com to access the links provided in this document. To log in to Cisco.com, go to the URL http://www.cisco.com/ and click **Log In** at the top of the page. Enter your Cisco username and password.

**Note** Unregistered Cisco.com users cannot access the links provided in this document.

**Step 3** Access the Software Download Center by using this URL: http://www.cisco.com/public/sw-center/index.shtml

**Step 4** Navigate to the download site for your system.
You see links to the download images for your switch.

**Step 5** Choose and download the Cisco Nexus 1000V zip file and extract the kickstart and system software files to a server.

**Step 6** Ensure that the required space is available for the image file(s) to be copied.

```
switch# dir bootflash:
.
.
.
Usage for bootflash://
  485830656 bytes used
 1109045248 bytes free
 1594875904 bytes total
```

**Tip** We recommend that you have the kickstart and system image files for at least one previous release of the Cisco Nexus 1000V software on the system to use if the new image files do not load successfully.

**Step 7** Verify that there is space available on the standby VSM.

```
switch# dir bootflash://sup-standby/
.
.
.
Usage for bootflash://
  485830656 bytes used
 1109045248 bytes free
 1594875904 bytes total
```

**Step 8** Delete any unnecessary files to make space available if you need more space on the standby VSM.

**Step 9** If you plan to install the images from the bootflash:, copy the Cisco Nexus 1000V kickstart and system images or the ISO image to the active VSM by using a transfer protocol. You can use ftp:, tftp:, scp:, or sftp:. The examples in this procedure use scp:.

**Note** When you download an image file, change to your FTP environment IP address or DNS name and the path where the files are located.

- Copy the ISO image.

```
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v.4.2.1.SV2.1.1a.iso
bootflash:nexus-1000v.4.2.1.SV2.1.1a.iso
```

- Copy kickstart and system images.

```
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin
bootflash:nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-4.2.1.SV2.1.1a.bin
bootflash:nexus-1000v-4.2.1.SV2.1.1a.bin
```

**Step 10** Check on the impact of the ISSU upgrade for the kickstart and system images or the ISO image.

- ISO

  `switch#` **show install all impact iso bootflash:nexus-1000v.4.2.1.SV2.1.1a.iso**

```
Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".
[####################] 100% -- SUCCESS

Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".
[####################] 100% -- SUCCESS

Verifying image type.
[####################] 100% -- SUCCESS

Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Notifying services about system upgrade.
[####################] 100% -- SUCCESS



Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------   --------------  ------------  ------
     1       yes   non-disruptive         reset
     2       yes   non-disruptive         reset


Images will be upgraded according to following table:
Module       Image         Running-Version            New-Version  Upg-Required
------  ----------  -----------------------  -----------------------  ------------
     1      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     1   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     2      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     2   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes


Module         Running-Version                                          ESX Version        VSM
Compatibility       ESX Compatibility
------  ----------------------  ------------------------------------------------------
----------------------  ----------------------
     3         4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
     4         4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
```

- kickstart and system

  `switch#` **show install all impact kickstart bootflash:nexus-1000v-kickstart.4.2.1.SV2.1.1a.bin system bootflash:nexus-1000v.4.2.1.SV2.1.1a.bin**

```
Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".
[####################] 100% -- SUCCESS

Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".
[####################] 100% -- SUCCESS

Verifying image type.
[####################] 100% -- SUCCESS

Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Notifying services about system upgrade.
[####################] 100% -- SUCCESS



Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes  non-disruptive         reset
     2       yes  non-disruptive         reset


Images will be upgraded according to following table:
Module       Image         Running-Version             New-Version  Upg-Required
------  ----------  ----------------------  ----------------------  ------------
     1      system          4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes
     1   kickstart          4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes
     2      system          4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes
     2   kickstart          4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes


Module         Running-Version                                         ESX Version       VSM
Compatibility       ESX Compatibility
------  ----------------------  ----------------------------------------------------
----------------------  ----------------------
     3         4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
     4         4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
```

**Step 11** Read the release notes for the related image file. See the *Cisco Nexus 1000V Release Notes*.

**Step 12** Determine if the Virtual Security Gateway (VSG) is configured in the deployment:

- If the following output is displayed, the Cisco VSG is configured in the deployment. You must follow the upgrade procedure in the “Complete Upgrade Procedure” section in Chapter 7, “Upgrading the Cisco Virtual Security

Gateway and Cisco Virtual Network Management Center" of the *Cisco Virtual Security Gateway and Cisco Virtual Network Management Center Installation and Upgrade Guide*.

```
switch# show vnm-pa status
VNM Policy-Agent status is - Installed Successfully. Version 1.2(0.689)-vsm
switch#
```

- If the following output is displayed, continue to Step 13.

```
switch# show vnm-pa status
VNM Policy-Agent status is - Not Installed
switch#
```

**Step 13** Save the running configuration to the startup configuration.

```
switch# copy running-config startup-config
```

**Step 14** Save the running configuration on the bootflash and externally.

```
switch# copy running-config bootflash:run-cfg-backup
switch# copy running-config scp://user@tftpserver.cisco.com/n1kv-run-cfg-backup
```

**Note** You can also run a VSM backup. See the "Configuring VSM Backup and Recovery" chapter of the *Cisco Nexus 1000V System Management Configuration Guide*.

**Step 15** Perform the upgrade on the active VSM using the ISO or kickstart and system images.

- Upgrade using the ISO image.

```
switch# install all iso bootflash:nexus-1000v.4.2.1.SV2.1.1a.iso
```

- Upgrade using the kickstart and system images.

```
switch# install all kickstart bootflash:nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin system
bootflash:nexus-1000v-4.2.1.SV2.1.1a.bin
Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".
[####################] 100% -- SUCCESS

Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".
[####################] 100% -- SUCCESS

Verifying image type.
[####################] 100% -- SUCCESS

Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Notifying services about system upgrade.
[####################] 100% -- SUCCESS



Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes  non-disruptive         reset
     2       yes  non-disruptive         reset
```

```
Images will be upgraded according to following table:
Module       Image         Running-Version            New-Version  Upg-Required
------  ----------  ----------------------  ----------------------  ------------
     1      system           4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes
     1   kickstart           4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes
     2      system           4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes
     2   kickstart           4.2(1)SV1(5.2)          4.2(1)SV2(1.1a)           yes


Module         Running-Version                                        ESX Version       VSM
Compatibility       ESX Compatibility
------  ----------------------  ----------------------------------------------------
----------------------  ----------------------
     3           4.2(1)SV1(4a)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
     4           4.2(1)SV1(4a)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE

Do you want to continue with the installation (y/n)?  [n]
```

**Step 16** Continue with the installation by pressing Y.

**Note** If you press N, the installation exits gracefully.

```
Install is in progress, please wait.

Syncing image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin to standby.
[####################] 100% -- SUCCESS

Syncing image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin to standby.
[####################] 100% -- SUCCESS

Setting boot variables.
[####################] 100% -- SUCCESS

Performing configuration copy.
[####################] 100%2011 Mar 31 03:49:42 BL1-VSM %SYSMGR-STANDBY-5-CFGWRITE_STARTED:
Configuration copy started (PID 3660).
[####################] 100% -- SUCCESS
```

**Note** As part of the upgrade process, the standby VSM is reloaded with new images. Once it becomes the HA standby again, the upgrade process initiates a switchover. The upgrade then continues from the new active VSM with the following output:

```
Continuing with installation, please wait

Module 2: Waiting for module online
-- SUCCESS

Install has been successful
```

**Step 17** After the installation operation completes, log in and verify that the switch is running the required software version.

```
switch# show version
Nexus1000v# show version
Cisco Nexus Operating System (NX-OS) Software
```

```
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2012, Cisco Systems, Inc. All rights reserved.
The copyrights to certain works contained herein are owned by
other third parties and are used and distributed under license.
Some parts of this software are covered under the GNU Public
License. A copy of the license is available at
http://www.gnu.org/licenses/gpl.html.

Software
  loader:    version unavailable [last: loader version not available]
  kickstart: version 4.2(1)SV2(1.1a) [build 4.2(1)SV2(1.1a)]
  system:    version 4.2(1)SV2(1.1a) [build 4.2(1)SV2(1.1a)]
  kickstart image file is: bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin
  kickstart compile time:  1/11/2012 3:00:00 [01/11/2012 12:49:49]
  system image file is:    bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin
  system compile time:     1/11/2012 3:00:00 [01/11/2012 13:42:57]


Hardware
  cisco Nexus 1000V Chassis ("Virtual Supervisor Module")
  Intel(R) Xeon(R) CPU         with 2075740 kB of memory.
  Processor Board ID T5056B1802D

  Device name: Nexus1000v
  bootflash:    1557496 kB

Kernel uptime is 4 day(s), 8 hour(s), 31 minute(s), 3 second(s)


plugin
  Core Plugin, Ethernet Plugin, Virtualization Plugin
...
```

**Step 18** Copy the running configuration to the startup configuration to adjust the startup-cgf size.

```
switch# copy running-config startup-config
[########################################] 100%
switch#
```

**Step 19** Display the log of the last installation.

```
switch# show install all status
This is the log of last installation.

Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".

 -- SUCCESS

Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".

 -- SUCCESS

Verifying image type.

 -- SUCCESS

Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
```

```
 -- SUCCESS

Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.

 -- SUCCESS

Notifying services about system upgrade.

 -- SUCCESS


Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes  non-disruptive         reset
     2       yes  non-disruptive         reset



Images will be upgraded according to following table:
Module       Image         Running-Version             New-Version  Upg-Required
------  ----------  ----------------------  ----------------------  ------------
     1      system           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes
     1   kickstart           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes
     2      system           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes
     2   kickstart           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes


Images will be upgraded according to following table:
Module         Running-Version                                        ESX Version       VSM
Compatibility       ESX Compatibility
------  ----------------------  ----------------------------------------------------
----------------------  ----------------------
     3           4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
COMPATIBLE              COMPATIBLE
     4           4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
COMPATIBLE              COMPATIBLE


Install is in progress, please wait.

Syncing image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin to standby.
 -- SUCCESS

Syncing image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin to standby.
 -- SUCCESS

Setting boot variables.
 -- SUCCESS

Performing configuration copy.
 -- SUCCESS
```

```
Module 2: Waiting for module online.
 -- SUCCESS

Notifying services about the switchover.
 -- SUCCESS


"Switching over onto standby".
switch#
switch#
switch#

switch# attach module 2
Attaching to module 2 ...
To exit type 'exit', to abort type '$.'
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2011, Cisco Systems, Inc. All rights reserved.
The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under
license. Certain components of this software are licensed under
the GNU General Public License (GPL) version 2.0 or the GNU
Lesser General Public License (LGPL) Version 2.1. A copy of each
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(standby)#
switch(standby)# show install all status
This is the log of last installation.

Continuing with installation, please wait
Trying to start the installer...

Module 2: Waiting for module online.
 -- SUCCESS

Install has been successful.
switch(standby)#
```

# Upgrading VEMs

## VEM Upgrade Procedures

- VUM Upgrade Procedures
    - Set up VUM baselines. See Upgrading the ESXi Hosts to Release 5.x.
    - Initiate an upgrade from VUM. See Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24.

    - ◦ Upgrade VEM from VSM. See Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24.

- Manual upgrade procedures
    - ◦ Upgrading VIB Manually from the CLI. See Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 27

- Installing or upgrading stateless ESXi. See Installing the VEM Software on a Stateless ESXi Host.

VEM upgrades fall into three types:

- An upgrade of stateful ESXi host, without a migration from ESX (with a console OS) to ESXi. This upgrade type is described further in this section.
- An upgrade of a stateless ESXi host. This involves installing a new image on the host by updating the image profile and rebooting the host. The upgrade is described in Installing the VEM Software on a Stateless ESXi Host.

An upgrade of stateful ESXi host without a migration from ESX (which has a console OS) to ESXi falls into two separate workflows.

1. Upgrade the VEM alone, while keeping the ESXi version intact. The first figure shows this flow.
2. Upgrade the ESX/ESXi without a change of the Cisco Nexus 1000V version. This process is addressed in the Workflow 2 figure.

If you are using VUM, set up a host patch baseline with the VEM's offline bundle. Then follow Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24.

If you are upgrading from the command line, see Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 27.

- If you are using VUM version 5.0 or later, use the following method (independent of whether the VEM version is being changed as well):
    - ◦ If you are upgrading the ESXi host to a new update within a release, use a host upgrade baseline. For example, vSphere 5.0 GA to 5.0 U1.
    - ◦ If you are upgrading the ESXi host to a major release (for example, vSphere 4.1 U2 to 5.0 U1), generate an upgrade ISO and set up a host upgrade baseline. The upgrade ISO must have the desired final images for both ESXi and VEM. The procedure to generate an upgrade ISO is in Creating an Upgrade ISO with a VMware ESX Image and a Cisco Nexus 1000V VEM Image.
    - ◦ You can upgrade the ESXi version and VEM version simultaneously if you are using VUM 5.0 Update 1 or later. VUM 5.0 GA does not support a combined upgrade.

## VEM Upgrade Methods from Release 4.2(1)SV1(5x), or Release 4.2(1)SV2(1.1x) to the Current Release

There are two methods for upgrading the VEMs.

- Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24

- Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 27

### *Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release*

**Caution** If removable media is still connected (for example, if you have installed the VSM using ISO and forgot to remove the media), host movement to maintenance mode fails and the VUM upgrade fails.

## SUMMARY STEPS

1. switch# **show vmware vem upgrade status**
2. switch# **vmware vem upgrade notify**
3. switch# **show vmware vem upgrade status**
4. switch# **show vmware vem upgrade status**
5. Initiate the VUM upgrade process with the following commands.
6. switch# **show vmware vem upgrade status**
7. Clear the VEM upgrade status after the upgrade process is complete with the following commands.
8. switch# **show module**

## DETAILED STEPS

**Step 1** switch# **show vmware vem upgrade status**
Display the current configuration.

**Note** The minimum release of Cisco Nexus 1000V for VMware ESXi 5.0.0 hosts is Release 4.2(1)SV1(5).

**Step 2** switch# **vmware vem upgrade notify**
Coordinate with and notify the server administrator of the VEM upgrade process.

**Step 3** switch# **show vmware vem upgrade status**
Verify that the upgrade notification was sent.

**Note** Verify that the Upgrade Status contains the highlighted text. If the text is not present, check the Upgrade Error line and consult the *Cisco Nexus 1000V Troubleshooting Guide*.

**Step 4** switch# **show vmware vem upgrade status**
Verify that the server administrator has accepted the upgrade in the vCenter. For more information about how the server administrator accepts the VEM upgrade, see Accepting the VEM Upgrade, on page 30. Coordinate the notification acceptance with the server administrator. After the server administrator accepts the upgrade, proceed with the VEM upgrade.

**Note** Verify that the Upgrade Status contains the highlighted text. If the text is not present, check the Upgrade Error line and consult the *Cisco Nexus 1000V Troubleshooting Guide*.

**Step 5** Initiate the VUM upgrade process with the following commands.

**Note** Before entering the following commands, communicate with the server administrator to confirm that the VUM process is operational.

The vCenter Server locks the DVS and triggers VUM to upgrade the VEMs.

a) switch# **vmware vem upgrade proceed**

b) switch# **show vmware vem upgrade status**

**Note** The DVS bundle ID is updated and is highlighted.

If the ESXi host is using ESXi 4.1.0 or a later release and your DRS settings are enabled to allow it, VUM automatically VMotions the VMs from the host to another host in the cluster and places the ESXi in maintenance mode to upgrade the VEM. This process is continued for other hosts in the DRS cluster until all the hosts are upgraded in the cluster. For details about DRS settings required and vMotion of VMs, visit the VMware documentation related to Creating a DRS Cluster.

**Step 6** switch# **show vmware vem upgrade status**
Check for the upgrade complete status.

**Step 7** Clear the VEM upgrade status after the upgrade process is complete with the following commands.

a) switch# **vmware vem upgrade complete**

b) switch# **show vmware vem upgrade status**

**Step 8** switch# **show module**
Verify that the upgrade process is complete.

The upgrade is complete.

The following example shows how to upgrade VEMs using VUM.

**Note** 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.

```
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG
switch#
switch# vmware vem upgrade notify
Warning:
Please ensure the hosts are running compatible ESX versions for the upgrade. Refer to
corresponding
"Cisco Nexus 1000V and VMware Compatibility Information" guide.
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Availability Notified in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM:  VEM500-201306160100-BG
    DVS:  VEM410-201301152101-BG
```

```
switch#
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Accepted by vCenter Admin
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG
switch#
switch# vmware vem upgrade proceed
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade In Progress in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter) : Tue Apr 23 02:06:53 2013
Upgrade Start Time: : Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG
switch#
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Complete in vCenter
Upgrade Notification Sent Time: : Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): : Tue Apr 23 02:06:53 2013
Upgrade Start Time: : Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter): : Tue Apr 23 10:09:08 2013
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM410-201304160104-BG
    DVS: VEM410-201304160104-BG
switch#
switch# vmware vem upgrade complete
switch# show vmware vem upgrade status


Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG
switch#
switch# show module
Mod  Ports  Module-Type                       Model               Status
---  -----  --------------------------------  ------------------  ------------
1    0      Virtual Supervisor Module         Nexus1000V          ha-standby
2    0      Virtual Supervisor Module         Nexus1000V          active *
3    248    Virtual Ethernet Module           NA                  ok
4    248    Virtual Ethernet Module           NA                  ok

Mod  Sw                  Hw
---  ------------------  ------------------------------------------------
1    4.2(1)SV2(2.1)      0.0
2    4.2(1)SV2(2.1)      0.0
3    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
4    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-623860 (3.0)

Mod  MAC-Address(es)                         Serial-Num
```

```
---  --------------------------------------  ----------
1    00-19-07-6c-5a-a8 to 00-19-07-6c-62-a8  NA
2    00-19-07-6c-5a-a8 to 00-19-07-6c-62-a8  NA
3    02-00-0c-00-03-00 to 02-00-0c-00-03-80  NA
4    02-00-0c-00-04-00 to 02-00-0c-00-04-80  NA

Mod  Server-IP        Server-UUID                           Server-Name
---  ---------------  ------------------------------------  --------------------
1    10.104.249.171   NA                                    NA
2    10.104.249.171   NA                                    NA
3    10.104.249.172   7d41e666-b58a-11e0-bd1d-30e4dbc299c0  10.104.249.172
4    10.104.249.173   17d79824-b593-11e0-bd1d-30e4dbc29a0e  10.104.249.173

* this terminal session
switch#
```

**Note** The lines with the bold characters in the preceding example display that all VEMs are upgraded to the current release.

### *Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release*

#### Before You Begin

**Note** If VUM is installed, it should be disabled.

To manually install or upgrade the Cisco Nexus 1000V VEM on an ESXi host, follow the steps in Upgrading the VEM Software Using the vCLI, on page 31.

To upgrade the VEMs manually, perform the following steps as network administrator:

**Note** This procedure is performed by the network administrator. Before proceeding with the upgrade, make sure that the VMs are powered off if you are not running the required patch level.

**Caution** If removable media is still connected, (for example, if you have installed the VSM using ISO and forgot to remove the media), host movement to maintenance mode fails and the VEM upgrade fails.

## SUMMARY STEPS

1. switch# **vmware vem upgrade notify**
2. switch# **show vmware vem upgrade status**
3. switch# **show vmware vem upgrade status**
4. Perform one of the following tasks:
5. switch# **vmware vem upgrade proceed**
6. switch# **show vmware vem upgrade status**
7. Coordinate with and wait until the server administrator upgrades all ESXi host VEMs with the new VEM software release and informs you that the upgrade process is complete.
8. switch# **vmware vem upgrade complete**
9. switch# **show vmware vem upgrade status**
10. switch# **show module**

## DETAILED STEPS

**Step 1** switch# **vmware vem upgrade notify**
Coordinate with and notify the server administrator of the VEM upgrade process.

**Step 2** switch# **show vmware vem upgrade status**
Verify that the upgrade notification was sent.

**Step 3** switch# **show vmware vem upgrade status**
Verify that the server administrator has accepted the upgrade in vCenter Server. For details about the server administrator accepting the VEM upgrade, see Accepting the VEM Upgrade, on page 30. After the server administrator accepts the upgrade, proceed with the VEM upgrade.

**Step 4** Perform one of the following tasks:

- If the ESXi host is not hosting the VSM, proceed to Step 5.
- If the ESXi host is hosting the VSM, coordinate with the server administrator to migrate the VSM to a host that is not being upgraded. Proceed to Step 5.

**Step 5** switch# **vmware vem upgrade proceed**
Initiate the Cisco Nexus 1000V Bundle ID upgrade process.

**Note** If VUM is enabled in the vCenter environment, disable it before entering the **vmware vem upgrade proceed** command to prevent the new VIBs from being pushed to all the hosts.

Enter the **vmware vem upgrade proceed** command so that the Cisco Nexus 1000V Bundle ID on the vCenter Server gets updated. If VUM is enabled and you do not update the Bundle ID, an incorrect VIB version is pushed to the VEM when you next add the ESXi to the VSM.

**Note** If VUM is not installed, the “The object or item referred to could not be found” error appears in the vCenter Server task bar. You can ignore this error message.

**Step 6** switch# **show vmware vem upgrade status**
Check for the upgrade complete status.

**Step 7** Coordinate with and wait until the server administrator upgrades all ESXi host VEMs with the new VEM software release and informs you that the upgrade process is complete.

The server administrator performs the manual upgrade by using the **vihostupdate** command or the **esxcli** command. For more information, see Upgrading the VEM Software Using the vCLI, on page 31.

**Step 8** switch# **vmware vem upgrade complete**
Clear the VEM upgrade status after the upgrade process is complete.

**Step 9** switch# **show vmware vem upgrade status**
Check the upgrade status once again.

**Step 10** switch# **show module**
Verify that the upgrade process is complete.

**Note** The line with the bold characters in the preceding example display that all VEMs are upgraded to the current release.

The upgrade is complete.

The following example shows how to upgrade VEMs manually.

**Note** 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.

```
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG
switch#
switch# vmware vem upgrade notify
Warning:
Please ensure the hosts are running compatible ESX versions for the upgrade. Refer to
corresponding
"Cisco Nexus 1000V and VMware Compatibility Information" guide.

switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Accepted by vCenter Admin
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG

switch#
switch# vmware vem upgrade proceed
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade In Progress in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time: Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG

switch# show vmware vem upgrade status
Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Complete in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time: Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter):
Upgrade Error
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG

switch#
switch# vmware vem upgrade complete
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG

switch#
switch# 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
---  ------------------  ------------------------------------------------
1    4.2(1)SV2(2.1)  0.0
2    4.2(1)SV2(2.1)  0.0
3    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-843203 (3.0)
6    4.2(1)SV2(2.1)      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

* this terminal session
switch#
```

### *Accepting the VEM Upgrade*

#### Before You Begin

- The network and server administrators must coordinate the upgrade procedure with each other.

- You have received a notification in the vCenter Server that a VEM software upgrade is available.

### SUMMARY STEPS

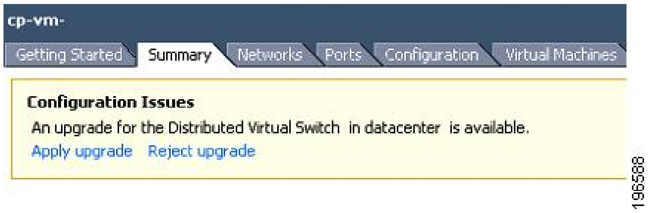
1. In the vCenter Server, choose **Inventory > Networking**.
2. Click the **vSphere Client DVS Summary** tab to check for the availability of a software upgrade.
3. Click **Apply upgrade**.

### DETAILED STEPS

**Step 1** In the vCenter Server, choose **Inventory > Networking**.

**Step 2** Click the **vSphere Client DVS Summary** tab to check for the availability of a software upgrade.

*Figure 6: vSphere Client DVS Summary Tab*



Configuration Issues

An upgrade for the Distributed Virtual Switch in datacenter is available.

**Step 3** Click **Apply upgrade**.
The network administrator is notified that you are ready to apply the upgrade to the VEMs.

## *Upgrading the VEM Software Using the vCLI*

You can upgrade the VEM software by using the vCLI.

### Before You Begin

- If you are using vCLI, do the following:
  - You have downloaded and installed the VMware vCLI. For information about installing the vCLI, see the VMware vCLI documentation.
  - You are logged in to the remote host where the vCLI is installed.

**Note** The vSphere command-line interface (vCLI) command set allows you to enter common system administration commands against ESXi systems from any machine with network access to those systems. You can also enter most vCLI commands against a vCenter Server system and target any ESXi system that the vCenter Server system manages. vCLI commands are especially useful for ESXi hosts because ESXi does not include a service console.

- Check *Cisco Nexus 1000V and VMware Compatibility Information* for compatible versions.
- You have already copied the VEM software installation file to the `/tmp` directory. Do not copy the files to the root (/) folder.
- You know the name of the VEM software file to be installed.

## SUMMARY STEPS

1. [root@serialport -]# **cd tmp**
2. Determine the upgrade method that you want to use and enter the appropriate command.
   - **vihostupdate**
     Installs the ESXi and VEM software simultaneously if you are using the vCLI.
3. For ESXi 5.0.0 or later hosts, enter the appropriate commands as they apply to you.
4. Display values with which to compare to *Cisco Nexus 1000V and VMware Compatibility Information* by typing the following commands.
5. switch# **show module**

## DETAILED STEPS

**Step 1** [root@serialport -]# **cd tmp**
Go to the directory where the new VEM software was copied.

**Step 2** Determine the upgrade method that you want to use and enter the appropriate command.

- **vihostupdate**
  Installs the ESXi and VEM software simultaneously if you are using the vCLI.

**Step 3** For ESXi 5.0.0 or later hosts, enter the appropriate commands as they apply to you.

a) ~ # **esxcli software vib install -d** *path/VEM_bundle*
b) ~ # **esxcli software vib install -v** *path/vib_file*

**Step 4** Display values with which to compare to *Cisco Nexus 1000V and VMware Compatibility Information* by typing the following commands.

a) [root@serialport tmp]# **vmware -v**
b) root@serialport tmp]# # **esxupdate query**
c) [root@host212 ~]# . ~ # **vem status -v**
d) [root@host212 ~]# **vemcmd show version**

**Step 5** switch# **show module**
Display that the VEMs were upgraded by entering the command on the VSM.

If the upgrade was successful, the installation procedure is complete.

The following example shows how to upgrade the VEM software using the vCLI.

**Note** 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.

```
[root@serialport -]# cd tmp
[root@serialport tmp]#
esxupdate -b [VMware offline update bundle] update
~ # esxcli software vib install -d /var/log/vmware/VEM500-201306160100-BG-zip
Installation Result
   Message: Operation finished successfully.
   Reboot Required: false
   VIBs Installed: Cisco_bootbank_cisco-vem-v160-esx_4.2.1.2.2.1.0-3.0.1
   VIBs Removed:
   VIBs Skipped:
~ #

~ # esxcli software vib install -v
/var/log/vmware/cross_cisco-vem-v160-4.2.1.2.2.1.0-3.0.1.vib
Installation Result
   Message: Operation finished successfully.
   Reboot Required: false
   VIBs Installed: Cisco_bootbank_cisco-vem-v160-esx_4.2.1.2.2.1.0-3.0.1
   VIBs Removed:
   VIBs Skipped:
~ #
[root@serialport tmp]# vmware -v
VMware ESXi 5.0.0 build-843203
root@serialport tmp]# # esxupdate query
------Bulletin ID------- -----Installed----- --------------Summary---------------
VEM500-201306160100 2013-04-21T08:18:22 Cisco Nexus 1000V 4.2(1)SV2(2.1)


[root@host212 ~]# . ~ # vem status -v
Package vssnet-esxmn-release
Version 4.2.1.2.2.1.0-3.0.1
Build 1
Date Sun Apr 21 04:56:14 PDT 2013

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
~ #


[root@host212 ~]# vemcmd show version
vemcmd show version
VEM Version: 4.2.1.2.2.1.0-3.0.1
VSM Version: 4.2(1)SV2(2.1) [build 4.2(1)SV2(2.1)]
System Version: VMware ESXi 5.0.0 Releasebuild-843203

~ #
switch# 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
---  ------------------  ------------------------------------------------
1    4.2(1)SV2(2.1)  0.0
2    4.2(1)SV2(2.1)  0.0
```

```
3    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-843203 (3.0)
6    4.2(1)SV2(2.1)      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

switch#
```

**Note** The highlighted text in the previous command output confirms that the upgrade was successful.

# Upgrade Procedure for Cisco VSG Release 4.2(1)VSG1(3.1) to Release 4.2(1)VSG2(1.1), Cisco VNMC Release 1.3 to Release 2.1 and Cisco Nexus 1000V Release 4.2(1)SV1(4.1) to Release 4.2(1)SV2(2.1)

## Cisco VSG Release 4.2(1)VSG1(3.1) to 4.2(1)VSG2(1.1) and Cisco VNMC 1.3 to 2.1 Staged Upgrade

**Note** The **vn-service** command is changed to the **vservice** command on the VSM port-profile in VSM Release 4.2(1)SV1(5.2).

| Virtual Appliance | Original State | Stage 1: Cisco VNMC Upgrade only (no PAs upgraded) | Stage 2: Cisco VSG Upgrade (ISSU: PA upgrade) | Stage 3: VSM/VEM Upgrade (ISSU: PA upgrade) |
|---|---|---|---|---|
| Cisco VNMC | Old 1.3 | New 2.1 | New 2.1 | New 2.1 |
| Cisco VSG | Old 4.2(1)VSG1(3.1a) | Old 4.2(1)VSG1(3.1a) | New 4.2(1)VSG2(2.1) | New 4.2(1)VSG1(4.1) |
| VSG PA | Old 1.3.1 | Old 1.3.1 | New 2.1 | New 2.1 |
| VSM | Old 4.2(1)SV1(4b) | Old 4.2(1)SV1(4b) | Old 4.2(1)SV1(4b) | New 4.2(1)SV2(2.1) |
| VEM | Old 4.2(1)SV1(4b) | Old 4.2(1)SV1(4b) | Old 4.2(1)SV1(4b) | New 4.2(1)SV2(2.1) |
| VSM PA | 1.2.1 | Old 1.2.1 | Old 1.2.1 | New 2.0 |

| Virtual Appliance | Original State | Stage 1: Cisco VNMC Upgrade only (no PAs upgraded) | Stage 2: Cisco VSG Upgrade (ISSU: PA upgrade) | Stage 3: VSM/VEM Upgrade (ISSU: PA upgrade) |
|---|---|---|---|---|
| Supported operations after upgrading to each stage | All operations supported | • Existing data sessions (offloaded).<br>• New data sessions.<br>• Allows Cisco Nexus 1000V switch (non-vn-service) operations including non-vn-service port profiles. | • Existing data sessions (offloaded).<br>• New data sessions.<br>• Allows Cisco Nexus 1000V switch (non-vn-service) operations including non-vn-service port profiles. | • Once upgraded, all the operations are supported if all the VEMs are upgraded.<br>• Operations restrictions apply only if all the VEMs are not upgraded.<br>• Disruption of data traffic during VEM upgrades |

| Virtual Appliance | Original State | Stage 1: Cisco VNMC Upgrade only (no PAs upgraded) | Stage 2: Cisco VSG Upgrade (ISSU: PA upgrade) | Stage 3: VSM/VEM Upgrade (ISSU: PA upgrade) |
|---|---|---|---|---|
| Restricted operations after upgrading to each stage | None | • No Cisco VNMC policy configuration changes.<br>• No VSM/VEM vn-service VM operations (shutdown/bring up existing vn-service VMs, bring down net adapters, and so on).<br>• No new vn-service VMs are supported.<br>• No vMotion of vn-service firewalled VMs on Cisco Nexus 1000V switch.<br>• No vn-service port profile operations or modifications (toggles, removal, changing the port profiles on VSM).<br>• Cisco VSGand VSM failover (vns-agent) not supported.<br>• All VSM to Cisco VNMC to Cisco VSG control operations are restricted | • No Cisco VNMC policy configuration changes.<br>• No VSM/VEM vn-service VM operations (shutdown/bring up existing vn-service VMs, bring down net adapters, and so on).<br>• No new vn-service VMs are supported.<br>• No vMotion of vn-service firewalled VMs on Cisco Nexus 1000V switch.<br>• No vn-service port profile operations or modifications (toggles, removal, changing the port profiles on VSM).<br>• Cisco VSGand VSM failover (vns-agent) not supported.<br>• All VSM to Cisco VNMC to Cisco VSG control operations are restricted | • No Cisco VNMC policy configuration changes.<br>• No VSM/VEM vn-service VM operations (shutdown/bring up existing vn-service VMs, bring down net adapters, and so on).<br>• No new vn-service VMs are supported.<br>• No vMotion of vn-service VMs on Cisco Nexus 1000V switch.<br>• No vn-service port profile operations or modifications (toggles, removal, changing the port profiles on VSM).<br>• No Cisco Nexus 1000V switch (non vn-service) operations, including non-vn-service port profiles (VSM+VEM ugraded).<br>• All VSM to Cisco VNMC to Cisco VSG control operations are restricted |

**Note** Because we support full ISSU upgrade on both VSG and VSM that includes installing a new PA, you must install the VNMC first. The new PA may not be compatible with the old VNMC.

# Upgrading VNMC from Release 1.3 to Release 2.1

### Before You Begin

- You are logged in to the CLI in EXEC mode.
- You have backed up the new software files to a remote server and have verified that the backup file was created on the remote server.
- You must have the Cisco Prime NSC Release 2.1 downloaded.

## SUMMARY STEPS

1. vnmc# **connect local-mgmt**
2. (Optional) vnmc (local-mgmt)# **show version**
3. (Optional) vnmc (local-mgmt)# **copy scp://user@***example-server-ip/example-dir/filename* **bootflash:/**
4. vnmc (local-mgmt)# **dir bootflash:/**
5. vnmc (local-mgmt)# **update bootflash:/***filename*
6. vnmc (local-mgmt)# **service restart**
7. (Optional) vnmc (local-mgmt)# **service status**
8. (Optional) vnmc (local-mgmt)# **show version**

## DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | vnmc# **connect local-mgmt** | Places you in local management mode. |
| **Step 2** | vnmc (local-mgmt)# **show version** | (Optional)<br>Displays the version information for the Cisco Prime NSC software. |
| **Step 3** | vnmc (local-mgmt)# **copy scp://user@***example-server-ip/example-dir/filename* **bootflash:/** | (Optional)<br>Copies the Cisco Prime NSC software file to the VM. |
| **Step 4** | vnmc (local-mgmt)# **dir bootflash:/** | Verifies that the desired file is copied in the directory. |
| **Step 5** | vnmc (local-mgmt)# **update bootflash:/***filename* | Begins the update of the Cisco Prime NSC software. |
| **Step 6** | vnmc (local-mgmt)# **service restart** | Restarts the server. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 7** | vnmc (local-mgmt)# **service status** | (Optional)<br>Allows you to verify that the server is operating as desired. |
| **Step 8** | vnmc (local-mgmt)# **show version** | (Optional)<br>Allows you to verify that the Cisco Prime NSC software version is updated.<br>**Note** After you upgrade to Cisco Prime NSC Release 2.1, you might see the previous version of Cisco Prime NSC in your browser. To view the upgraded version, clear the browser cache and browsing history in the browser. This note applies to all supported browsers: Internet Explorer, Mozilla Firefox, and Chrome. |

### Configuration Example

The following example shows how to connect to the local-mgmt mode:

```
vnmc# connect local-mgmt
Cisco Virtual Network Management Center
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2013, Cisco Systems, Inc. All rights reserved.
The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under
license. Certain components of this software are licensed under
the GNU General Public License (GPL) version 2.0 or the GNU
Lesser General Public License (LGPL) Version 2.1. A copy of each
such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://www.opensource.org/licenses/lgpl-2.1.php
```

The following example shows how to display version information for the Cisco Prime NSC:

```
vnmc(local-mgmt)# show version

Name                Package             Version        GUI
----                -------             -------        ----
core                Base System         1.3(1)         1.3(1)
service-reg         Service Registry    1.3(1)         1.3(1)
policy-mgr          Policy Manager      1.3(1)         1.3(1)
resource-mgr        Resource Manager    1.3(1)         1.3(1)
vm-mgr              VM manager          1.3(1)         none
```

The following example shows how to copy the Cisco Prime NSC software to the VM:

```
vnmc(local-mgmt)# copy scp://<user@example-server-ip>/example1-dir/vnmc.2.1.bin bootflash:/
Enter password:
100%  143MB  11.9MB/s   00:12
```

The following example shows how to see the directory information for Cisco Prime NSC:

```
vnmc(local-mgmt)# dir bootflash:/
14M May 28 2013  gui-automation.tgz

            887 May 28 2013  vnmc-dplug.1.3.1.bin
            20M May 28 2013  vnmc-vsgpa.1.3.1.bin
            20M May 28 2013  vnmc-vsmpa.1.3.1.bin
           403M Jan 31 01:58 vnmc.2.0.bin


Usage for bootflash://
```

```
   18187836 bytes used
            3842128 bytes free
           22029964 bytes total
```

The following example shows how to start the update for the Cisco Prime NSC:

```
vnmc(local-mgmt)# update bootflash:/vnmc.2.1.bin
It is recommended that you perform a full-state backup before updating any VNMC component.
  Press enter to continue or Ctrl-c to exit.
```

The following example shows how to display the updated version for the Cisco Prime NSC:

```
vnmc(local-mgmt)# show version

Name                Package             Version        GUI
----                -------             -------        ----
core                Base System         2.1            2.1
service-reg         Service Registry    2.1            2.1
policy-mgr          Policy Manager      2.1            2.1
resource-mgr        Resource Manager    2.1            2.1
vm-mgr              VM manager          2.1            none
```

# Upgrading Cisco VSG from Release 4.2(1)VSG1(3.1) to 4.2(1)VSG2(1.1)

Enter the commands on all Cisco VSG nodes on your network.

### Before You Begin

- You are logged in to the CLI in EXEC mode.
- You have copied the new system image, kickstart image and the Cisco VSG policy agent image into the bootflash file system using the following commands:

```
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-kickstart-mz.VSG2.1.bin
 bootflash:nexus-1000v-kickstart-mz.VSG2.1.bin

switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-mz.VSG2.1.bin
bootflash:nexus-1000v-mz.VSG2.1.bin

switch# copy scp://user@scpserver.cisco.com/downloads/vnmc-vsgpa.2.1(1b).bin
bootflash:vnmc-vsgpa.2.1(1b).bin
```

- You have confirmed that the system is in high availability (HA) mode for an HA upgrade using the **show system redundancy status** command.

## SUMMARY STEPS

1. **configure terminal**
2. **install all kickstart bootflash:***nexus-1000v-kickstart-mz.VSG2.1.bin* **system bootflash:***nexus-1000v-mz.VSG2.1.bin* **vnmpa bootflash:***vnmc-vsgpa.2.1(1b).bin*
3. **show vnm-pa status**
4. **copy running-config startup-config**

## DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **configure terminal** | Enters global configuration mode. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 2** | **install all kickstart bootflash:***nexus-1000v-kickstart-mz.VSG2.1.bin* **system bootflash:***nexus-1000v-mz.VSG2.1.bin* **vnmpa bootflash:***vnmc-vsgpa.2.1(1b).bin* | Installs the kickstart image, system image, and policy agent (PA) image.<br>**Note** If you do not have a policy agent installed on the Cisco VSG before the **install all** command is executed, the PA will not be upgraded (installed) with the image. Make sure that the current version of policy agent is installed before you begin the upgrade process. |
| **Step 3** | **show vnm-pa status** | Verifies that the new PA is installed and the upgrade was successful.<br>**Note** You must have an existing PA installed before upgrading the PA using the **install all** command. |
| **Step 4** | **copy running-config startup-config** | Saves the change persistently through reboots and restarts by copying the running configuration to the startup configuration. |

### Configuration Example

The following example shows how to upgrade Cisco VSG Release 4.2(1)VSG1(3.1) to Release 4.2(1)VSG2(1.1):

```
vsg # configure terminal
vsg (config)# install all kickstart bootflash:nexus-1000v-kickstart-mz.VSG2.1.bin system
bootflash:nexus-1000v-mz.VSG2.1.bin vnmpa bootflash:vnmc-vsgpa.2.1(1b).bin
vsg (config)# show vnm-pa status
VNM Policy-Agent status is - Installed Successfully. Version 2.1(1b)-vsg
vsg(config)# copy running-config startup-config
```

# Upgrading VSMs

## Upgrade Procedures

The following table lists the upgrade steps.

*Table 6: Upgrade Paths from Cisco Nexus 1000V Releases*

| If you are running this configuration | Follow these steps |
|---|---|
| Release 4.0(4)SV1(1) or 4.0(4)SV1(2) | Upgrades from these releases are not supported. |
| Releases 4.0(4)SV1(3x) Series | **1** Upgrading from Releases 4.0(4)SV1(3, 3a, 3b, 3c, 3d) to Release 4.2(1)SV1(4b)<br>**2** Upgrade from Releases 4.2(1)SV1(4x) and later releases to the current release |

| If you are running this configuration | Follow these steps |
|---|---|
| Release 4.2(1)SV1(4x) Series with a vSphere release 4.0 Update 1 or later | 1 Upgrading from VMware Release 4.0 to VMware Release 4.1<br>2 Upgrading VSMs from Releases 4.2(1)SV1(4) and later releases to the current release<br>3 Upgrading VEMs from Releases 4.2(1)SV1(4) and later releases to the current release |
| Release 4.2(1)SV1(4x) Series with a vSphere release 4.1 GA, patches, or updates | 1 Upgrading VSMs from Releases 4.2(1)SV1(4) and later releases to the current release<br>2 Upgrading VEMs from Releases 4.2(1)SV1(4) and later releases to the current release |

The following table lists the upgrade steps when upgrading from Release 4.2(1)SV1(5x) and later releases to the current release.

*Table 7: Upgrade Paths from Releases 4.2(1)SV1(5x) and Later Releases*

| If you are running this configuration | Follow these steps |
|---|---|
| With vSphere 5.0 GA, patches, or updates. | 1 Upgrading VSMs from Releases 4.2(1)SV1(4) and later releases to the current release<br>2 Upgrading VEMs from Releases 4.2(1)SV1(4) and later releases to the current release |

## Software Images

The software image install procedure is dependent on the following factors:

- Software images—The kickstart and system image files reside in directories or folders that you can access from the Cisco Nexus 1000V software prompt.
- Image version—Each image file has a version.
- Disk—The bootflash: resides on the VSM.
- ISO file—If a local ISO file is passed to the **install all** command, the kickstart and system images are extracted from the ISO file.

## In-Service Software Upgrades on Systems with Dual VSMs

The Cisco Nexus 1000V software supports in-service software upgrades (ISSUs) for systems with dual VSMs. An ISSU can update the software images on your switch without disrupting data traffic. Only control traffic is disrupted. If an ISSU causes a disruption of data traffic, the Cisco Nexus 1000V software warns you before proceeding so that you can stop the upgrade and reschedule it to a time that minimizes the impact on your network.

**Note** On systems with dual VSMs, you should have access to the console of both VSMs to maintain connectivity when the switchover occurs during upgrades. If you are performing the upgrade over Secure Shell (SSH) or Telnet, the connection will drop when the system switchover occurs, and you must reestablish the connection.

An ISSU updates the following images:

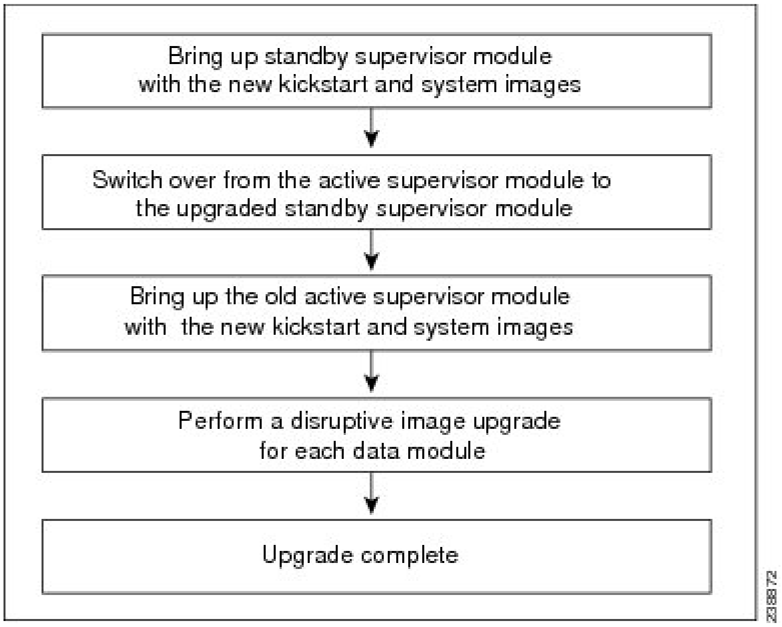
- Kickstart image
- System image
- VEM images

All of the following processes are initiated automatically by the upgrade process after the network administrator enters the **install all** command.

## ISSU Process for the Cisco Nexus 1000V

The following figure shows the ISSU process.

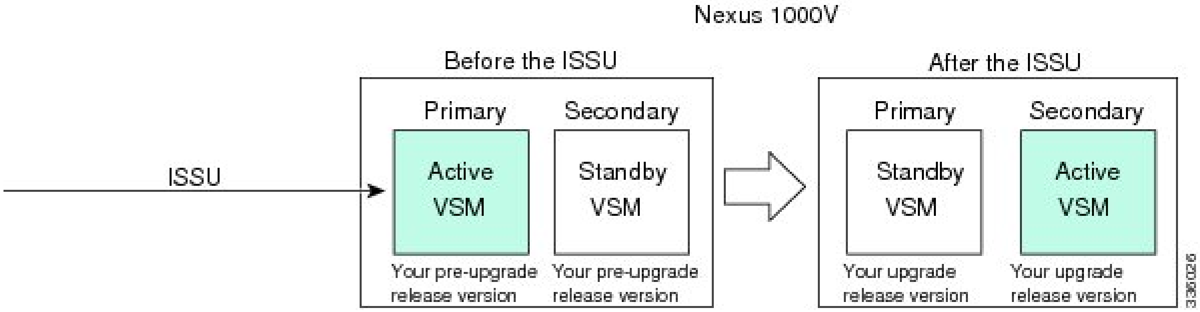
*Figure 7: ISSU Process*


Bring up standby supervisor module with the new kickstart and system images
Switch over from the active supervisor module to the upgraded standby supervisor module
Bring up the old active supervisor module with the new kickstart and system images
Perform a disruptive image upgrade for each data module
Upgrade complete
238872

## ISSU VSM Switchover

The following figure provides an example of the VSM status before and after an ISSU switchover.

*Figure 8: Example of an ISSU VSM Switchover*



## ISSU Command Attributes

### Support

The **install all** command supports an in-service software upgrade (ISSU) on dual VSMs in an HA environment and performs the following actions:

- Determines whether the upgrade is disruptive and asks if you want to continue.
- Copies the kickstart and system images to the standby VSM. Alternatively, if a local ISO file is passed to the **install all** command instead, the kickstart and system images are extracted from the file.
- Sets the kickstart and system boot variables.
- Reloads the standby VSM with the new Cisco Nexus 1000V software.
- Causes the active VSM to reload when the switchover occurs.

### Benefits

The **install all** command provides the following benefits:

- You can upgrade the VSM by using the **install all** command.
- You can receive descriptive information on the intended changes to your system before you continue with the installation.
- You have the option to cancel the command. Once the effects of the command are presented, you can continue or cancel when you see this question (the default is no):

  ```
  Do you want to continue (y/n) [n]: y
  ```

- You can upgrade the VSM using the least disruptive procedure.
- You can see the progress of this command on the console, Telnet, and SSH screens:
    - After a switchover process, you can see the progress from both the VSMs.

  - ◦ Before a switchover process, you can see the progress only from the active VSM.

- The **install all** command automatically checks the image integrity, which includes the running kickstart and system images.
- The **install all** command performs a platform validity check to verify that a wrong image is not used.
- The Ctrl-C escape sequence gracefully ends the **install all** command. The command sequence completes the update step in progress and returns to the switch prompt. (Other upgrade steps cannot be ended by using Ctrl-C.)
- After running the **install all** command, if any step in the sequence fails, the command completes the step in progress and ends.

## Upgrading VSMs from Releases 4.2(1)SV1(5x), 4.2(1)SV2(1.1x) to Release 4.2(1)SV2(2.1x)

### SUMMARY STEPS

1. Log in to the active VSM.
2. Log in to Cisco.com to access the links provided in this document. To log in to Cisco.com, go to the URL http://www.cisco.com/ and click **Log In** at the top of the page. Enter your Cisco username and password.
3. Access the Software Download Center by using this URL:
4. Navigate to the download site for your system.
5. Choose and download the Cisco Nexus 1000V zip file and extract the kickstart and system software files to a server.
6. Ensure that the required space is available for the image file(s) to be copied.
7. Verify that there is space available on the standby VSM.
8. Delete any unnecessary files to make space available if you need more space on the standby VSM.
9. If you plan to install the images from the bootflash:, copy the Cisco Nexus 1000V kickstart and system images or the ISO image to the active VSM by using a transfer protocol. You can use ftp:, tftp:, scp:, or sftp:. The examples in this procedure use scp:.
10. Check on the impact of the ISSU upgrade for the kickstart and system images or the ISO image.
11. Read the release notes for the related image file. See the *Cisco Nexus 1000V Release Notes*.
12. Determine if the Virtual Security Gateway (VSG) is configured in the deployment:
13. Save the running configuration to the startup configuration.
14. Save the running configuration on the bootflash and externally.
15. Perform the upgrade on the active VSM using the ISO or kickstart and system images.
16. Continue with the installation by pressing Y.
17. After the installation operation completes, log in and verify that the switch is running the required software version.
18. Copy the running configuration to the startup configuration to adjust the startup-cgf size.
19. Display the log of the last installation.

## DETAILED STEPS

**Step 1** Log in to the active VSM.

**Step 2** Log in to Cisco.com to access the links provided in this document. To log in to Cisco.com, go to the URL http://www.cisco.com/ and click **Log In** at the top of the page. Enter your Cisco username and password.

**Note** Unregistered Cisco.com users cannot access the links provided in this document.

**Step 3** Access the Software Download Center by using this URL:
http://www.cisco.com/public/sw-center/index.shtml

**Step 4** Navigate to the download site for your system.
You see links to the download images for your switch.

**Step 5** Choose and download the Cisco Nexus 1000V zip file and extract the kickstart and system software files to a server.

**Step 6** Ensure that the required space is available for the image file(s) to be copied.

```
switch# dir bootflash:
.
.
.
Usage for bootflash://
  485830656 bytes used
 1109045248 bytes free
 1594875904 bytes total
```

**Tip** We recommend that you have the kickstart and system image files for at least one previous release of the Cisco Nexus 1000V software on the system to use if the new image files do not load successfully.

**Step 7** Verify that there is space available on the standby VSM.

```
switch# dir bootflash://sup-standby/
.
.
.
Usage for bootflash://
  485830656 bytes used
 1109045248 bytes free
 1594875904 bytes total
```

**Step 8** Delete any unnecessary files to make space available if you need more space on the standby VSM.

**Step 9** If you plan to install the images from the bootflash:, copy the Cisco Nexus 1000V kickstart and system images or the ISO image to the active VSM by using a transfer protocol. You can use ftp:, tftp:, scp:, or sftp:. The examples in this procedure use scp:.

**Note** When you download an image file, change to your FTP environment IP address or DNS name and the path where the files are located.

- Copy the ISO image.

```
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v.4.2.1.SV2.1.1a.iso
bootflash:nexus-1000v.4.2.1.SV2.1.1a.iso
```

- Copy kickstart and system images.

```
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin
bootflash:nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin
switch# copy scp://user@scpserver.cisco.com/downloads/nexus-1000v-4.2.1.SV2.1.1a.bin
bootflash:nexus-1000v-4.2.1.SV2.1.1a.bin
```

**Step 10** Check on the impact of the ISSU upgrade for the kickstart and system images or the ISO image.

- ISO

```
switch# show install all impact iso bootflash:nexus-1000v.4.2.1.SV2.1.1a.iso

Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".
[####################] 100% -- SUCCESS

Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".
[####################] 100% -- SUCCESS

Verifying image type.
[####################] 100% -- SUCCESS

Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Notifying services about system upgrade.
[####################] 100% -- SUCCESS



Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes  non-disruptive         reset
     2       yes  non-disruptive         reset


Images will be upgraded according to following table:
Module       Image         Running-Version             New-Version  Upg-Required
------  ----------  ----------------------  ----------------------  ------------
     1      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     1   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     2      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     2   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes


Module         Running-Version                                         ESX Version       VSM
Compatibility       ESX Compatibility
------  ----------------------  ----------------------------------------------------
----------------------  ----------------------
     3          4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
     4          4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
```

- kickstart and system

```
switch# show install all impact kickstart bootflash:nexus-1000v-kickstart.4.2.1.SV2.1.1a.bin system
bootflash:nexus-1000v.4.2.1.SV2.1.1a.bin
```

```
Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".
[####################] 100% -- SUCCESS

Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".
[####################] 100% -- SUCCESS

Verifying image type.
[####################] 100% -- SUCCESS

Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Notifying services about system upgrade.
[####################] 100% -- SUCCESS



Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes  non-disruptive         reset
     2       yes  non-disruptive         reset


Images will be upgraded according to following table:
Module       Image         Running-Version             New-Version  Upg-Required
------  ----------  ----------------------  ----------------------  ------------
     1      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     1   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     2      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     2   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes


Module         Running-Version                                        ESX Version       VSM
Compatibility       ESX Compatibility
------  ----------------------  ----------------------------------------------------
----------------------  ----------------------
     3          4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
     4          4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
```

**Step 11** Read the release notes for the related image file. See the *Cisco Nexus 1000V Release Notes*.

**Step 12** Determine if the Virtual Security Gateway (VSG) is configured in the deployment:

- If the following output is displayed, the Cisco VSG is configured in the deployment. You must follow the upgrade procedure in the “Complete Upgrade Procedure” section in Chapter 7, “Upgrading the Cisco Virtual Security

Gateway and Cisco Virtual Network Management Center" of the *Cisco Virtual Security Gateway and Cisco Virtual Network Management Center Installation and Upgrade Guide*.

```
switch# show vnm-pa status
VNM Policy-Agent status is - Installed Successfully. Version 1.2(0.689)-vsm
switch#
```

- If the following output is displayed, continue to Step 13.

```
switch# show vnm-pa status
VNM Policy-Agent status is - Not Installed
switch#
```

**Step 13** Save the running configuration to the startup configuration.

```
switch# copy running-config startup-config
```

**Step 14** Save the running configuration on the bootflash and externally.

```
switch# copy running-config bootflash:run-cfg-backup
switch# copy running-config scp://user@tftpserver.cisco.com/n1kv-run-cfg-backup
```

**Note** You can also run a VSM backup. See the "Configuring VSM Backup and Recovery" chapter of the *Cisco Nexus 1000V System Management Configuration Guide*.

**Step 15** Perform the upgrade on the active VSM using the ISO or kickstart and system images.

- Upgrade using the ISO image.

```
switch# install all iso bootflash:nexus-1000v.4.2.1.SV2.1.1a.iso
```

- Upgrade using the kickstart and system images.

```
switch# install all kickstart bootflash:nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin system
bootflash:nexus-1000v-4.2.1.SV2.1.1a.bin
Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".
[####################] 100% -- SUCCESS

Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".
[####################] 100% -- SUCCESS

Verifying image type.
[####################] 100% -- SUCCESS

Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.
[####################] 100% -- SUCCESS

Notifying services about system upgrade.
[####################] 100% -- SUCCESS



Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes  non-disruptive         reset
     2       yes  non-disruptive         reset
```

```
Images will be upgraded according to following table:
Module       Image         Running-Version             New-Version  Upg-Required
------  ----------  ----------------------  ----------------------  ------------
     1      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     1   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     2      system           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes
     2   kickstart           4.2(1)SV1(5.2)           4.2(1)SV2(1.1a)           yes


Module         Running-Version                                        ESX Version       VSM
Compatibility       ESX Compatibility
------  ----------------------  ----------------------------------------------------
----------------------  ----------------------
     3           4.2(1)SV1(4a)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE
     4           4.2(1)SV1(4a)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
  COMPATIBLE              COMPATIBLE

Do you want to continue with the installation (y/n)?  [n]
```

**Step 16** Continue with the installation by pressing Y.

**Note** If you press N, the installation exits gracefully.

```
Install is in progress, please wait.

Syncing image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin to standby.
[####################] 100% -- SUCCESS

Syncing image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin to standby.
[####################] 100% -- SUCCESS

Setting boot variables.
[####################] 100% -- SUCCESS

Performing configuration copy.
[####################] 100%2011 Mar 31 03:49:42 BL1-VSM %SYSMGR-STANDBY-5-CFGWRITE_STARTED:
Configuration copy started (PID 3660).
[####################] 100% -- SUCCESS
```

**Note** As part of the upgrade process, the standby VSM is reloaded with new images. Once it becomes the HA standby again, the upgrade process initiates a switchover. The upgrade then continues from the new active VSM with the following output:

```
Continuing with installation, please wait

Module 2: Waiting for module online
-- SUCCESS

Install has been successful
```

**Step 17** After the installation operation completes, log in and verify that the switch is running the required software version.

```
switch# show version
Nexus1000v# show version
Cisco Nexus Operating System (NX-OS) Software
```

```
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2012, Cisco Systems, Inc. All rights reserved.
The copyrights to certain works contained herein are owned by
other third parties and are used and distributed under license.
Some parts of this software are covered under the GNU Public
License. A copy of the license is available at
http://www.gnu.org/licenses/gpl.html.

Software
  loader:    version unavailable [last: loader version not available]
  kickstart: version 4.2(1)SV2(1.1a) [build 4.2(1)SV2(1.1a)]
  system:    version 4.2(1)SV2(1.1a) [build 4.2(1)SV2(1.1a)]
  kickstart image file is: bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin
  kickstart compile time:  1/11/2012 3:00:00 [01/11/2012 12:49:49]
  system image file is:    bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin
  system compile time:     1/11/2012 3:00:00 [01/11/2012 13:42:57]


Hardware
  cisco Nexus 1000V Chassis ("Virtual Supervisor Module")
  Intel(R) Xeon(R) CPU         with 2075740 kB of memory.
  Processor Board ID T5056B1802D

  Device name: Nexus1000v
  bootflash:    1557496 kB

Kernel uptime is 4 day(s), 8 hour(s), 31 minute(s), 3 second(s)


plugin
  Core Plugin, Ethernet Plugin, Virtualization Plugin
...
```

**Step 18** Copy the running configuration to the startup configuration to adjust the startup-cgf size.

```
switch# copy running-config startup-config
[########################################] 100%
switch#
```

**Step 19** Display the log of the last installation.

```
switch# show install all status
This is the log of last installation.

Verifying image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin for boot variable "kickstart".

 -- SUCCESS

Verifying image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin for boot variable "system".

 -- SUCCESS

Verifying image type.

 -- SUCCESS

Extracting "system" version from image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin.
```

```
 -- SUCCESS

Extracting "kickstart" version from image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin.

 -- SUCCESS

Notifying services about system upgrade.

 -- SUCCESS


Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
------  --------  --------------  ------------  ------
     1       yes  non-disruptive         reset
     2       yes  non-disruptive         reset



Images will be upgraded according to following table:
Module       Image         Running-Version             New-Version  Upg-Required
------  ----------  ----------------------  ----------------------  ------------
     1      system           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes
     1   kickstart           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes
     2      system           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes
     2   kickstart           4.2(1)SV1(5.2)         4.2(1)SV2(1.1a)           yes


Images will be upgraded according to following table:
Module         Running-Version                                         ESX Version       VSM
Compatibility       ESX Compatibility
------  ----------------------  ----------------------------------------------------
----------------------  ----------------------
     3           4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
COMPATIBLE              COMPATIBLE
     4           4.2(1)SV1(5.2)         VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
COMPATIBLE              COMPATIBLE


Install is in progress, please wait.

Syncing image bootflash:/nexus-1000v-kickstart-4.2.1.SV2.1.1a.bin to standby.
 -- SUCCESS

Syncing image bootflash:/nexus-1000v-4.2.1.SV2.1.1a.bin to standby.
 -- SUCCESS

Setting boot variables.
 -- SUCCESS

Performing configuration copy.
 -- SUCCESS
```

```
Module 2: Waiting for module online.
 -- SUCCESS

Notifying services about the switchover.
 -- SUCCESS


"Switching over onto standby".
switch#
switch#
switch#

switch# attach module 2
Attaching to module 2 ...
To exit type 'exit', to abort type '$.'
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2011, Cisco Systems, Inc. All rights reserved.
The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under
license. Certain components of this software are licensed under
the GNU General Public License (GPL) version 2.0 or the GNU
Lesser General Public License (LGPL) Version 2.1. A copy of each
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(standby)#
switch(standby)# show install all status
This is the log of last installation.

Continuing with installation, please wait
Trying to start the installer...

Module 2: Waiting for module online.
 -- SUCCESS

Install has been successful.
switch(standby)#
```

# Upgrading VEMs

## VEM Upgrade Procedures

- VUM Upgrade Procedures
  - Set up VUM baselines. See Upgrading the ESXi Hosts to Release 5.x.
  - Initiate an upgrade from VUM. See Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24.

    - Upgrade VEM from VSM. See Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24.

- Manual upgrade procedures
    - Upgrading VIB Manually from the CLI. See Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 27

- Installing or upgrading stateless ESXi. See Installing the VEM Software on a Stateless ESXi Host.

VEM upgrades fall into three types:

- An upgrade of stateful ESXi host, without a migration from ESX (with a console OS) to ESXi. This upgrade type is described further in this section.
- An upgrade of a stateless ESXi host. This involves installing a new image on the host by updating the image profile and rebooting the host. The upgrade is described in Installing the VEM Software on a Stateless ESXi Host.

An upgrade of stateful ESXi host without a migration from ESX (which has a console OS) to ESXi falls into two separate workflows.

1. Upgrade the VEM alone, while keeping the ESXi version intact. The first figure shows this flow.
2. Upgrade the ESX/ESXi without a change of the Cisco Nexus 1000V version. This process is addressed in the Workflow 2 figure.

If you are using VUM, set up a host patch baseline with the VEM's offline bundle. Then follow Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24.

If you are upgrading from the command line, see Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 27.

- If you are using VUM version 5.0 or later, use the following method (independent of whether the VEM version is being changed as well):
    - If you are upgrading the ESXi host to a new update within a release, use a host upgrade baseline. For example, vSphere 5.0 GA to 5.0 U1.
    - If you are upgrading the ESXi host to a major release (for example, vSphere 4.1 U2 to 5.0 U1), generate an upgrade ISO and set up a host upgrade baseline. The upgrade ISO must have the desired final images for both ESXi and VEM. The procedure to generate an upgrade ISO is in Creating an Upgrade ISO with a VMware ESX Image and a Cisco Nexus 1000V VEM Image.
    - You can upgrade the ESXi version and VEM version simultaneously if you are using VUM 5.0 Update 1 or later. VUM 5.0 GA does not support a combined upgrade.

## VEM Upgrade Methods from Release 4.2(1)SV1(5x), or Release 4.2(1)SV2(1.1x) to the Current Release

There are two methods for upgrading the VEMs.

- Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 24
- Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release, on page 27

## Upgrading the VEMs Using VMware Update Manager from Release 4.2(1)SV1(5x) and Later Releases to the Current Release

**Caution** If removable media is still connected (for example, if you have installed the VSM using ISO and forgot to remove the media), host movement to maintenance mode fails and the VUM upgrade fails.

### SUMMARY STEPS

1. switch# **show vmware vem upgrade status**
2. switch# **vmware vem upgrade notify**
3. switch# **show vmware vem upgrade status**
4. switch# **show vmware vem upgrade status**
5. Initiate the VUM upgrade process with the following commands.
6. switch# **show vmware vem upgrade status**
7. Clear the VEM upgrade status after the upgrade process is complete with the following commands.
8. switch# **show module**

### DETAILED STEPS

**Step 1** switch# **show vmware vem upgrade status**
Display the current configuration.

**Note** The minimum release of Cisco Nexus 1000V for VMware ESXi 5.0.0 hosts is Release 4.2(1)SV1(5).

**Step 2** switch# **vmware vem upgrade notify**
Coordinate with and notify the server administrator of the VEM upgrade process.

**Step 3** switch# **show vmware vem upgrade status**
Verify that the upgrade notification was sent.

**Note** Verify that the Upgrade Status contains the highlighted text. If the text is not present, check the Upgrade Error line and consult the *Cisco Nexus 1000V Troubleshooting Guide*.

**Step 4** switch# **show vmware vem upgrade status**
Verify that the server administrator has accepted the upgrade in the vCenter. For more information about how the server administrator accepts the VEM upgrade, see Accepting the VEM Upgrade, on page 30. Coordinate the notification acceptance with the server administrator. After the server administrator accepts the upgrade, proceed with the VEM upgrade.

**Note** Verify that the Upgrade Status contains the highlighted text. If the text is not present, check the Upgrade Error line and consult the *Cisco Nexus 1000V Troubleshooting Guide*.

**Step 5** Initiate the VUM upgrade process with the following commands.

**Note** Before entering the following commands, communicate with the server administrator to confirm that the VUM process is operational.

The vCenter Server locks the DVS and triggers VUM to upgrade the VEMs.

a) switch# **vmware vem upgrade proceed**
b) switch# **show vmware vem upgrade status**

**Note** The DVS bundle ID is updated and is highlighted.

If the ESXi host is using ESXi 4.1.0 or a later release and your DRS settings are enabled to allow it, VUM automatically VMotions the VMs from the host to another host in the cluster and places the ESXi in maintenance mode to upgrade the VEM. This process is continued for other hosts in the DRS cluster until all the hosts are upgraded in the cluster. For details about DRS settings required and vMotion of VMs, visit the VMware documentation related to Creating a DRS Cluster.

**Step 6** switch# **show vmware vem upgrade status**
Check for the upgrade complete status.

**Step 7** Clear the VEM upgrade status after the upgrade process is complete with the following commands.

a) switch# **vmware vem upgrade complete**
b) switch# **show vmware vem upgrade status**

**Step 8** switch# **show module**
Verify that the upgrade process is complete.

The upgrade is complete.

---

The following example shows how to upgrade VEMs using VUM.

**Note** 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.

```
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG
switch#
switch# vmware vem upgrade notify
Warning:
Please ensure the hosts are running compatible ESX versions for the upgrade. Refer to
corresponding
"Cisco Nexus 1000V and VMware Compatibility Information" guide.
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Availability Notified in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter):
Upgrade Start Time:
```

```
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM:  VEM500-201306160100-BG
    DVS:  VEM410-201301152101-BG
switch#
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Accepted by vCenter Admin
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG
switch#
switch# vmware vem upgrade proceed
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade In Progress in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter) : Tue Apr 23 02:06:53 2013
Upgrade Start Time: : Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG
switch#
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Complete in vCenter
Upgrade Notification Sent Time: : Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): : Tue Apr 23 02:06:53 2013
Upgrade Start Time: : Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter): : Tue Apr 23 10:09:08 2013
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM410-201304160104-BG
    DVS: VEM410-201304160104-BG
switch#
switch# vmware vem upgrade complete
switch# show vmware vem upgrade status


Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG
switch#
switch# show module
Mod  Ports  Module-Type                       Model               Status
---  -----  --------------------------------  ------------------  ------------
1    0      Virtual Supervisor Module         Nexus1000V          ha-standby
2    0      Virtual Supervisor Module         Nexus1000V          active *
3    248    Virtual Ethernet Module           NA                  ok
4    248    Virtual Ethernet Module           NA                  ok

Mod  Sw                  Hw
---  ------------------  ------------------------------------------------
1    4.2(1)SV2(2.1)      0.0
```

```
2    4.2(1)SV2(2.1)      0.0
3    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-469512 (3.0)
4    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-623860 (3.0)

Mod  MAC-Address(es)                         Serial-Num
---  --------------------------------------  ----------
1    00-19-07-6c-5a-a8 to 00-19-07-6c-62-a8  NA
2    00-19-07-6c-5a-a8 to 00-19-07-6c-62-a8  NA
3    02-00-0c-00-03-00 to 02-00-0c-00-03-80  NA
4    02-00-0c-00-04-00 to 02-00-0c-00-04-80  NA

Mod  Server-IP        Server-UUID                           Server-Name
---  ---------------  ------------------------------------  --------------------
1    10.104.249.171   NA                                    NA
2    10.104.249.171   NA                                    NA
3    10.104.249.172   7d41e666-b58a-11e0-bd1d-30e4dbc299c0  10.104.249.172
4    10.104.249.173   17d79824-b593-11e0-bd1d-30e4dbc29a0e  10.104.249.173

* this terminal session
switch#
```

**Note** The lines with the bold characters in the preceding example display that all VEMs are upgraded to the current release.

## Upgrading the VEMs Manually from Release 4.2(1)SV1(5x) and Later Releases to the Current Release

### Before You Begin

**Note** If VUM is installed, it should be disabled.

To manually install or upgrade the Cisco Nexus 1000V VEM on an ESXi host, follow the steps in Upgrading the VEM Software Using the vCLI, on page 31.

To upgrade the VEMs manually, perform the following steps as network administrator:

**Note** This procedure is performed by the network administrator. Before proceeding with the upgrade, make sure that the VMs are powered off if you are not running the required patch level.

**Caution** If removable media is still connected, (for example, if you have installed the VSM using ISO and forgot to remove the media), host movement to maintenance mode fails and the VEM upgrade fails.

## SUMMARY STEPS

1. switch# **vmware vem upgrade notify**
2. switch# **show vmware vem upgrade status**
3. switch# **show vmware vem upgrade status**
4. Perform one of the following tasks:
5. switch# **vmware vem upgrade proceed**
6. switch# **show vmware vem upgrade status**
7. Coordinate with and wait until the server administrator upgrades all ESXi host VEMs with the new VEM software release and informs you that the upgrade process is complete.
8. switch# **vmware vem upgrade complete**
9. switch# **show vmware vem upgrade status**
10. switch# **show module**

## DETAILED STEPS

**Step 1** switch# **vmware vem upgrade notify**
Coordinate with and notify the server administrator of the VEM upgrade process.

**Step 2** switch# **show vmware vem upgrade status**
Verify that the upgrade notification was sent.

**Step 3** switch# **show vmware vem upgrade status**
Verify that the server administrator has accepted the upgrade in vCenter Server. For details about the server administrator accepting the VEM upgrade, see Accepting the VEM Upgrade, on page 30. After the server administrator accepts the upgrade, proceed with the VEM upgrade.

**Step 4** Perform one of the following tasks:

- If the ESXi host is not hosting the VSM, proceed to Step 5.
- If the ESXi host is hosting the VSM, coordinate with the server administrator to migrate the VSM to a host that is not being upgraded. Proceed to Step 5.

**Step 5** switch# **vmware vem upgrade proceed**
Initiate the Cisco Nexus 1000V Bundle ID upgrade process.

**Note** If VUM is enabled in the vCenter environment, disable it before entering the **vmware vem upgrade proceed** command to prevent the new VIBs from being pushed to all the hosts.

Enter the **vmware vem upgrade proceed** command so that the Cisco Nexus 1000V Bundle ID on the vCenter Server gets updated. If VUM is enabled and you do not update the Bundle ID, an incorrect VIB version is pushed to the VEM when you next add the ESXi to the VSM.

**Note** If VUM is not installed, the “The object or item referred to could not be found” error appears in the vCenter Server task bar. You can ignore this error message.

**Step 6** switch# **show vmware vem upgrade status**
Check for the upgrade complete status.

**Step 7** Coordinate with and wait until the server administrator upgrades all ESXi host VEMs with the new VEM software release and informs you that the upgrade process is complete.

The server administrator performs the manual upgrade by using the **vihostupdate** command or the **esxcli** command. For more information, see Upgrading the VEM Software Using the vCLI, on page 31.

**Step 8** switch# **vmware vem upgrade complete**
Clear the VEM upgrade status after the upgrade process is complete.

**Step 9** switch# **show vmware vem upgrade status**
Check the upgrade status once again.

**Step 10** switch# **show module**
Verify that the upgrade process is complete.

**Note** The line with the bold characters in the preceding example display that all VEMs are upgraded to the current release.

The upgrade is complete.

The following example shows how to upgrade VEMs manually.

**Note** 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.

```
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG
switch#
switch# vmware vem upgrade notify
Warning:
Please ensure the hosts are running compatible ESX versions for the upgrade. Refer to
corresponding
"Cisco Nexus 1000V and VMware Compatibility Information" guide.

switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Accepted by vCenter Admin
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM410-201301152101-BG

switch#
switch# vmware vem upgrade proceed
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade In Progress in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time: Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter):
Upgrade Error:
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG

switch# show vmware vem upgrade status
Upgrade VIBs: System VEM Image
Upgrade Status: Upgrade Complete in vCenter
Upgrade Notification Sent Time: Tue Apr 23 10:03:24 2013
Upgrade Status Time(vCenter): Tue Apr 23 02:06:53 2013
Upgrade Start Time: Tue Apr 23 10:09:08 2013
Upgrade End Time(vCenter):
Upgrade Error
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG

switch#
switch# vmware vem upgrade complete
switch# show vmware vem upgrade status

Upgrade VIBs: System VEM Image
Upgrade Status:
Upgrade Notification Sent Time:
Upgrade Status Time(vCenter):
Upgrade Start Time:
Upgrade End Time(vCenter):
Upgrade Error
Upgrade Bundle ID:
    VSM: VEM500-201306160100-BG
    DVS: VEM500-201306160100-BG

switch#
switch# 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
---  ------------------  ------------------------------------------------
1    4.2(1)SV2(2.1)  0.0
2    4.2(1)SV2(2.1)  0.0
3    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-843203 (3.0)
6    4.2(1)SV2(2.1)      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

* this terminal session
switch#
```

## Accepting the VEM Upgrade

### Before You Begin

- The network and server administrators must coordinate the upgrade procedure with each other.

- You have received a notification in the vCenter Server that a VEM software upgrade is available.

## SUMMARY STEPS

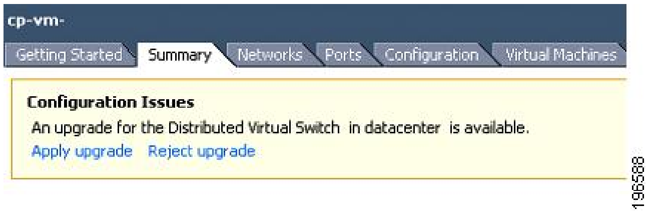
1. In the vCenter Server, choose **Inventory > Networking**.
2. Click the **vSphere Client DVS Summary** tab to check for the availability of a software upgrade.
3. Click **Apply upgrade**.

## DETAILED STEPS

**Step 1** In the vCenter Server, choose **Inventory > Networking**.

**Step 2** Click the **vSphere Client DVS Summary** tab to check for the availability of a software upgrade.

*Figure 9: vSphere Client DVS Summary Tab*



Configuration Issues

An upgrade for the Distributed Virtual Switch in datacenter is available.

Apply upgrade Reject upgrade

**Step 3** Click **Apply upgrade**.
The network administrator is notified that you are ready to apply the upgrade to the VEMs.

### Upgrading the VEM Software Using the vCLI

You can upgrade the VEM software by using the vCLI.

#### Before You Begin

- If you are using vCLI, do the following:
  - You have downloaded and installed the VMware vCLI. For information about installing the vCLI, see the VMware vCLI documentation.
  - You are logged in to the remote host where the vCLI is installed.

**Note** The vSphere command-line interface (vCLI) command set allows you to enter common system administration commands against ESXi systems from any machine with network access to those systems. You can also enter most vCLI commands against a vCenter Server system and target any ESXi system that the vCenter Server system manages. vCLI commands are especially useful for ESXi hosts because ESXi does not include a service console.

- Check *Cisco Nexus 1000V and VMware Compatibility Information* for compatible versions.
- You have already copied the VEM software installation file to the `/tmp` directory. Do not copy the files to the root (/) folder.
- You know the name of the VEM software file to be installed.

## SUMMARY STEPS

1. [root@serialport -]# **cd tmp**
2. Determine the upgrade method that you want to use and enter the appropriate command.
    - **vihostupdate**
      Installs the ESXi and VEM software simultaneously if you are using the vCLI.
3. For ESXi 5.0.0 or later hosts, enter the appropriate commands as they apply to you.
4. Display values with which to compare to *Cisco Nexus 1000V and VMware Compatibility Information* by typing the following commands.
5. switch# **show module**

## DETAILED STEPS

**Step 1** [root@serialport -]# **cd tmp**
Go to the directory where the new VEM software was copied.

**Step 2** Determine the upgrade method that you want to use and enter the appropriate command.

- **vihostupdate**
  Installs the ESXi and VEM software simultaneously if you are using the vCLI.

**Step 3** For ESXi 5.0.0 or later hosts, enter the appropriate commands as they apply to you.

a) ~ # **esxcli software vib install -d** *path/VEM_bundle*
b) ~ # **esxcli software vib install -v** *path/vib_file*

**Step 4** Display values with which to compare to *Cisco Nexus 1000V and VMware Compatibility Information* by typing the following commands.

a) [root@serialport tmp]# **vmware -v**
b) root@serialport tmp]# # **esxupdate query**
c) [root@host212 ~]# . ~ # **vem status -v**
d) [root@host212 ~]# **vemcmd show version**

**Step 5** switch# **show module**
Display that the VEMs were upgraded by entering the command on the VSM.

If the upgrade was successful, the installation procedure is complete.

The following example shows how to upgrade the VEM software using the vCLI.

**Note** 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.

```
[root@serialport -]# cd tmp
[root@serialport tmp]#
esxupdate -b [VMware offline update bundle] update
~ # esxcli software vib install -d /var/log/vmware/VEM500-201306160100-BG-zip
Installation Result
   Message: Operation finished successfully.
   Reboot Required: false
   VIBs Installed: Cisco_bootbank_cisco-vem-v160-esx_4.2.1.2.2.1.0-3.0.1
   VIBs Removed:
   VIBs Skipped:
~ #

~ # esxcli software vib install -v
/var/log/vmware/cross_cisco-vem-v160-4.2.1.2.2.1.0-3.0.1.vib
Installation Result
   Message: Operation finished successfully.
   Reboot Required: false
   VIBs Installed: Cisco_bootbank_cisco-vem-v160-esx_4.2.1.2.2.1.0-3.0.1
   VIBs Removed:
   VIBs Skipped:
~ #
[root@serialport tmp]# vmware -v
VMware ESXi 5.0.0 build-843203
root@serialport tmp]# # esxupdate query
------Bulletin ID------- -----Installed----- --------------Summary---------------
VEM500-201306160100 2013-04-21T08:18:22 Cisco Nexus 1000V 4.2(1)SV2(2.1)


[root@host212 ~]# . ~ # vem status -v
Package vssnet-esxmn-release
Version 4.2.1.2.2.1.0-3.0.1
Build 1
Date Sun Apr 21 04:56:14 PDT 2013

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
~ #


[root@host212 ~]# vemcmd show version
vemcmd show version
VEM Version: 4.2.1.2.2.1.0-3.0.1
VSM Version: 4.2(1)SV2(2.1) [build 4.2(1)SV2(2.1)]
System Version: VMware ESXi 5.0.0 Releasebuild-843203

~ #
switch# 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
---  ------------------  ------------------------------------------------
1    4.2(1)SV2(2.1)   0.0
2    4.2(1)SV2(2.1)   0.0
```

```
3    4.2(1)SV2(2.1)      VMware ESXi 5.0.0 Releasebuild-843203 (3.0)
6    4.2(1)SV2(2.1)      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

switch#
```

**Note** The highlighted text in the previous command output confirms that the upgrade was successful.