



## **Cisco Nexus 5000 Series NX-OS Software Upgrade and Downgrade Guide, Release 4.2(1)N1(1)**

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# CHAPTER 1

## Cisco Nexus 5000 Series NX-OS Software Upgrade and Downgrade Guide

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This document describes how to upgrade or downgrade Cisco NX-OS software for the Cisco Nexus 5000 Series switches and Cisco Nexus 2000 Series Fabric Extenders.

This document includes these sections:

- [Information About Software Images, page 1](#)
- [Information About In-Service Software Upgrades, page 2](#)
- [Upgrading Cisco Nexus 2000 Series Fabric Extenders, page 12](#)
- [Upgrading From Cisco NX-OS Release 4.1\(3\)N2\(1\) and Earlier Releases \(Disruptive Upgrade\), page 13](#)
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## Information About Software Images

Cisco Nexus 5000 Series switches are shipped with the Cisco NX-OS software pre-installed on the switches. Before upgrading from an existing image, you should read through the information in this document to understand the guidelines, prerequisites, and procedures for upgrading software.

The Cisco NX-OS software consists of the kickstart image and the system image. The image files are located in directories or folders that you can access from the Cisco NX-OS software prompt. Image filenames identify the software release.

The running configuration is saved to the bootflash image which is located on the supervisor module.

## Information About Disruptive and NonDisruptive Upgrades

Cisco NX-OS software upgrades can be disruptive or nondisruptive. A disruptive upgrade triggers a switch reload for the new image to take effect and the data plane and control plane go down. Upgrades from Cisco NX-OS Release 4.1(3)N2(1) or earlier releases are disruptive. Upgrades that are disruptive should be done during scheduled maintenance.

A nondisruptive upgrade does not trigger a switch reload to make the new image take effect. The data plane remains up while the control plane goes down for approximately 80 seconds. A nondisruptive upgrade is known as an In-Service Software Upgrade (ISSU). Cisco NX-OS Release 4.2(1)N1(1) and later releases support ISSU. An ISSU increases network availability and reduces downtime caused by planned software upgrades.

To perform an ISSU, two conditions are required:

- The Spanning Tree Protocol can not be enabled on switches below the parent Cisco Nexus 5000 Series switch.
- The Spanning Tree Bridge Assurance feature can not be configured except on the vPC peer link.

If the above conditions are not met when you upgrade from NX-OS Release 4.2(1)N2(1) or later releases, then you have the option to perform a nondisruptive or a disruptive upgrade. For information on performing either a nondisruptive or disruptive upgrade, see *Upgrading from Cisco NX-OS Release 4.2(1)N1(1) and Later Releases*.

## Information About In-Service Software Upgrades

As of Cisco NX-OS Release 4.2(1)N1(1), In-Service Software Upgrades (ISSUs) are supported on the Cisco Nexus 5000 Series switches. An ISSU can update the software images on your device without disrupting data traffic. Only control traffic is disrupted.

ISSU-supported hardware includes the following:

- Cisco Nexus 5000 2RU Chassis no PS, 5 Fan Modules, 40 ports (N5K-C5020P-BF)
- Cisco Nexus 5000 1RU Chassis no PS, 2 Fan Modules, 20 ports (N5K-C5010P-BF)
- Cisco Fabric Extenders
  - Cisco Nexus 2148T Fabric Extender (model#)
  - Cisco Nexus 2248TP Fabric Extender (model#)
  - Cisco Nexus 2232PP Fabric Extender (model#)
- Cisco Expansion Modules
  - Cisco Nexus 5000 1000 Series Module 6-port 10 Gigabit Ethernet ( N5K-M1600(=) )
  - Cisco Nexus 5000 1000 Series Module 4x10GE 4xFC 4/2/1 ( N5K-M1404(=) )
  - Cisco Nexus 5000 1000 Series Module 6xFC 8/4/2/1 ( N5K-M1060(=) )
  - Cisco Nexus 5000 1000 Series Module 8xFC 4/2/1 ( N5K-M1008(=) )

An ISSU updates the following images:

- Kickstart image
- System image
- Fabric extender image

Performing an ISSU requires specific conditions. Read the following section to determine if you can perform an ISSU.

## Prerequisites and Guidelines for ISSUs

Before performing an ISSU, review the prerequisites and guidelines described in this section.

### ISSU Prerequisites

To perform a nondisruptive ISSU from Cisco NX-OS Release 4.2(1)N1(1) or later release, the following conditions must be met:

- STP can not be enabled on switches under the parent Cisco Nexus 5000 Series switch.
- The STP Bridge Assurance feature can not be configured except on a vPC peer link.

If the STP conditions are not met, the installation check will indicate that the upgrade would be disruptive. In this case, you can perform an upgrade at a later time or perform a disruptive upgrade.

### ISSU Guidelines

Before performing an ISSU, follow these guidelines:

- **Configuration Changes**

You cannot enter configuration mode during an ISSU. You should save, commit, or discard any active configuration sessions before upgrading or downgrading the Cisco NX-OS software image. The active configuration session is deleted without warning during a reload.

Use the **show configuration session summary** command to verify that there are no active configuration sessions.

```
switch# show configuration session summary
There are no active configuration sessions
```

For more information on configuration sessions, see the *Cisco Nexus 5000 Series System Management Configuration Guide*.

- **Topology Changes**

You should make topology changes such as STP or FC fabric changes that affect zoning, Fabric Shortest Path First (FSPF), or domain manager should be done before you perform an ISSU. You should perform module installations or removals only before or after an ISSU.

- **Scheduling**

You should upgrade when your network is stable and steady. Ensure that everyone who has access to the switch or the network is not configuring the switch or the network during this time. You cannot configure a switch during an upgrade.

- **Space**

Verify that sufficient space is available in the location where you are copying the images. The internal bootflash has approximately 200 MB of free space available.

- **Hardware**

Avoid power interruptions during an install procedure. Power interruptions can corrupt the software image.

- **Ethernet interfaces on the switch and the Fabric Extenders**

To avoid link down to link up transitions during the control plane outage time, the laser is turned off for administratively up ports that are operationally down. This situation occurs during the ISSU reboot starting state when the Cisco Nexus 5000 Series switch and the Cisco Nexus 2000 Series Fabric Extender applications stop communicating with each other. After the ISSU reboot and a stateful restart, the laser is turned back on. This action effectively prevents the link state from transitioning from down to up during an ISSU.

- **Connectivity to remote servers**

Configure the IPv4 address or IPv6 address for the 10/100/1000 BASE-T Ethernet port connection (interface mgmt0). Ensure that the switch has a route to the remote server. The switch and the remote server must be in the same subnetwork if you do not have a router to route traffic between subnets.

- **Software images**

Ensure that the specified system and kickstart images are compatible with each other as follows:

- If the kickstart image is not specified, the switch uses the current running kickstart image.
- If you specify a different system image, ensure that it is compatible with the running kickstart image.
- Retrieve compatible images in one of two ways:
  - **Locally**  
Images are locally available on the switch.
  - **Remotely**  
Images are in a remote location and you specify the destination using the remote server parameters and the filename to be used locally.

- **Commands**

Use the following commands to prepare for and install the new software:

- Use the **ping** command to verify connectivity to the remote server.
- Use the **dir** command to verify the required space is available for the image files to be copied.
- Use the **show install all impact** command to identify the upgrade impact. This command displays information describing the impact of the upgrade on each Fabric Extender such as the current and upgrade-image versions. This command also displays if the upgrade is disruptive or the reason why the upgrade is disruptive and if the Fabric Extender needs to be rebooted, and the reason why it needs to be rebooted.



**Note**

Before you can perform an ISSU, the primary switch and the Fabric Extender must show *copy-only* or *non-disruptive upgrade* for the upgrade type.

- Use the **show incompatibility system** command to find if there are any configurations on the current system that would be incompatible with the new software version. If there are incompatible configurations, they need to be removed for a non-disruptive ISSU.
- Use the **show spanning-tree issu-impact** command on the Cisco Nexus 5000 Series switches in a Virtual Portchannel (vPC) topology before performing an ISSU to review the spanning-tree configuration. The Nexus 5000 Series switches must have the following configuration:
  - The spanning-tree configuration cannot have any designated port, with the exception of ports that are configured as a port-type edge with Bridge Protocol Data Unit (BPDU) Filtering.
  - Bridge Assurance must be disabled on all ports except on the peer-link where it is possible to keep Bridge Assurance enabled. Bridge Assurance operates only when a port is configured as a spanning-tree port type network. Ports that are configured as default or as normal do not run Bridge Assurance.

**Note**

Do not disable Bridge Assurance globally if you are running vPC because this may cause a Type-1 global inconsistency.

- The Cisco Nexus 5000 Series switch cannot be the STP root bridge or have any designated non-edge ports in the STP topology.
- The Cisco Nexus 5000 Series switch and the Cisco Nexus 2000 Fabric Extenders that are undergoing an ISSU must be a leaf on the spanning tree.
- Use the **install all** command to upgrade the Cisco Nexus 5000 Series switches in the topology. Using the **install all** command on the first switch upgrades the attached Cisco Nexus 2000 Series Fabric Extender as well.

**Note**

If you upgrade a Cisco Nexus 5000 Series switch that is part of a vPC topology, make sure to upgrade one switch at a time. After the first switch upgrade is complete, then begin to upgrade the next switch. You must allow each switch to finish the upgrade before you upgrade the next switch in the topology.

- Run only one installation on a switch at a time.
- Do not issue another command while running the installation.
- If the Fabric Extender are not compatible with the software image that you install on the Cisco Nexus 5000 Series switch, some traffic disruption may occur depending on your configuration. The **install all** command output will provide options for you to choose to proceed with the upgrade or end the upgrade.

**• Terminology**

This table summarizes the terms used in the **install all** command output to verify module and software image compatibility.

**Table 1: install all Command Output Terminology**

Term		Definition
bootable		The ability of the module to boot or not boot based on image compatibility.
impact		The type of software upgrade mechanism—disruptive or nondisruptive.
install-type	reset	Resets the module.
	sw-reset	Resets the module immediately after a switchover.
	rolling	Upgrades each module in sequence.
	copy-only	Updates the software for BIOS, loader, or bootrom.

## Protocol Guidelines

The following protocol guidelines apply when performing an ISSU on Cisco Nexus 5000 Series switches and Cisco Nexus 2000 Series fabric extenders:

- **Telnet and SSH**

When you restart the switch after an ISSU, all active Telnet and SSH sessions to the switch are disconnected. You must reestablished these connections once the switch is back online. All Telnet and SSH sessions that originate from the switch to any external switch or Fabric Extender are also disconnected and will also need to be reestablished.

- **HTTP**

The HTTP sessions to the Cisco Nexus 5000 Series switch are disconnected during an ISSU reboot. After the ISSU reboot, the HTTP service is restarted.

- **Network Time Protocol**

The Network Time Protocol (NTP) sessions to and from the switch are disrupted during an ISSU. After an ISSU, the NTP session will be re-established based on the saved startup configuration.

- **AAA/Radius**

Applications that leverage the AAA Service (such as "Login") will be disabled during an ISSU. Since all network management services are disabled during this time, this behavior is consistent.

- **Control Plane**

During an ISSU, the control plane functions of the switch are temporarily suspended for less than 80 seconds. Configuration changes are not allowed during this time. If a change does occur, the impact can be varied. To ensure a nondisruptive upgrade, you should perform an ISSU when there are no changes to the fabric.

- **Cisco Fabric Services**

If you enable Cisco Fabric Services (CFS) for an application, the configuration for the application on a switch triggers a lock on all switches in the fabric for that application.

As part of the upgrade process, CFS checks to see if an application is locked. If there is a lock on an application, the ISSU upgrade request fails; you should perform an upgrade later when the CFS lock is released.

During an ISSU, a CFS distribution cannot occur until the upgrade is complete.

- **N-Port Virtualization**

If an N-Port Virtualization (NPV) uplink port is down during an ISSU, the NPV process cannot react and servers are not notified when an F Port link is down. A failover to a secondary uplink, if it exists, does not occur until the ISSU is complete.

- **FLOGI and FDISC Handling**

When an F Port is undergoing an ISSU upgrade, the NPV process is down. Any FLOGI, FDISC login, or login request from a server fails until the ISSU has completed.

- **Fabric Shortest Path First**

FSPF declares a link down if it does not receive a hello packet from a peer within the specified dead time interval. You can configure the FSPF hello and dead time intervals on each interface. The values must be the same for the ports at both ends of the ISL. If the hello and dead time intervals do not match, the hello messages are discarded.

As part of the upgrade process, FSPF checks the dead time interval on all interfaces. If any of the dead time intervals are less than 80 seconds, the ISSU does not begin. You can perform an upgrade after you increase the dead time interval. Before a switch reboot (an ISSU automatically reboots the switch), FSPF sends out hello packets on all interfaces to prevent a neighbor switch from marking the route to the ISSU switch as down in its route calculation because the neighbor switch did not get a hello message within the dead time interval.

When an ISSU is in progress, route changes in the fabric are not processed, for example, when an E Port (or TE Port) is brought down.

- **Zone Server**

An ISSU will stop if a zone merge or zone change request is in progress. During an ISSU, since EPP and merge requests are not processed, a peer switch is not able to bring up E ports (or TE ports) connected to the switch undergoing an ISSU until the ISSU is complete.

A peer switch zone change request will not be answered by a switch undergoing an ISSU. Zone configuration changes on other switches connected to a switch undergoing an ISSU will fail until the ISSU is complete.

- **LACP**

IEEE 802.3ad provides for the default slow aging timers to be transmitted once every 30 seconds in steady state and will expire after 90 seconds. An ISSU should not impact peers that rely on LACP because the recovery time is less than 90 seconds.

Fast LACP timers (hello=1 sec, dead=3 sec) is not supported by a nondisruptive ISSU.

- **IGMP**

IGMP will not disrupt existing flows of multicast traffic that are already present, but new flows will not be learned (they will be dropped) until an ISSU completes. New router ports or changes to router ports will also not be detected during this time

- **DCBX and LLDP**

DCBX uses LLDP to exchange parameters between peer devices. Since DCBX is a link-local protocol, when the switch undergoes an ISSU, the age time is increased on all ports on switches and fabric extenders that are being upgraded. The configuration will be ignored if manually specified.

- **CDP**

During an ISSU, the time-to-live value is increased (to 180 seconds) if it is less than the recommended timeout value. The configuration will be ignored if manually specified.

## ISSU Failure Conditions

The following conditions will stop an ISSU process from continuing:

- If the supervisor module bootflash: file system does not have sufficient space to accept the updated image.
- If images are incompatible after an upgrade. For example, an I/O module image may be incompatible with the system image, or a kickstart image may be incompatible with a system image. This condition is shown in the **show install all impact** command output in the compatibility check section of the output (under the Bootable column).
- If the specified system and kickstart images are not compatible.
- If configuration changes are made while the upgrade is in progress.
- If hardware is installed or removed while the upgrade is in progress.
- If there is a power disruption while the upgrade is in progress.
- If the entire path for the remote server location is not specified accurately.

The Cisco NX-OS software prevents most configuration changes while the **install all** command is in progress. However, the Cisco NX-OS software allows configuration changes from Cisco Fabric Services (CFS) and those changes may affect the ISSU.

## Using the install all Command

The **install all** command triggers the ISSU on Cisco Nexus 5000 Series switches and Cisco Nexus 2000 Series Fabric Extenders. The command provides the following benefits:

- You can upgrade the Cisco Nexus 5000 Series switches and the Nexus 2000 Series Fabric Extenders using just one command.
- You can receive descriptive information about the intended changes to your system before you continue with the installation. For example, it identifies potential disruptive upgrades.
- You can continue or cancel the upgrade when you see this question (the default is **no**):

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

- You can upgrade the Cisco NX-OS software using a nondisruptive procedure.
- The command automatically checks the image integrity, which includes the running kickstart and system images. The command sets the kickstart and system boot variables.
- The 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 EXEC prompt.
- After issuing the **install all** command, if any step in the sequence fails, the upgrade ends.
- The following message appears to warn you about the impact of upgrading the power sequencer:  
Warning: please do not remove or power off the module at this time.  
Note: Power-seq upgrade needs a power-cycle to take into effect.  
On success of power-seq upgrade, SWITCH OFF THE POWER to the system and then, power it up.
- You can force a disruptive upgrade. For information on forcing an upgrade, see *Forcing an Upgrade*.

## Determining the Upgrade Impact

This table lists the **show** commands that identify the impact or potential problems that may occur when performing an ISSU.

**Table 2: Upgrade Impact Show Commands**

Command	Definition
<b>show incompatibility system</b>	Displays incompatible configurations on the current system that will impact the upgrade version.
<b>show install all impact</b>	Displays information that describes the impact of the upgrade on each Fabric Extender including the current and upgrade-image versions. This command also displays if the upgrade is disruptive or not and if the Fabric Extender needs to be rebooted, and the reason why.
<b>show spanning-tree issu-impact</b>	Displays the spanning-tree configuration and whether or not there are potential STP issues.
<b>show lacp issu-impact</b>	Displays the port priority information and whether or not there are potential issues.

## Monitoring the Upgrade Status

This table lists the **show** commands that are used to monitor installation upgrades.

**Table 3: Upgrade Status Commands**

Command	Definition
<b>show fex</b>	Displays the fabric extender status during an ISSU.

Command	Definition
<b>show install all failure-reason</b>	Displays the applications that failed during an installation and why the installation failed.
<b>show install all status</b>	Displays a high-level log of the installation.
<b>show system internal log install details</b>	Displays detailed logs of the last installation-related command.
<b>show system internal log install history</b>	Displays detailed logs of the last five installation-related commands, from oldest to newest.
<b>show tech-support</b>	Displays the system and configuration information that you can provide to the Cisco Technical Assistance Center when reporting a problem.

The following example shows the output from the **show install all status** command:

```

There is an on-going installation...
Enter Ctrl-C to go back to the prompt.

Continuing with installation process, please wait.
The login will be disabled until the installation is completed.

Performing supervisor state verification.
SUCCESS

Supervisor non-disruptive upgrade successful.

Pre-loading modules.
SUCCESS

Module 198: Non-disruptive upgrading.
SUCCESS

Module 199: Non-disruptive upgrading.
SUCCESS

Install has been successful.  (hit Ctrl-C here)

switch#

```

The following example shows the output from the **show fex** command on two vPC peer switches where Fex 198 and Fex 199 are upgraded:

```

switch-1# show fex
      FEX      FEX      FEX      FEX
Number  Description  State      Model      Serial
-----
198     FEX0198        Hitless Upg Idle  N2K-C2248TP-1GE  JAF1342ANQP
199     FEX0199                Online  N2K-C2248TP-1GE  JAF1342ANRL

switch-2# show fex
      FEX      FEX      FEX      FEX
Number  Description  State      Model      Serial
-----
198     FEX0198        FEX AA Upg Idle  N2K-C2248TP-1GE  JAF1342ANQP
199     FEX0199                Online  N2K-C2248TP-1GE  JAF1342ANRL

```

## Verifying the vPC Status on a Peer Switch During an Upgrade

To view the vPC status, enter the **show vpc** command on a peer switch.

```
switch-2# show vpc
Legend:
(*) - local vPC is down, forwarding via vPC peer-link

vPC domain id : 1000
Peer status : peer adjacency formed ok
vPC keep-alive status : Suspended during ISSU
Configuration consistency status: success
vPC role : primary, operational secondary
Number of vPCs configured : 100
Peer Gateway : Disabled
Dual-active excluded VLANs : 40

vPC Peer-link status
-----
id   Port   Status Active vlans
--   ---   -
1    Po100  up      1,40
```

## Viewing System Messages on Peer Switches

A keepalive message such as the following may appear on a peer switch during an upgrade:

```
2010 Feb  4 00:09:26 MN5020-4 %$ VDC-1 %$ %VPC-2-PEER_KEEP_ALIVE_RECV_FAIL: In domain 1000,
VPC peer
keep-alive receive has failed
```

Installation status messages such as the following may appear on peer switches as the primary switch is upgraded.

```
switch-2# 2010 Jun 10 18:27:25 N5K2 %$ VDC-1 %$ %SATCTRL-2-SATCTRL_IMAGE: FEX100 Image
update in progress.
```

```
switch-2# 2010 Jun 10 18:32:54 N5K2 %$ VDC-1 %$ %SATCTRL-2-SATCTRL_IMAGE: FEX100 Image
update complete. Install pending
```

## Verifying the Status of the Fabric Extenders During a Disruptive Upgrade

When the first Cisco Nexus 5000 Series switch in a topology is rebooted during a disruptive upgrade, you can verify the status of the Fabric Extenders.

To view the status of the Fabric Extenders, enter the **show fex** command after the switch reboots.

**switch-1# show fex 100**

```
FEX: 100 Description: FEX0100    state: Image Download
FEX version: 4.1(3)N1(1) [Switch version: 4.2(1)N1(1)]
pinning-mode: static    Max-links: 1
Fabric port for control traffic: Eth1/37
Fabric interface state:
  Po5 - Interface Up. State: Active
  Eth1/37 - Interface Up. State: Active
```

To view the status of the Fabric Extenders on a secondary peer switch, enter the **show fex** command.

**switch-2# show fex 100**

```
FEX: 100 Description: FEX0100    state: Online
FEX version: 4.1(3)N1(1) [Switch version: 4.1(3)N1(1)]
Extender Model: N2K-C2148T-1GE,  Extender Serial: JAF1343BHCK
Part No: 73-12009-06
```

```
pinning-mode: static      Max-links: 1
Fabric port for control traffic: Eth1/37
Fabric interface state:
  Po5 - Interface Up. State: Active
  Eth1/37 - Interface Up. State: Active
```

**Note**

Fabric Extender rolling upgrades can also be monitored using the console port or you can Telnet back into the primary switch and enter the **show install all status** command.

## Upgrading Cisco Nexus 2000 Series Fabric Extenders

The Cisco Nexus 2000 Series Fabric Extender is managed by its parent Cisco Nexus 5000 Series switch over the fabric interfaces through a zero-touch configuration model. You upgrade the Fabric Extender by upgrading the software on the parent Cisco Nexus 5000 Series switch.

When a Fabric Extender has been correctly associated with a parent switch, the following upgrade operations are performed:

- The switch checks the software image compatibility and upgrades the Fabric Extender if necessary.
- The switch pushes the configuration data to the fabric extender. The Fabric Extender does not store any configuration locally.
- The Fabric Extender updates the switch with its operational status. All fabric extender information is displayed using the switch commands for monitoring and troubleshooting.

**Note**

Prior to Cisco NX-OS Release 4.1(3)N1(1), a Cisco Nexus 2000 Series Fabric Extender could be managed by one parent switch only.

## Performing ISSU Rolling Upgrades on Fabric Extenders

Cisco NX-OS Release 4.2(1)N1(1) and later releases support ISSU rolling upgrades on all associated Cisco Nexus 2148T, Nexus 2248TP, and Nexus 2232PP Fabric Extenders.

In rolling upgrades, fabric extenders are upgraded one at a time. The upgrade of one fabric extender must finish successfully before the upgrade of the next fabric extender can begin. If an upgrade fails, then the ISSU stops. Upgrades to any subsequent fabric extenders are not completed.

In nonrolling upgrades, Fabric Extender are upgraded at the same time. Nonrolling upgrades are not supported in Cisco NX-OS Release 4.2(1)N1(1).

In vPC topologies, either the primary or secondary Cisco Nexus 5000 Series switch can upgrade all Fabric Extenders in the topology. The switch that you upgrade first upgrades the associated Fabric Extenders. You should upgrade the next switch after the first switch upgrades all associated Fabric Extenders. During this time, the two Cisco Nexus 5000 Series switches will temporarily run different Cisco NX-OS software versions.



# Upgrading From Cisco NX-OS Release 4.1(3)N2(1) and Earlier Releases (Disruptive Upgrade)

This section describes how to upgrade Cisco NX-OS software from Release 4.1(3)N2(1) and earlier releases. An upgrade from these releases will be disruptive. Upgrading Cisco NX-OS software on a Nexus 5000 Series switch will also upgrade any associated Fabric Extenders.

**Note**

To perform a nondisruptive upgrade from Release 4.2(1)N1(1) and later releases, see the *About In-Service Software Upgrades* section to determine whether or not you can perform an ISSU.

For important release-specific information, read the release notes for the new image file. See the *Cisco Nexus 5000 Series and Cisco Nexus 2000 Series Release Notes* at [http://www.cisco.com/en/US/products/ps9670/prod\\_release\\_notes\\_list.html](http://www.cisco.com/en/US/products/ps9670/prod_release_notes_list.html).

## Before You Begin

This procedure requires the following:

- You must be assigned the network-admin role to upgrade the software image on the switch.
- You must log in to the console port to perform the installation.

## SUMMARY STEPS

1. Log in to Cisco.com to access the Software Download Center. To log in to Cisco.com, go to <http://www.cisco.com/> and click **Log In** at the top of the page. Enter your Cisco username and password.
2. Select and download the kickstart and system software files to a local server.
3. Verify that the required space is available in the bootflash: directory for the image file(s) to be copied.
4. (Optional) If you need more space on the bootflash, delete unnecessary files to make space available.
5. Copy the new kickstart and system images to the switch bootflash by using a transfer protocol such as **ftp**, **tftp**, **scp**, or **sftp**. The examples in this procedure use **scp**.
6. Enter the **show install all impact** command to display the impact of the upgrade.
7. Enter the **install all** command to install the new images, specifying the new image names that you downloaded in the previous step.
8. Verify that the switch is running the required software release.

## DETAILED STEPS

### Step 1

Log in to Cisco.com to access the Software Download Center. To log in to Cisco.com, go to <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.

- a) Access the Software Download Center at <http://www.cisco.com/kobayashi/sw-center/index.shtml>
- a) Navigate to the software downloads for Cisco Nexus 5000 Series switches.

You see links to the download images for the switch.

**Step 2** Select and download the kickstart and system software files to a local server.

**Step 3** Verify that the required space is available in the bootflash: directory for the image file(s) to be copied.

```
switch# dir bootflash:
 4681      May 24 02:43:52 2010  config
13176836   May 24 07:19:36 2010  gdb.1
 49152     Jan 12 18:38:36 2009  lost+found/
 310556    Dec 23 02:53:28 2008  n1
20058112   Jun 25 23:17:44 2010  n5000-uk9-kickstart.4.1.3.N1.1.bin
20217856   May 09 23:17:11 2010  n5000-uk9-kickstart.4.0.1a.N1.0.62.bin
76930262   Jun 25 23:11:47 2010  n5000-uk9.4.1.3.N1.1.bin
103484727  May 09 23:10:02 2010  n5000-uk9.4.0.1a.N1.0.62.bin
```

```
Usage for bootflash://sup-local
 74934272 bytes used
 5550080 bytes free
80484352 bytes total
```

**Tip** We recommend that you keep the kickstart and system image files for at least one previous software release to use if the new image files do not load successfully.

**Step 4** (Optional) If you need more space on the bootflash, delete unnecessary files to make space available.

```
switch# delete bootflash:n5000-uk9-kickstart.4.0.1a.N1.0.62.bin
switch# delete bootflash:n5000-uk9.4.0.1a.N1.0.62.bin
```

**Step 5** Copy the new kickstart and system images to the switch bootflash by using a transfer protocol such as **ftp**, **tftp**, **scp**, or **sftp**. The examples in this procedure use **scp**.

```
switch# copy scp://user@scpserver.cisco.com/downloads/n5000-uk9.4.2.1.N1.1.bin
bootflash:n5000-uk9.4.2.1.N1.1.bin
switch# copy scp://user@scpserver.cisco.com/downloads/n5000-uk9-kickstart.4.2.1.N1.1.bin
bootflash:n5000-uk9-kickstart.4.2.1.N1.1.bin
```

**Step 6** Enter the **show install all impact** command to display the impact of the upgrade.

```
switch# show install all impact kickstart bootflash:n5000-uk9-kickstart.4.2.1.N1.1.bin system
bootflash:n5000-uk9.4.2.1.N1.1.bin
Verifying image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1.bin for boot variable
"kickstart".
[#####] 100% -- SUCCESS

Verifying image bootflash:/n5000-uk9.4.2.1.N1.1.bin for boot variable "system".
[#####] 100% -- SUCCESS

Verifying image type.
[#####] 50%
[#####] 100% -- SUCCESS

Extracting "system" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
[#####] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/n5000-uk9-kickstart.4.2.1.N
1.1.bin.
[#####] 100% -- SUCCESS

Extracting "bios" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
```

```
[#####] 100% -- SUCCESS
```

```
Extracting "fex" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
```

```
[#####] 100% -- SUCCESS
```

```
Notifying services about system upgrade.
```

```
[#####] 100% -- SUCCESS
```

```
Compatibility check is done:
```

Module	bootable	Impact	Install-type	Reason
1	yes	<b>disruptive</b>	<b>reset</b>	<b>Reset due to single supervisor</b>
100	yes	<b>disruptive</b>	<b>reset</b>	<b>Reset due to single supervisor</b>

```
Images will be upgraded according to following table:
```

Module	Image	Running-Version	New-Version	Upg-Required
1	system	4.1(3)N1(1)	4.2(1)N1(1)	yes
1	kickstart	4.1(3)N1(1)	4.2(1)N1(1)	yes
1	bios	v1.3.0(09/08/09)		no
100	fex	4.1(3)N1(1)	4.2(1)N1(1)	yes

## Step 7

Enter the **install all** command to install the new images, specifying the new image names that you downloaded in the previous step.

```
switch# install all kickstart bootflash:n5000-uk9-kickstart.4.2.1.N1.1.bin system
```

```
bootflash:n5000-uk9.4.2.1.N1.1.bin
```

```
Verifying image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1.bin for boot variable "kickstart".
```

```
[#####] 100% -- SUCCESS
```

```
Verifying image bootflash:/n5000-uk9.4.2.1.N1.1.bin for boot variable "system".
```

```
[#####] 100% -- SUCCESS
```

```
Verifying image type.
```

```
[#####] 100% -- SUCCESS
```

```
Extracting "system" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
```

```
[#####] 100% -- SUCCESS
```

```
Extracting "kickstart" version from image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1.bin.
```

```
[#####] 100% -- SUCCESS
```

```
Extracting "bios" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
```

```
[#####] 100% -- SUCCESS
```

```
Extracting "fex" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
```

```
[#####] 100% -- SUCCESS
```

```
Notifying services about system upgrade.
```

```
[#####] 100% -- SUCCESS
```

```
Compatibility check is done:
```

Module	bootable	Impact	Install-type	Reason
1	yes			
100	yes			

```

1      yes      disruptive      reset      Reset due to single supervisor
100    yes      disruptive      reset      Reset due to single supervisor

```

Images will be upgraded according to following table:

Module	Image	Running-Version	New-Version	Upg-Required
1	system	4.1(3)N1(1)	4.2(1)N1(1)	yes
1	kickstart	4.1(3)N1(1)	4.2(1)N1(1)	yes
1	bios	v1.3.0(09/08/09)		no
100	fex	4.1(3)N1(1)	4.2(1)N1(1)	yes

Switch will be reloaded for disruptive upgrade.

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

Install is in progress, please wait.

Setting boot variables.

[#####] 100% -- SUCCESS

Performing configuration copy.

[#####] 100% -- SUCCESS

Module 1: Refreshing compact flash and upgrading bios/loader/bootrom.

Warning: please do not remove or power off the module at this time.

[#####] 100% -- SUCCESS

#### Pre-loading modules.

[This step might take up to 20 minutes to complete - please wait.]

```
[#           ] 0%2010 Jun 10 18:27:25 N5K1 %$ VDC-1 %$ %SATCTRL-2-SATCTRL_IMAGE: FEX100
```

Image update in progress.

```
[#####      ] 20%
```

```
[#####      ] 25%2010 Jun 10 18:32:54 N5K1 %$ VDC-1 %$ %SATCTRL-2-SATCTRL_IMAGE: FEX100
```

Image update complete. Install pending

[#####] 100% -- SUCCESS

#### Finishing the upgrade, switch will reboot in 10 seconds.

switch#

switch#

switch# writing reset reason 31,

Broadcast message from root (Thu Jun 10 18:33:16 2010):

INIT: Sending processes the TERM signal

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM\_FORCE\_EXIT Service "stp" (PID 2843) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM\_FORCE\_EXIT Service "netstack" (PID 2782) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM\_FORCE\_EXIT Service "Security Daemon" (PID 2706) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM\_FORCE\_EXIT Service "Cert\_enroll Daemon" (PID 2707) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM\_FORCE\_EXIT Service "igmp" (PID 2808) is forced exit.

```
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "Radius Daemon" (PID 2806) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "AAA Daemon" (PID 2708) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "vshd" (PID 2636) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "vlan_mgr" (PID 2737) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "vdc_mgr" (PID 2681) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "urib" (PID 2718) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "u6rib" (PID 2717) is forced exit.
Jun 10 18:33:17 %TTYD-2-TTYD_ERROR TTYD Error ttyd bad select
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "statsclient" (PID 2684) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "smm" (PID 2637) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "res_mgr" (PID 2688) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "licmgr" (PID 2641) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "l3vm" (PID 2715) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "icmpv6" (PID 2781) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "eth_dstats" (PID 2700) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "arp" (PID 2780) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "fs-daemon" (PID 2642) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "ascii-cfg" (PID 2704) is forced exit.
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "adjmgr" (PID 2771) is forced exit.

Jun 10 18:33:19 Unexporting directories for NFS kernel daemon...done.
Stopping NFS kernel daemon: rpc.mountd rpc.nfsddone.
Unexporting directories for NFS kernel daemon...
done.
Stopping portmap daemon: portmap.
Stopping kernel log daemon: klogd.
Sending all processes the TERM signal... done.
Sending all processes the KILL signal... done.
Unmounting remote filesystems... done.
Deactivating swap...umount: none busy - remounted read-only
done.
Unmounting local filesystems...umount: none busy - remounted read-only
done.
mount: you must specify the filesystem type
Starting reboot command: reboot
```

Rebooting...

**Restarting system.**

The switch reboots and restarts with the new image.

For detailed information about the **install all** command, see *Using the **install all** Command*.

**Caution** After completing the installation, all traffic through the switch is disrupted while the switch reboots.

## Step 8 Verify that the switch is running the required software release.

```
switch# show version
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
Copyright © 2002-2010, 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
  BIOS:          version 1.2.0
  loader:        version N/A
  kickstart:     version 4.2(1)N1(1) [build 4.2(1)N1(0.96)]
  system:        version 4.2(1)N1(1) [build 4.2(1)N1(0.96)]
  BIOS compile time:      06/19/09
  kickstart image file is: bootflash:/n5000-uk9-kickstart.4.2.1.N1.0.96.bin
  kickstart compile time: 7/14/2010 4:00:00 [07/14/2010 04:27:38]
  system image file is:   bootflash:/n5000-uk9.4.2.1.N1.0.96.bin
  system compile time:    7/14/2010 4:00:00 [07/14/2010 05:20:12]

Hardware
  cisco Nexus5020 Chassis ("40x10GE/Supervisor")
  Intel® Celeron® M CPU with 2074240 kB of memory.
  Processor Board ID JAB1232002F

  Device name: switch
  bootflash: 1003520 kB

Kernel uptime is 13 day(s), 23 hour(s), 25 minute(s), 5 second(s)

Last reset at 720833 usecs after Tue Jul 14 11:18:32 2010

Reason: Reset by installer
System version: 4.2(1)N1(0.96)
Service:

plugin
  Core Plugin, Ethernet Plugin
```

### Related Topics

- [Using the install all Command](#), page 8

## Upgrading from Cisco NX-OS Release 4.2(1)N1(1) and Later Releases (NonDisruptive Upgrade)

This section describes how to upgrade Cisco NX-OS software from Release 4.2(1)N1(1) and later releases. Upgrading Cisco NX-OS software on a Cisco Nexus 5000 Series switch will also perform a rolling upgrade on any associated Fabric Extenders.

In topologies with multiple Cisco Nexus 5000 Series switches, you must choose which switch to upgrade first. You can upgrade either the primary or secondary switches first. The first switch that is upgraded will upgrade the associated Fabric Extenders. You must wait to upgrade additional switches until the first switch upgrade is complete. During the upgrade process, the switches will be run different software versions

An upgrade from NX-OS Release 4.2(1)N1(1) and later releases can be disruptive or nondisruptive. If the ISSU prerequisites are not met or if the installation checks determine that the installation would be disruptive, you can perform a disruptive upgrade. To perform a disruptive upgrade, follow the procedure described in *Upgrading from Cisco NX-OS Release 4.1(3)N2(1) and Earlier Releases (Disruptive Upgrade)*. If the ISSU prerequisites are met and if the installation checks determine that the installation is nondisruptive, you can follow the procedure described in this section.

For important release-specific information, read the release notes for the new image file. See the *Cisco Nexus 5000 Series and Cisco Nexus 2000 Series Release Notes* at [http://www.cisco.com/en/US/products/ps9670/prod\\_release\\_notes\\_list.html](http://www.cisco.com/en/US/products/ps9670/prod_release_notes_list.html).

### Before You Begin

This procedure requires the following:

- You must be assigned the network-admin role to upgrade the software image on the switch.
- You must log in to the console port to perform the installation.

## SUMMARY STEPS

1. Log in to the first Cisco Nexus 5000 Series switch. It is recommended that you log in to the console port. In vPC topologies, the first upgrade can be performed on either the primary or secondary switch in the topology.
2. Log in to Cisco.com to access the Software Download Center. To log in to Cisco.com, go to <http://www.cisco.com/> and click **Log In** at the top of the page. Enter your Cisco username and password.
3. Select and download the kickstart and system software files to the server.
4. Verify that the required space is available in the bootflash: directory for the image file(s) to be copied.
5. If you need more space in the bootflash: directory, delete unnecessary files to make space available.
6. Copy the Cisco NX-OS kickstart and system images to the bootflash using a transfer protocol such as **ftp:**, **tftp:**, **scp:**, or **sftp:**. The examples in this procedure use **scp:**.
  -
7. Compare the file sizes of the images that were transferred using the **dir bootflash** command. The file sizes of the images obtained from Cisco.com and the image sizes of the transferred files should be the same.
8. Complete Steps 1 through Step 9 for each Cisco Nexus 5000 Series switch in the topology.
9. On the first Cisco Nexus 5000 Series switch, enter the **show install all impact** command to identify the upgrade impact.
10. Enter the **show spanning-tree issu-impact** command to display the impact of the upgrade.
11. Enter the **show lacp issue-impact** command to display the impact of the upgrade.
12. Save the running configuration to the start configuration.
13. Enter the **show vpc role** command to verify the vPC switch role.
14. Enter the **install all** command to update to the latest Cisco NX-OS software.
15. Enter the **show install all status** command to verify the status of the installation.
16. Log in and upgrade the next Cisco Nexus 5000 Series switch beginning with Step 9.

## DETAILED STEPS

- 
- Step 1** Log in to the first Cisco Nexus 5000 Series switch. It is recommended that you log in to the console port. In vPC topologies, the first upgrade can be performed on either the primary or secondary switch in the topology.
- Note** To monitor the progress of the upgrade, log in to the console port. If you use Telnet or SSH to access the Nexus 5000 series switch, you will lose connectivity to the switch when the control plane is reloaded as part of the ISSU.
- Step 2** Log in to Cisco.com to access the Software Download Center. To log in to Cisco.com, go to <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.
- a) Access the Software Download Center at: <http://www.cisco.com/cisco/web/download/index.html>
  - a) Navigate to the software downloads for Cisco Nexus 5000 Series switches.  
You see links to the download images for the switch.
- Step 3** Select and download the kickstart and system software files to the server.
- Step 4** Verify that the required space is available in the bootflash: directory for the image file(s) to be copied.



**Tip** We recommend that you have the kickstart and system image files for at least one previous release on the switch. These can be used if the new image files do not load successfully.

```
switch# dir bootflash:
21778944      May 25 23:17:44 2010  n5000-uk9-kickstart.4.2.1.N1.1.bin

22557184      Jun 09 23:17:11 2010  n5000-uk9-kickstart.4.2.1.N1.1a.bin
20816384      Jun 27 22:28:55 2010  n5000-uk9-kickstart.4.2.1.N1.1b.bin

181095489     May 25 23:11:47 2010  n5000-uk9.4.2.1.N1.1.bin
181204582     Jun 09 23:10:02 2010  n5000-uk9.4.2.1.N1.1a.bin
181548598     Jun 27 22:34:46 2010  n5000-uk9.4.2.1.N1.1b.bin
```

```
Usage for bootflash://sup-local
609001181 bytes used
5550080 bytes free
603451101 bytes total
```

**Step 5** If you need more space in the bootflash: directory, delete unnecessary files to make space available.

```
switch# delete bootflash:n5000-uk9-kickstart.4.2.1.N1.1.bin
switch# delete bootflash:n5000-uk9.4.2.1.N1.1.bin
```

**Step 6** Copy the Cisco NX-OS kickstart and system images to the bootflash using a transfer protocol such as **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.

```
switch# copy scp://user@scpserver.cisco.com/downloads/n5000-uk9-kickstart.4.2.1.N1.1b.bin
switch# copy scp://user@scpserver.cisco.com/downloads/n5000-uk9.4.2.1.N1.1b.bin
```

.

**Step 7** Compare the file sizes of the images that were transferred using the **dir bootflash** command. The file sizes of the images obtained from Cisco.com and the image sizes of the transferred files should be the same.

**Step 8** Complete Steps 1 through Step 9 for each Cisco Nexus 5000 Series switch in the topology.

**Important** Be sure to copy the images to all Cisco Nexus 5000 Series switches in the topology *before* proceeding with the upgrade.

**Step 9** On the first Cisco Nexus 5000 Series switch, enter the **show install all impact** command to identify the upgrade impact.

```
switch# show install all impact kickstart bootflash:n5000-uk9-kickstart.4.2.1.N1.1b.bin system
bootflash:n5000-uk9.4.2.1.N1.1b.bin
```

```
Verifying image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1b.bin for boot variable "kickstart".
[#####] 100% -- SUCCESS
```

```
Verifying image bootflash:/n5000-uk9.4.2.1.N1.1b.bin for boot variable "system".
[#####] 100% -- SUCCESS
```

```
Verifying image type.
[#####] 50%
[#####] 100% -- SUCCESS
```

```

Extracting "system" version from image bootflash:/n5000-uk9.4.2.1.N1.1b.bin.
[#####] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1b.bin.
[#####] 100% -- SUCCESS

Extracting "bios" version from image bootflash:/n5000-uk9.4.2.1.N1.1b.bin.
[#####] 100% -- SUCCESS

Extracting "fex" version from image bootflash:/n5000-uk9.4.2.1.N1.1b.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
     100      yes  non-disruptive      rolling

Images will be upgraded according to following table:
Module      Image          Running-Version          New-Version  Upg-Required
-----  -
      1      system          4.2(1)N1(1a)          4.2(1)N1(1b)      yes
      1      kickstart      4.2(1)N1(1a)          4.2(1)N1(1b)      yes
      1      bios          v1.3.0(09/08/09)      v1.3.0(09/08/09)      no
     100      fex          4.2(1)N1(1a)          4.2(1)N1(1b)      yes
      1      power-seq          v1.2                  v1.2              no

```

**Step 10** Enter the **show spanning-tree issu-impact** command to display the impact of the upgrade.

**Note** The following conditions must be met on the primary and secondary switches for a nondisruptive ISSU:

- Topology changes can not occur.
- STP Bridge Assurance (BA) should not be configured on any port (except MCT).
- Non-edge designated forwarding ports (except MCT) should not exist.

```

switch# show spanning-tree issu-impact
Following are the statistics on this switch

```

```

No Active Topology change Found!
Criteria 1 PASSED !!

```

```

No Ports with BA Enabled Found!
Criteria 2 PASSED!!

```

```

No Non-Edge Designated Forwarding Ports Found!
Criteria 3 PASSED !!

```

```

ISSU Can Proceed! Check Peer Switch.

```

**Step 11** Enter the **show lacp issue-impact** command to display the impact of the upgrade.

```
switch# show lacp issue-impact
```

**Step 12** Save the running configuration to the start configuration.

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

**Step 13** Enter the **show vpc role** command to verify the vPC switch role.

```
switch# show vpc role
```

```
vPC Role status
-----
vPC role                : secondary, operational primary
Dual Active Detection Status : 0
vPC system-mac          : 00:23:04:ee:be:0a
vPC system-priority      : 32667
vPC local system-mac     : 00:0d:ec:fb:73:3c
vPC local role-priority  : 2
```

**Step 14** Enter the **install all** command to update to the latest Cisco NX-OS software.  
For detailed information on using the **install all** command, see *Using the install all Command*.

```
switch# install all kickstart n5000-uk9-kickstart.4.2.1.N1.1b.bin system n5000-uk9.4.2.1.N1.1b.bin
```

```
Verifying image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1b.bin for boot variable "kickstart".
[#####] 100% -- SUCCESS
```

```
Verifying image bootflash:/n5000-uk9.4.2.1.N1.1b.bin for boot variable "system".
[#####] 100% -- SUCCESS
```

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

```
Extracting "system" version from image bootflash:/n5000-uk9.4.2.1.N1.1b.bin.
[#####] 100% -- SUCCESS
```

```
Extracting "kickstart" version from image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1b.bin.
[#####] 100% -- SUCCESS
```

```
Extracting "bios" version from image bootflash:/n5000-uk9.4.2.1.N1.1b.bin.
[#####] 100% -- SUCCESS
```

```
Extracting "fex" version from image bootflash:/n5000-uk9.4.2.1.N1.1b.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
     100      yes  non-disruptive      rolling

```

Images will be upgraded according to following table:

Module	Image	Running-Version	New-Version	Upg-Required
1	system	4.2(1)N1(1a)	4.2(1)N1(1b)	yes
1	kickstart	4.2(1)N1(1a)	4.2(1)N1(1b)	yes
1	bios	v1.3.0(09/08/09)	v1.3.0(09/08/09)	no
100	fex	4.2(1)N1(1a)	4.2(1)N1(1b)	yes
1	power-seq	v1.2	v1.2	no

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

Install is in progress, please wait.

Notifying services about the upgrade.

[#####] 100% -- SUCCESS

Setting boot variables.

[#####] 100% -- SUCCESS

Performing configuration copy.

[#####] 100% -- SUCCESS

Module 1: Refreshing compact flash and upgrading bios/loader/bootrom/power-seq.

Warning: please do not remove or power off the module at this time.

Note: Power-seq upgrade needs a power-cycle to take into effect.

On success of power-seq upgrade, SWITCH OFF THE POWER to the system and then, power it up.

[#####] 100% -- SUCCESS

Upgrade can no longer be aborted, any failure will result in a disruptive upgrade.

Requesting Line Cards to stop communication.

[#####] 100% -- SUCCESS

Requesting Sup Apps to stop communication.

[#####] 100% -- SUCCESS

Freeing memory in the file system.

[#####] 100% -- SUCCESS

Loading images into memory.

[#####] 100% -- SUCCESS

Saving supervisor runtime state.

[#####] 100% -- SUCCESS

Saving mts state.

writing reset reason 88, <NULL>

[#####] 100% -- SUCCESS

Rebooting the switch to proceed with the upgrade.

```
All telnet and ssh connections will now be terminated.
Starting new kernel
Calling kexec callback
Moving to new kernel
Calling into reboot_code_buffer code
Starting kernel...
Usage: init 0123456SsQqAaBbCcUu
INIT: version 2.85 booting
I2C - Mezz present
Creating /callhome..
Mounting /callhome..
Creating /callhome done.
Callhome spool file system init done.
Checking all filesystems..... done.
.
Loading system software
Uncompressing system image: bootflash:/n5000-uk9.4.2.1.N1.1b.bin

Loading plugin 0: core_plugin...
plugin_link_to_exec_path: plugin_path = /isan/plugin/0, tar_log = /isan/plugin_extract_log/0
Loading plugin 1: eth_plugin...
plugin_link_to_exec_path: plugin_path = /isan/plugin/1, tar_log = /isan/plugin_extract_log/1
plugin_file_is_excluded_from_exec_path: /boot/ is excluded from linking
plugin_file_is_excluded_from_exec_path: /boot/etc/ is excluded from linking
plugin_file_is_excluded_from_exec_path: /boot/etc/plugin_exclude.conf is excluded from linking
plugin_file_is_excluded_from_exec_path: /boot/lib/ is excluded from linking
plugin_file_is_excluded_from_exec_path: /boot/lib/libplugin_sysreg.so is excluded from linking
plugin_file_is_excluded_from_exec_path: /boot/lib/libplugin_sysreg.so.0 is excluded from linking
plugin_file_is_excluded_from_exec_path: /boot/lib/libplugin_sysreg.so.0.0.0 is excluded from linking
plugin_file_is_excluded_from_exec_path: /boot/ is excluded from linking
INIT: Entering runlevel: 3om_exec_path: /boot/etc/ is excluded
Exporting directories for NFS kernel daemon...done.
Starting NFS kernel daemon:rpc.nfsd.
rpc.mountddone.

Setting envvar: SYSMGR_SERVICE_NAME to muxif_service
Set envvar SYSMGR_SERVICE_NAME to muxif_service
/isan/bin/muxif_config: argc:2
muxif_init....vacl: ret: 0
Set name-type for VLAN subsystem. Should be visible in /proc/net/vlan/config
Added VLAN with VID == 4042 to IF -:muxif:-
2010 Jun  9 23:43:56 N5K1 %$ VDC-1 %$ %USER-2-SYSTEM_MSG: CLIS: loading cmd files begin - clis

Continuing with installation process, please wait.
The login will be disabled until the installation is completed.
2010 Jun  9 23:44:25 N5K1 %$ VDC-1 %$ %KERN-2-SYSTEM_MSG: Starting kernel... - kernel

Performing supervisor state verification.
2010 Jun  9 23:44:25 N5K1 %$ VDC-1 %$ %KERN-0-SYSTEM_MSG: I2C - Mezz present - kernel
[#####] 100% -- SUCCESS

Supervisor non-disruptive upgrade successful.
Pre-loading modules.
[This step might take upto 20 minutes to complete - please wait.]
```

```
[*Warning -- Please do not abort installation/reload or powercycle fexes*]
[#                ] 0%2010 Jun  9 23:44:34 N5K1 %$ VDC-1 %$ %SATCTRL-FEX100-2-SATCTRL_IMAGE:
FEX100 Image update in progress.
2010 Jun  9 23:45:05 N5K1 %$ VDC-1 %$ %USER-2-SYSTEM_MSG: CLIS: loading cmd files end - clis
2010 Jun  9 23:45:05 N5K1 %$ VDC-1 %$ %USER-2-SYSTEM_MSG: CLIS: init begin - clis
2010 Jun  9 23:45:11 N5K1 %$ VDC-1 %$ %PFMA-2-FEX_STATUS: Fex 100 is online
[#####          ] 20%2010 Jun  9 23:50:46 N5K1 %$ VDC-1 %$ %SATCTRL-FEX100-2-SATCTRL_IMAGE:
FEX100 Image update complete. Install pending
[#####          ] 100% -- SUCCESS

Module 100: Non-disruptive upgrading.
[#                ] 0%2010 Jun  9 23:52:12 N5K1 %$ VDC-1 %$ %NOHMS-2-NOHMS_ENV_FEX_ONLINE:
FEX-100 On-line
2010 Jun  9 23:52:12 N5K1 %$ VDC-1 %$ %PFMA-2-FEX_STATUS: Fex 100 is online
[#####          ] 100% -- SUCCESS

Install has been successful.
```

**Step 15** Enter the **show install all status** command to verify the status of the installation.

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

Continuing with installation process, please wait.
The login will be disabled until the installation is completed.

Performing supervisor state verification.
SUCCESS

Supervisor non-disruptive upgrade successful.

Pre-loading modules.
SUCCESS

Module 100: Non-disruptive upgrading.
SUCCESS

Install has been successful.
```

**Step 16** Log in and upgrade the next Cisco Nexus 5000 Series switch beginning with Step 9. To monitor the progress of the upgrade, use the console port. If you use Telnet or SSH to access the Cisco Nexus 5000 series switch, you will lose connectivity to the switch when the control plane is reloaded as part of the ISSU.

## Forcing an Upgrade

During the process of upgrading from Release 4.2(1)N1(1) and later releases, if a disruptive upgrade is identified, you can force an upgrade by using the **install all force** command

```
.
switch # install all force kickstart bootflash:/kickstart_image.bin system
bootflash:/system_image.bin

Installer is forced disruptive

Verifying image bootflash:/kickstart_image.bin for boot variable "kickstart".
[#####] 100% -- SUCCESS

Verifying image bootflash:/system_image.bin for boot variable "system".
...
```

You can also add **force** at the end of the **install all** command as follows:

```
switch # install all kickstart bootflash:/kickstart_image.bin system
bootflash:/system_image.bin force

Installer is forced disruptive

Verifying image bootflash:/kickstart_image.bin for boot variable "kickstart".
...
```

## Monitoring vPC Peer Switches During an Upgrade

You can monitor vPC peer switches during upgrades using the console port, Telnet, or SSH sessions. The vPC switches will not disconnect during the installation process when the peer switch is undergoing an ISSU.

At the point during the upgrade when you choose to continue the installation, a message is displayed on Cisco Nexus 5000 Series switches in the vPC topology to indicate that an installation is occurring on a peer switch.

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

After selecting **y**, the following output is shown on the peer switches:

```
2010 Feb  4 00:07:16 MN5020-4 %$ VDC-1 %$ %VPC-2-VPC_ISSU_START: Peer vPC switch ISSU start,
locking configuration
```



### Note

During an upgrade, the configuration on peer switches is locked and the vPC state on vPC peer switches is suspended until the upgrade is complete.

## Configuration Examples for ISSUs

The following example shows the output of the **install all** command. The second example shows the output when the Fabric Extender rolling upgrades are occurring.



### Note

The output of the command depends on the software image.

```
switch# install all kickstart n5000-uk9-kickstart.4.2.1.N1.1b.bin system
n5000-uk9.4.2.1.N1.1b.bin

Verifying image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1b.bin for boot variable "kickstart".
[#####] 100% -- SUCCESS

Verifying image bootflash:/n5000-uk9.4.2.1.N1.1b.bin for boot variable "system".
[#####] 100% -- SUCCESS
```

```

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

Extracting "system" version from image bootflash:/n5000-uk9.4.2.1.N1.1b.bin.
[#####] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1b.bin.
[#####] 100% -- SUCCESS

Extracting "bios" version from image bootflash:/n5000-uk9.4.2.1.N1.1b.bin.
[#####] 100% -- SUCCESS

Extracting "fex" version from image bootflash:/n5000-uk9.4.2.1.N1.1b.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
     100         yes  non-disruptive      rolling

Images will be upgraded according to following table:
Module  Image      Running-Version  New-Version  Upg-Required
-----  -
      1    system      4.2(1)N1(1a)      4.2(1)N1(1b)      yes
      1  kickstart      4.2(1)N1(1a)      4.2(1)N1(1b)      yes
      1    bios      v1.3.0(09/08/09)  v1.3.0(09/08/09)      no
     100    fex      4.2(1)N1(1a)      4.2(1)N1(1b)      yes
      1 power-seq      v1.2              v1.2              no

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

Install is in progress, please wait.
Notifying services about the upgrade.
[#####] 100% -- SUCCESS

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

Performing configuration copy.
[#####] 100% -- SUCCESS

Module 1: Refreshing compact flash and upgrading bios/loader/bootrom/power-seq.
Warning: please do not remove or power off the module at this time.
Note: Power-seq upgrade needs a power-cycle to take into effect.
On success of power-seq upgrade, SWITCH OFF THE POWER to the system and then, power it up.
[#####] 100% -- SUCCESS

Upgrade can no longer be aborted, any failure will result in a disruptive upgrade.

Requesting Line Cards to stop communication.
[#####] 100% -- SUCCESS

Requesting Sup Apps to stop communication.
[#####] 100% -- SUCCESS

Freeing memory in the file system.
[#####] 100% -- SUCCESS

Loading images into memory.
[#####] 100% -- SUCCESS

Saving supervisor runtime state.
[#####] 100% -- SUCCESS

Saving mts state.
writing reset reason 88, <NULL>

```



```

#####] 100% -- SUCCESS

Rebooting the switch to proceed with the upgrade.
All telnet and ssh connections will now be terminated.
Starting new kernel
Calling kexec callback
Moving to new kernel
Calling into reboot_code_buffer code
Starting kernel...
Usage: init 0123456SsQqAaBbCcUu
INIT: version 2.85 booting
I2C - Mezz present
Creating /callhome..
Mounting /callhome..
Creating /callhome done.
Callhome spool file system init done.
Checking all filesystems..... done.
.
Loading system software
Uncompressing system image: bootflash:/n5000-uk9.4.2.1.N1.1b.bin

Loading plugin 0: core plugin...
plugin_link_to_exec_path: plugin_path = /isan/plugin/0, tar_log = /isan/plugin_extract_log/0
Loading plugin 1: eth plugin...
plugin_link_to_exec_path: plugin_path = /isan/plugin/1, tar_log = /isan/plugin_extract_log/1
plugin_file_is_excluded_from_exec_path: /boot/ is excluded from linking
plugin_file_is_excluded_from_exec_path: /boot/etc/ is excluded from linking
plugin_file_is_excluded_from_exec_path: /boot/etc/plugin_exclude.conf is excluded from
linking
plugin_file_is_excluded_from_exec_path: /boot/lib/ is excluded from linking
plugin_file_is_excluded_from_exec_path: /boot/lib/libplugin_sysreg.so is excluded from
linking
plugin_file_is_excluded_from_exec_path: /boot/lib/libplugin_sysreg.so.0 is excluded from
linking
plugin_file_is_excluded_from_exec_path: /boot/lib/libplugin_sysreg.so.0.0.0 is excluded
from linking
plugin_file_is_excluded_from_exec_path: /boot/ is excluded from linking
INIT: Entering runlevel: 3om_exec_path: /boot/etc/ is excluded
Exporting directories for NFS kernel daemon...done.
Starting NFS kernel daemon:rpc.nfsd.
rpc.mountddone.

Setting envvar: SYSMGR_SERVICE_NAME to muxif_service
Set envvar SYSMGR_SERVICE_NAME to muxif_service
/isan/bin/muxif_config: argc:2
muxif_init....vacl: ret: 0
Set name-type for VLAN subsystem. Should be visible in /proc/net/vlan/config
Added VLAN with VID == 4042 to IF -:muxif:-
2010 Jun  9 23:43:56 N5K1 %$ VDC-1 %$ %USER-2-SYSTEM_MSG: CLIS: loading cmd files begin -
clis

Continuing with installation process, please wait.
The login will be disabled until the installation is completed.
2010 Jun  9 23:44:25 N5K1 %$ VDC-1 %$ %KERN-2-SYSTEM_MSG: Starting kernel... - kernel

Performing supervisor state verification.
2010 Jun  9 23:44:25 N5K1 %$ VDC-1 %$ %KERN-0-SYSTEM_MSG: I2C - Mezz present - kernel
#####] 100% -- SUCCESS

Supervisor non-disruptive upgrade successful.
Pre-loading modules.
[This step might take upto 20 minutes to complete - please wait.]
[*Warning -- Please do not abort installation/reload or powercycle fexes*]
[#                ] 0%2010 Jun  9 23:44:34 N5K1 %$ VDC-1 %$
%SATCTRL-FEX100-2-SATCTRL_IMAGE: FEX100 Image update in progress.
2010 Jun  9 23:45:05 N5K1 %$ VDC-1 %$ %USER-2-SYSTEM_MSG: CLIS: loading cmd files end -
clis
2010 Jun  9 23:45:05 N5K1 %$ VDC-1 %$ %USER-2-SYSTEM_MSG: CLIS: init begin - clis
2010 Jun  9 23:45:11 N5K1 %$ VDC-1 %$ %PFMA-2-FEX_STATUS: Fex 100 is online
[#####                ] 20%2010 Jun  9 23:50:46 N5K1 %$ VDC-1 %$
%SATCTRL-FEX100-2-SATCTRL_IMAGE: FEX100 Image update complete. Install pending
#####] 100% -- SUCCESS

```

```
Module 100: Non-disruptive upgrading.
[#          ] 0%2010 Jun  9 23:52:12 N5K1 %$ VDC-1 %$
%NOHMS-2-NOHMS_ENV_FEX_ONLINE: FEX-100 On-line
2010 Jun  9 23:52:12 N5K1 %$ VDC-1 %$ %PFMA-2-FEX_STATUS: Fex 100 is online
[#####] 100% -- SUCCESS
```

Install has been successful.

**Note**

In vPC topologies, a message is displayed on all Cisco Nexus 5000 Series switches in the topology to indicate that an installation is occurring on a peer switch. For information on viewing the status of vPC switches during an upgrade, see *Monitoring vPC Peer Switches During an Upgrade*.

The following example shows the output on the Cisco Nexus 5000 Series switch when the switch has been upgraded and the rolling upgrade on the Fabric Extenders is occurring. The fabric extenders in the example are Fex 198 and Fex 199.

Pre-loading modules.

[This step might take upto 20 minutes to complete - please wait.]

```
2010 Feb  3 22:53:21 MN5010-3 %$ VDC-1 %$ %SATCTRL-FEX199-2-SATCTRL_IMAGE: FEX199 Image
update in progress.

2010 Feb  3 22:53:21 MN5010-3 %$ VDC-1 %$ %SATCTRL-FEX198-2-SATCTRL_IMAGE: FEX198 Image
update in progress.

2010 Feb  3 22:53:51 MN5010-3 %$ VDC-1 %$ %USER-2-SYSTEM_MSG: CLIS: loading cmd files end
- clis

2010 Feb  3 22:53:51 MN5010-3 %$ VDC-1 %$ %USER-2-SYSTEM_MSG: CLIS: init begin - clis

2010 Feb  3 22:53:59 MN5010-3 %$ VDC-1 %$ %PFMA-2-FEX_STATUS: Fex 198 is online

2010 Feb  3 22:53:59 MN5010-3 %$ VDC-1 %$ %PFMA-2-FEX_STATUS: Fex 199 is online
[#####          ] 25%2010 Feb  3 22:59:25 MN5010-3 %$ VDC-1 %$
%SATCTRL-FEX199-2-SATCTRL_IMAGE: FEX199 Image update complete. Install pending

2010 Feb  3 22:59:28 MN5010-3 %$ VDC-1 %$ %SATCTRL-FEX198-2-SATCTRL_IMAGE: FEX198 Image
update complete. Install pending
[#####] 100% -- SUCCESS
```

**Module 198: Non-disruptive upgrading.**

```
2010 Feb  3 23:00:40 MN5010-3 %$ VDC-1 %$ %NOHMS-2-NOHMS_ENV_FEX_ONLINE: FEX-198 On-line

2010 Feb  3 23:00:40 MN5010-3 %$ VDC-1 %$ %PFMA-2-FEX_STATUS: Fex 198 is online
[#####] 100% -- SUCCESS
```

**Module 199: Non-disruptive upgrading.**

```
2010 Feb  3 23:01:54 MN5010-3 %$ VDC-1 %$ %NOHMS-2-NOHMS_ENV_FEX_ONLINE: FEX-199 On-line

2010 Feb  3 23:01:54 MN5010-3 %$ VDC-1 %$ %PFMA-2-FEX_STATUS: Fex 199 is online

#####] 100% -- SUCCESS
```

Install has been successful.

**Note**

When the switch output shows Install has been successful... , the ISSU has completed on the first Cisco Nexus 5000 Series switch and the associated Cisco Nexus 2000 Series Fabric Extenders. If the upgrade is performed in a vPC topology, you must continue to upgrade each additional Cisco Nexus 5000 Series switch.

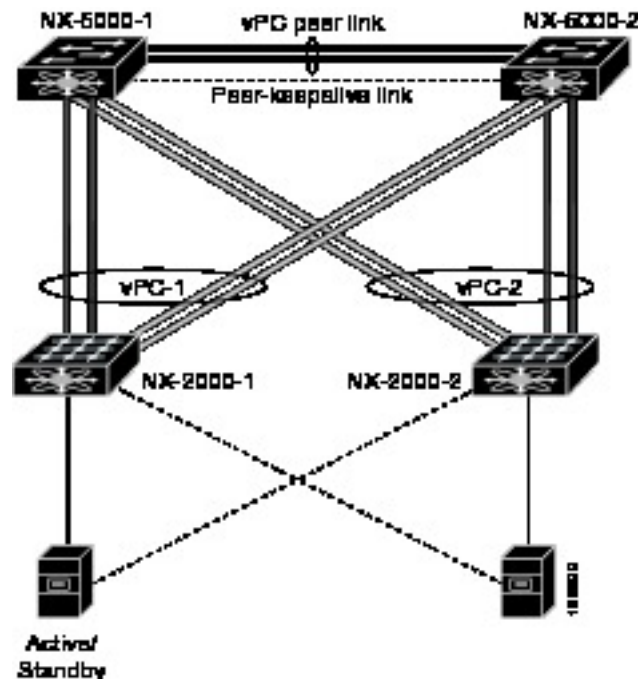
**Related Topics**

- [Monitoring vPC Peer Switches During an Upgrade, page 27](#)

## Configuration Example for a Fabric Extender Dual-Homed Topology Upgrade

This example shows the recommended steps to upgrade the switch software in the dual-homed topology shown in the figure below. In this topology, each fabric extender is dual-homed to a pair of Nexus 5000 Series switches and each server is configured with active/standby connections. During the upgrade, each server maintains its connectivity to the network while the switches and fabric extenders are upgraded. The example upgrade is from NX-OS Release 4.1(3)N1(1). This is a disruptive upgrade. For additional information on the disruptive upgrade procedure, see *Upgrading from cisco NX-OS Release 4.1(3)N2(1) and Earlier Releases (Disruptive Upgrade)*.

**Figure 1: Fabric Extender Dual-Homed Topology**



## Upgrading Fabric Extenders in a Dual-Homed Topology

**Before You Begin**

This procedure requires the following:

- You must be assigned the network-admin role to upgrade the software image on the switch.
- You must log in to the console port to perform the installation.

## SUMMARY STEPS

1. Log in to the primary switch using the console connection.
2. Download the appropriate kickstart and system images.
3. Copy the images to the bootflash of each Nexus 5000 Series switch.
4. Issue the **show install all impact** command.
5. Issue the **install all kickstart <image> system <image>** command.
6. Update the boot variable on the secondary switch to reflect the new image.
7. From the secondary switch, reload the first fabric extender and then the second fabric extender.
8. On the secondary switch, issue the **reload** command.

## DETAILED STEPS

**Step 1** Log in to the primary switch using the console connection.

**Step 2** Download the appropriate kickstart and system images.

**Step 3** Copy the images to the bootflash of each Nexus 5000 Series switch.

```
switch-1# dir bootflash:
 21778944   May 25 23:17:44 2010 n5000-uk9-kickstart.4.2.1.N1.1.bin
 22557184   Jun  9 23:17:11 2010 n5000-uk9-kickstart.4.1.3.N1.1.bin
181095489   May 25 23:11:47 2010 n5000-uk9.4.2.1.N1.1.bin
181204582   Jun  9 23:10:02 2010 n5000-uk9.4.1.3.N1.1.bin
```

**Step 4** Issue the **show install all impact** command.

```
switch-1# show install all impact kickstart bootflash:n5000-uk9-kickstart.4.2.1.N1.1.bin system
bootflash:n5000-uk9.4.2.1.N1.1.bin
```

```
Verifying image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1.bin for boot variable
"kickstart".
```

```
[#####] 100% -- SUCCESS
```

```
Verifying image bootflash:/n5000-uk9.4.2.1.N1.1.bin for boot variable "system".
```

```
[#####] 100% -- SUCCESS
```

```
Verifying image type.
```

```
[#####] 50%
```

```
[#####] 100% -- SUCCESS
```

```
Extracting "system" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
```

```
[#####] 100% -- SUCCESS
```

```
Extracting "kickstart" version from image bootflash:/n5000-uk9-kickstart.4.2.1.N
1.1.bin.
```

```
[#####] 100% -- SUCCESS
```

```
Extracting "bios" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
```

```
[#####] 100% -- SUCCESS
```

```
Extracting "fex" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
```

```
[#####] 100% -- SUCCESS
```

```

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

```

Compatibility check is done:

Module	bootable	Impact	Install-type	Reason
1	yes	disruptive	reset	Reset due to single supervisor
100	yes	disruptive	reset	Reset due to single supervisor

Images will be upgraded according to following table:

Module	Image	Running-Version	New-Version	Upg-Required
1	system	4.1(3)N1(1)	4.2(1)N1(1)	yes
1	kickstart	4.1(3)N1(1)	4.2(1)N1(1)	yes
1	bios	v1.3.0(09/08/09)		no
100	fex	4.1(3)N1(1)	4.2(1)N1(1)	yes

## Step 5

Issue the **install all kickstart <image> system <image>** command.

Substeps 5.a., 5.b., and 5.c. describe how to verify the status of the upgrade while it is occurring.

```

switch-1# install all kickstart bootflash:n5000-uk9-kickstart.4.2.1.N1.1.bin system
bootflash:n5000-uk9.4.2.1.N1.1.bin

```

```

Verifying image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1.bin for boot variable "kickstart".
[#####] 100% -- SUCCESS

```

```

Verifying image bootflash:/n5000-uk9.4.2.1.N1.1.bin for boot variable "system".
[#####] 100% -- SUCCESS

```

```

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

```

```

Extracting "system" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
[#####] 100% -- SUCCESS

```

```

Extracting "kickstart" version from image bootflash:/n5000-uk9-kickstart.4.2.1.N1.1.bin.
[#####] 100% -- SUCCESS

```

```

Extracting "bios" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
[#####] 100% -- SUCCESS

```

```

Extracting "fex" version from image bootflash:/n5000-uk9.4.2.1.N1.1.bin.
[#####] 100% -- SUCCESS

```

```

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

```

Compatibility check is done:

Module	bootable	Impact	Install-type	Reason
--------	----------	--------	--------------	--------

```

-----
      1      yes      disruptive      reset      Reset due to single supervisor
     100      yes      disruptive      reset      Reset due to single supervisor

```

Images will be upgraded according to following table:

Module	Image	Running-Version	New-Version	Upg-Required
1	system	4.1(3)N1(1)	4.2(1)N1(1)	yes
1	kickstart	4.1(3)N1(1)	4.2(1)N1(1)	yes
1	bios	v1.3.0(09/08/09)		no
100	fex	4.1(3)N1(1)	4.2(1)N1(1)	yes

**Switch will be reloaded for disruptive upgrade.**

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

Install is in progress, please wait.

Setting boot variables.

[#####] 100% -- SUCCESS

Performing configuration copy.

[#####] 100% -- SUCCESS

Module 1: Refreshing compact flash and upgrading bios/loader/bootrom.

Warning: please do not remove or power off the module at this time.

[#####] 100% -- SUCCESS

**Pre-loading modules.**

[This step might take upto 20 minutes to complete - please wait.]

[# ] 0%2010 Jun 10 18:27:25 N5K1 %\$ VDC-1 %\$ %SATCTRL-2-SATCTRL\_IMAGE: FEX100

Image update in progress.

[#### ] 20%

[##### ] 25%2010 Jun 10 18:32:54 N5K1 %\$ VDC-1 %\$ %SATCTRL-2-SATCTRL\_IMAGE: FEX100

Image update complete. Install pending

[#####] 100% -- SUCCESS

**Finishing the upgrade, switch will reboot in 10 seconds.**

switch-1#

switch-1#

switch-1# writing reset reason 31,

Broadcast message from root (Thu Jun 10 18:33:16 2010):

INIT: Sending processes the TERM signal

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM\_FORCE\_EXIT Service "stp" (PID 2843) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM\_FORCE\_EXIT Service "netstack" (PID 2782) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM\_FORCE\_EXIT Service "Security Daemon" (PID 2706) is forced exit.

```
Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "Cert_enroll Daemon" (PID 2707) is forced
exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "igmp" (PID 2808) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "Radius Daemon" (PID 2806) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "AAA Daemon" (PID 2708) is forced exit.


Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "vshd" (PID 2636) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "vlan_mgr" (PID 2737) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "vdc_mgr" (PID 2681) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "urib" (PID 2718) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "u6rib" (PID 2717) is forced exit.

Jun 10 18:33:17 %TTYD-2-TTYD_ERROR TTYD Error ttyd bad select


Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "statsclient" (PID 2684) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "smm" (PID 2637) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "res_mgr" (PID 2688) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "licmgr" (PID 2641) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "l3vm" (PID 2715) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "icmpv6" (PID 2781) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "eth_dstats" (PID 2700) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "arp" (PID 2780) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "fs-daemon" (PID 2642) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "ascii-cfg" (PID 2704) is forced exit.

Jun 10 18:33:17 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "adjmgr" (PID 2771) is forced exit.


Jun 10 18:33:19 Unexporting directories for NFS kernel daemon...done.
Stopping NFS kernel daemon: rpc.mountd rpc.nfsddone.
Unexporting directories for NFS kernel daemon...
done.
Stopping portmap daemon: portmap.
Stopping kernel log daemon: klogd.
Sending all processes the TERM signal... done.
Sending all processes the KILL signal... done.
Unmounting remote filesystems... done.
Deactivating swap...umount: none busy - remounted read-only
```

```
done.
Unmounting local filesystems...umount: none busy - remounted read-only
done.
mount: you must specify the filesystem type
Starting reboot command: reboot
```

**Rebooting...****Restarting system.**

The primary switch restarts with the new image.

- a) From the primary switch, verify the status of the fabric extender.

```
switch-1# show fex 100
FEX: 100 Description: FEX0100    state: Image Download
      FEX version: 4.1(3)N1(1) [Switch version: 4.2(1)N1(1)]
      pinning-mode: static      Max-links: 1
      Fabric port for control traffic: Eth1/37
      Fabric interface state:
        Po5 - Interface Up. State: Active
        Eth1/37 - Interface Up. State: Active
```

- b) During the software upgrade on the primary switch, you can view the fabric extender upgrade progress using the secondary vPC switch.

```
switch-2# 2010 Jun 10 18:27:25 N5K2 %% VDC-1 %% %SATCTRL-2-SATCTRL_IMAGE: FEX100 Image update
in progress.
```

```
switch-2# 2010 Jun 10 18:32:54 N5K2 %% VDC-1 %% %SATCTRL-2-SATCTRL_IMAGE: FEX100 Image update
complete. Install pending
```

- c) Verify the status of the fabric extender from the secondary switch.

```
switch-2# show fex 100
FEX: 100 Description: FEX0100    state: Online
      FEX version: 4.1(3)N1(1) [Switch version: 4.1(3)N1(1)]
      Extender Model: N2K-C2148T-1GE, Extender Serial: JAF1343BHCK
      Part No: 73-12009-06
      pinning-mode: static      Max-links: 1
      Fabric port for control traffic: Eth1/37
      Fabric interface state:
        Po5 - Interface Up. State: Active
        Eth1/37 - Interface Up. State: Active
```

**Note** The fabric extender remains online while the primary switch is reloaded.

## Step 6 Update the boot variable on the secondary switch to reflect the new image.

```
switch-2(config)# boot system bootflash:n5000-uk9.4.2.1.N1.1.bin
switch-2(config)# boot kickstart bootflash:n5000-uk9-kickstart.4.2.1.N1.1.bin
```

- a) Issue the **copy running startup-configuration** command.

```
switch-2(config)# copy running startup-configuration
[#####] 100%
```

## Step 7 From the secondary switch, reload the first fabric extender and then the second fabric extender.

```
switch-2# reload fex 100
WARNING: This command will reboot FEX 100
Do you want to continue? (y/n) [n] y
switch-2# 2010 Jun 10 18:49:54 N5K2 %% VDC-1 %% %PFMA-2-FEX_STATUS: Fex 100 is offline
2010 Jun 10 18:49:54 N5K2 %% VDC-1 %% %NOHMS-2-NOHMS_ENV_FEX_OFFLINE: FEX-100 Off-line (Serial Number
JAF1343BHCK)
```



**Note** Only the primary switch will show the fabric extender Online because the secondary switch does not have the new image. The secondary switch shows the fabric extender in the Image Download status.

```
switch-2# show fex 100
FEX: 100 Description: FEX0100      state: Image Download
    FEX version: 4.2(1)N1(1) [Switch version: 4.1(3)N1(1)]
    Extender Model: N2K-C2148T-1GE, Extender Serial: JAF1343BHCK
    Part No: 73-12009-06
    pinning-mode: static      Max-links: 1
    Fabric port for control traffic: Eth1/37
    Fabric interface state:
        Po5 - Interface Up. State: Active
        Eth1/37 - Interface Up. State: Active
switch-1# show fex 100
FEX: 100 Description: FEX0100      state: Online
    FEX version: 4.2(1)N1(1) [Switch version: 4.2(1)N1(1)]
    Extender Model: N2K-C2148T-1GE, Extender Serial: JAF1343BHCK
    Part No: 73-12009-06
    pinning-mode: static      Max-links: 1
    Fabric port for control traffic: Eth1/37
    Fabric interface state:
        Po5 - Interface Up. State: Active
        Eth1/37 - Interface Up. State: Active
```

**Note** Be sure the first fabric extender comes up before reloading the second fabric extender.

When all fabric extenders are loaded, go to the next step.

## Step 8

On the secondary switch, issue the **reload** command.

Be sure the first fabric extender comes up before reloading the second fabric extender.

**Note** Do not save the configuration. This insures that the fabric extenders are not lost because the secondary switch does not see the fabric extenders online.

```
switch-2# reload
WARNING: There is unsaved configuration!!!
WARNING: This command will reboot the system
Do you want to continue? (y/n) [n] y
2010 Jun 10 18:55:52 N5K2 %$ VDC-1 %$ %PFMA-2-PFM_SYSTEM_RESET: Manual system restart from Command
Line Interface writing reset reason 9,

INIT: Sending processes the TERM signal
Jun 10 18:55:57 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "statsclient" (PID 2684) is forced exit.

Jun 10 18:55:57 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "stp" (PID 2842) is forced exit.

Jun 10 18:55:57 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "netstack" (PID 2777) is forced exit.

Jun 10 18:55:57 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "Security Daemon" (PID 2706) is forced exit.

Jun 10 1Jun 10 18:55:57 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "ascii-cfg" (PID 2704) is forced
exit.

Jun 10 18:55:57 %LIBSYSMGR-3-SIGTERM_FORCE_EXIT Service "adjmgr" (PID 2767) is forced exit.

Unexporting directories for NFS kernel daemon...done.
Stopping NFS kernel daemon: rpc.mountd rpc.nfsddone.
Unexporting directories for NFS kernel daemon...
```

```

done.
Stopping portmap daemon: portmap.
Stopping kernel log daemon: klogd.
Sending all processes the TERM signal... done.
Sending all processes the KILL signal... done.
Unmounting remote filesystems... done.
Deactivating swap...umount: none busy - remounted read-only
done.
Unmounting local filesystems...umount: none busy - remounted read-only
done.
mount: you must specify the filesystem type
Starting reboot command: reboot
Rebooting...
Restarting system.

```

---

## Downgrading from a Higher Release

The procedure to downgrade the switch is identical to a switch upgrade, except that the image files to be loaded are for an earlier release than the image that is currently running on the switch.



### Note

Before you downgrade to a specific release, check the release notes for the current release installed on the switch, to ensure that your hardware is compatible with the specific release. You must be aware of special caveats before you downgrade the switch software to a Cisco NX-OS 4.0(0)-based release. See the *Cisco Nexus 5000 Series and Cisco Nexus 2000 Series Release Notes* for details.

---

### SUMMARY STEPS

1. Locate the image files that you will use for the downgrade by entering the **dir bootflash:** command.
2. Install the new images.
3. Verify that the switch is running the required software release.

### DETAILED STEPS

#### Step 1

Locate the image files that you will use for the downgrade by entering the **dir bootflash:** command. If the image files are not stored on the bootflash memory, download the files from Cisco.com:

- a) Log in to Cisco.com to access the Software Download Center. To log in to Cisco.com, go to <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.
- b) Access the Software Download Center at: <http://www.cisco.com/kobayashi/sw-center/index.shtml>
- c) Navigate to the software downloads for Cisco Nexus 5000 Series switches.  
 You see links to the download images for the switch.
- d) Read the release notes for the related image file and then select and download the kickstart and system software files to a local server.

- e) Ensure that the required space is available in the bootflash: directory for the image file(s) to be copied.

**Tip** We recommend that you keep the kickstart and system image files for at least one previous software release to use if the new image files do not load successfully.

- f) Copy the kickstart and system images to the switch bootflash by using a transfer protocol such as **ftp**, **tftp**, **scp**, or **sftp**.

## Step 2

Install the new images.

```
switch# install all kickstart bootflash:n5000-uk9-kickstart.4.0.1a.N1.0.62.bin system
bootflash:n5000-uk9.4.0.1a.N1.0.62.bin
```

For detailed information on using the **install all** command, see *Using the **install all** Command*.

The following message shows the impact of upgrading the power sequencer:

Warning: please do not remove or power off the module at this time.

Note: Power-seq upgrade needs a power-cycle to take into effect.

On success of power-seq upgrade, SWITCH OFF THE POWER to the system and then, power it up.

**Caution** After completing the installation, all traffic through the switch is disrupted while the switch reboots.

## Step 3

Verify that the switch is running the required software release.

```
switch# show version
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
Copyright ©) 2002-2009, 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
  BIOS:          version 1.2.0
  loader:        version N/A
  kickstart:     version 4.0(1a)N1(1) [build 4.0(1a)N1(0.62)]
  system:        version 4.0(1a)N1(1) [build 4.0(1a)N1(0.62)]
  BIOS compile time:      06/19/08
  kickstart image file is: bootflash:/n5000-uk9-kickstart.4.0.1a.N1.0.62.bin
  kickstart compile time: 7/14/2009 4:00:00 [07/14/2009 04:27:38]
  system image file is:   bootflash:/n5000-uk9.4.0.1a.N1.0.62.bin
  system compile time:    7/14/2009 4:00:00 [07/14/2009 05:20:12]

Hardware
  cisco Nexus5020 Chassis ("40x10GE/Supervisor")
  Intel® Celeron® M CPU with 2074240 kB of memory.
  Processor Board ID JAB1232002F

  Device name: switch
  bootflash: 1003520 kB

Kernel uptime is 13 day(s), 23 hour(s), 25 minute(s), 5 second(s)

Last reset at 720833 usecs after Tue Jul 14 11:18:32 2009
```

```
Reason: Reset by installer
System version: 4.0(1a)N1(0.62)
Service:
```

```
plugin
Core Plugin, Ethernet Plugin
```

---

### Related Topics

- [Using the install all Command](#), page 8

## Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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