



# Upgrading or Downgrading the Cisco Nexus 3500 Series NX-OS Software

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This chapter describes how to upgrade or downgrade the Cisco NX-OS software. It contains the following sections:

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## About the Software Image

Each device is shipped with the Cisco NX-OS software. The Cisco NX-OS software consists of two NXOS software images, kickstart image and systems image (for example: n3500-uk9-kickstart.6.0.2.A6.7.bin and n3500-uk9.6.0.2.A6.7.bin). Only these images are required to load the Cisco NX-OS operating system. These images run on all Cisco Nexus 3500 Series switches.



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**Note** Another type of binary file is the software maintenance upgrade (SMU) package file. SMUs contain fixes for specific defects. They are created to respond to immediate issues and do not include new features. SMU package files are available for download from Cisco.com and generally include the ID number of the resolved defect in the filename. For more information on SMUs, see the *Cisco Nexus 3500 Series NX-OS System Management Configuration Guide*.

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## Prerequisites for Upgrading the Cisco NX-OS Software

Upgrading the Cisco NX-OS software has the following prerequisites:

- Ensure that everyone who has access to the device or the network is not configuring the device or the network during this time. You cannot configure a device during an upgrade. Use the **show configuration session summary** command to verify that you have no active configuration sessions.
- Save, commit, or discard any active configuration sessions before upgrading or downgrading the Cisco NX-OS software image on your device. On a device with dual supervisors, the active supervisor module cannot switch over to the standby supervisor module during the Cisco NX-OS software upgrade if you have an active configuration session.
- Ensure that the device has a route to the remote server. The device and the remote server must be in the same subnetwork if you do not have a router to route traffic between subnets. To verify connectivity to the remote server, use the **ping** command.

```
switch# ping 172.18.217.1 vrf management
PING 172.18.217.1 (172.18.217.1): 56 data bytes
64 bytes from 172.18.217.1: icmp_seq=0 ttl=239 time=106.647 ms
64 bytes from 172.18.217.1: icmp_seq=1 ttl=239 time=76.807 ms
64 bytes from 172.18.217.1: icmp_seq=2 ttl=239 time=76.593 ms
64 bytes from 172.18.217.1: icmp_seq=3 ttl=239 time=81.679 ms
64 bytes from 172.18.217.1: icmp_seq=4 ttl=239 time=76.5 ms

--- 172.18.217.1 ping statistics ---
5 packets transmitted, 5 packets received, 0.00% packet loss
round-trip min/avg/max = 76.5/83.645/106.647 ms
```

For more information on configuration sessions, see the *Cisco Nexus 3500 Series NX-OS System Management Configuration Guide*.

## Prerequisites for Downgrading the Cisco NX-OS Software

Downgrading the Cisco NX-OS software has the following prerequisites:

- Verify the compatibility of the software using the **show incompatibility system bootflash:filename** command. If an incompatibility exists, disable any features that are incompatible with the downgrade image before downgrading the software.

## Cisco NX-OS Software Upgrade Guidelines



### Note

The *Cisco Nexus 3500 Series NX-OS Release Notes* contain specific upgrade guidelines for each release. See the Release Notes for the target upgrade release before starting the upgrade.

Before attempting to upgrade to any software image, follow these guidelines:

- Schedule the upgrade when your network is stable and steady.
- Avoid any power interruption, which could corrupt the software image, during the installation procedure.
- On devices with dual supervisor modules, both supervisor modules must have connections on the console ports to maintain connectivity when switchovers occur during a software upgrade. See the *Hardware Installation Guide* for your specific chassis.

- You must run the setup script after you upgrade to Cisco NX-OS Release 6.0(2)A8(9).

The following limitations are applicable when you upgrade from Cisco NX-OS Releases 6.0(2)A8(7b), 6.0(2)A8(8), or 6.0(2)A8(9):

- If Cisco Catalyst devices are connected via a vPC to a pair of Nexus 3500 switches with the vPC peer switch feature enabled, a partial or complete network outage may be caused as a result of the Cisco Catalyst devices error-disabling their port-channel interfaces due to EtherChannel Guard. To prevent this from happening, it is recommended that you must temporarily disable the EtherChannel Guard feature on vPC-connected Cisco Catalyst devices while the Nexus 3500 devices are being upgraded. For more information, see *CSCvt02249*.

## Cisco NX-OS Software Downgrade Guidelines

Before attempting to downgrade to an earlier software release, follow this guideline:

- On devices with dual supervisor modules, both supervisor modules must have connections on the console ports to maintain connectivity when switchovers occur during a software downgrade. See the *Hardware Installation Guide* for your specific chassis.

## Booting the Switch from the USB

Starting from Release Rel 6.0(2)A8(4), you can optionally choose to boot the switch from an external flash memory drive at the loader prompt. The supported BIOS version for the Cisco Nexus 3548P-10GX switch is 2.0.8 and for the Cisco Nexus 3548P-10G switch is 1.0.11. Following are the various options for loading the image from an external flash memory drive:

- You can load the kickstart image from USB1 when either the USB1 slot is occupied or when both the USB slots are occupied.

```
Loader> boot usb1: <kickstart image>
```

- You can load the kickstart image from USB2 only when the USB2 slot is occupied.

```
Loader> boot usb2: <kickstart image>
```

- You can load the kickstart image from USB2 when both the USB slots are occupied.

```
Loader> boot usb2: <kickstart image>
```

- You can load the kickstart image and the system image from USB1 when only the USB1 slot is occupied or when both the USB slots are occupied.

```
Loader> boot usb1: <kickstart image> usb1: <system image>
```

- You can load the kickstart image and the system image from USB2 when only the USB2 slot is occupied.

```
Loader> boot usb2: <kickstart image> usb2:<system image>
```

- You can load the kickstart image and the system image from USB2 when both the USB slots are occupied.

```
Loader> boot usb2: <kickstart image> usb2:<system image>
```

# Upgrading the Cisco NX-OS Software



**Note** If an error message appears during the upgrade, the upgrade will fail because of the reason indicated.

## Procedure

- Step 1** Read the release notes for the software image file for any exceptions to this upgrade procedure. See the *Cisco Nexus 3500 Series NX-OS Release Notes*.
- Step 2** Log in to the device on the console port connection.
- Step 3** Ensure that the required space is available for the image files to be copied.

```
switch# dir bootflash:
          9341   Aug 05 15:18:04 2020   .n3k_pre_single_img_upd_config
          4096   Jan 01 21:20:45 2011   .patch/
          4096   May 11 14:00:34 2020   .rpmstore/
          4096   May 11 14:01:03 2020   .swtam/
          4096   May 06 17:40:27 2020   eem_snapshots/
          4096   Sep 20 22:32:55 2011   home/
          4096   Aug 23 17:32:21 2019   logflash/
          36825088 Sep 12 13:11:09 2020   n3500-uk9-kickstart.6.0.2.A6.2a.bin
          36825088 Sep 12 12:27:25 2020   n3500-uk9-kickstart.6.0.2.A6.7.bin
          179930562 Sep 12 13:11:48 2020   n3500-uk9.6.0.2.A6.2a.bin
          180439452 Sep 12 12:31:05 2020   n3500-uk9.6.0.2.A6.7.bin
          4096   Jan 01 21:20:43 2011   vdc_2/
          4096   Jan 01 21:20:43 2011   vdc_3/
          4096   Jan 01 21:20:43 2011   vdc_4/
          4096   Jan 01 21:20:49 2011   virtual-instance/

Usage for bootflash://sup-local
  515342336 bytes used
 1379827712 bytes free
 1895170048 bytes total
```

**Note** We recommend that you have the image files for at least one previous release of the Cisco NX-OS software on the device to use if the new image files do not load successfully.

- Step 4** If you need more space on the device, delete unnecessary files to make space available.

```
switch# delete bootflash:n3500-uk9-kickstart.6.0.2.A6.2a.bin

switch# delete bootflash:n3500-uk9.6.0.2.A6.2a.bin
```

- Step 5** Log in to Cisco.com, choose the software image files for your device from the following URL, and download it to a file server: <http://software.cisco.com/download/navigator.html>.

- Step 6** Copy the software images to the device using a transfer protocol. You can use FTP, TFTP, SCP, or SFTP.

```
switch# copy scp://user@scpserver.cisco.com//download/n3500-uk9-kickstart.6.0.2.A8.11b.bin
bootflash:n3500-uk9-kickstart.6.0.2.A8.11b.bin

switch# copy scp://user@scpserver.cisco.com//download/n3500-uk9.6.0.2.A8.11b.bin
```

```
bootflash:n3500-uk9.6.0.2.A8.11b.bin
```

**Step 7** Check the impact of upgrading the software before actually performing the upgrade.

```
switch# show install all impact kickstart bootflash:n3500-uk9-kickstart.6.0.2.A8.11b.bin
system bootflash:n3500-uk9.6.0.2.A8.11b.bin
Installer is forced disruptive

Verifying image bootflash:/n3500-uk9-kickstart.6.0.2.A8.11b.bin for boot variable "kickstart".
[#####] 100% -- SUCCESS

Verifying image bootflash:/n3500-uk9.6.0.2.A8.11b.bin for boot variable "system".
[#####] 100% -- SUCCESS

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

Extracting "system" version from image bootflash:/n3500-uk9.6.0.2.A8.11b.bin.
[#####] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/n3500-uk9-kickstart.6.0.2.A8.11b.bin.
[#####] 100% -- SUCCESS

Extracting "bios" version from image bootflash:/n3500-uk9.6.0.2.A8.11b.bin.
[#####] 100% -- SUCCESS

Collecting "running" plugin(s) information.
[#####] 100% -- SUCCESS

Collecting plugin(s) information from "new" image.
[#####] 100% -- SUCCESS

Performing runtime checks.
[#####] 100% -- SUCCESS

Performing module support checks.
[#####] 100% -- SUCCESS

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

```
Compatibility check is done:
Module bootable Impact Install-type Reason
-----
1 yes disruptive reset Forced by the user
```

```
Images will be upgraded according to following table:
Module Image Running-Version New-Version Upg-Required
-----
1 system 6.0(2)A6(7) 6.0(2)A8(11b) yes
1 kickstart 6.0(2)A6(7) 6.0(2)A8(11b) yes
1 bios v5.4.0(10/23/2019) v1.9.0(10/13/2012) no
1 power-seq v2.1 v2.1 no
```

**Step 8** Save the running configuration to the startup configuration.

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

**Step 9** Upgrade the Cisco NX-OS software.

```

switch# install all kickstart bootflash:n3500-uk9-kickstart.6.0.2.A8.11b.bin
system bootflash:n3500-uk9.6.0.2.A8.11b.bin
Installer is forced disruptive

Verifying image bootflash:/n3500-uk9-kickstart.6.0.2.A8.11b.bin for boot variable "kickstart".
[#####] 100% -- SUCCESS

Verifying image bootflash:/n3500-uk9.6.0.2.A8.11b.bin for boot variable "system".
[#####] 100% -- SUCCESS

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

Extracting "system" version from image bootflash:/n3500-uk9.6.0.2.A8.11b.bin.
[#####] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/n3500-uk9-kickstart.6.0.2.A8.11b.bin.
[#####] 100% -- SUCCESS

Extracting "bios" version from image bootflash:/n3500-uk9.6.0.2.A8.11b.bin.
[#####] 100% -- SUCCESS

Collecting "running" plugin(s) information.
[#####] 100% -- SUCCESS

Collecting plugin(s) information from "new" image.
[#####] 100% -- SUCCESS

Performing runtime checks.
[#####] 100% -- SUCCESS

Performing module support checks.
[#####] 100% -- SUCCESS

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

Compatibility check is done:
Module  bootable          Impact  Install-type  Reason
-----  -----
      1      yes      disruptive      reset  Forced by the user

Images will be upgraded according to following table:
Module  Image                Running-Version  New-Version  Upg-Required
-----  -----
      1      system                6.0(2)A6(7)     6.0(2)A8(11b)  yes
      1      kickstart              6.0(2)A6(7)     6.0(2)A8(11b)  yes
      1      bios                   v5.4.0(10/23/2019)  v1.9.0(10/13/2012)  no
      1      power-seq              v2.1             v2.1           no

Switch will be reloaded for disruptive upgrade.
Do you want to continue with the installation (y/n)? [n] y

Time Stamp: Sat Sep 12 14:11:30 2020

Install is in progress, please wait.

Performing runtime checks.
[#####] 100% -- SUCCESS

```

```

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

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

Time Stamp: Sat Sep 12 14:11:49 2020

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

```

**Note** If you enter the **install all** command without specifying a filename, the command performs a compatibility check, notifies you of the modules that will be upgraded, and confirms that you want to continue with the installation. If you choose to proceed, it installs the NXOS software image that is currently running on the switch and upgrades the BIOS of various modules from the running image if required.

**Step 10** (Optional) Log in and verify that the device is running the required software version.

```
switch# show version
```

**Step 11** (Optional) If necessary, install any licenses to ensure that the required features are available on the device. See the *Cisco NX-OS Licensing Guide*.

## Upgrading the BIOS

Cisco NX-OS Release 6.0(2)A8(8) provides a new version of the BIOS which improves the performance of the Cisco Nexus 3500 Series switches. After you upgrade the Cisco Nexus 3500 Series switch from an earlier release to Cisco NX-OS Release 6.0(2)A8(8) using the **install all** command, you can install the new version of the BIOS using the **install bios-update** command.



**Note** When you use the NXAPI feature, we recommend that you upgrade the BIOS for an improvement in the performance. The latest BIOS versions are as follows:

- Cisco Nexus 3548 is 1.14.0
- Cisco Nexus 3548-X is 2.0.10

It is important that you reload the Cisco Nexus 3500 Series switch after the BIOS upgrade.

### Sample Log of the BIOS upgrade from Cisco NX-OS Release 6.0(2)A8(8)

```

switch# install bios-update
Installer is forced disruptive

Verifying image bootflash:/n3500-uk9-kickstart.6.0.2.A8.8.bin for boot variable "kickstart".
[#####] 100% -- SUCCESS

Verifying image bootflash:/n3500-uk9.6.0.2.A8.8.bin for boot variable "system".

```

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

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

Extracting "system" version from image bootflash:/n3500-uk9.6.0.2.A8.8.bin.
[#####] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/n3500-uk9-kickstart.6.0.2.A8.8.bin.
[#####] 100% -- SUCCESS

Extracting "bios" version from image bootflash:/n3500-uk9.6.0.2.A8.8.bin.
[#####] 100% -- SUCCESS

Collecting "running" plugin(s) information.
[#####] 100% -- SUCCESS

Collecting plugin(s) information from "new" image.
[#####] 100% -- SUCCESS

Performing runtime checks.
[#####] 100% -- SUCCESS

Performing module support checks.
[#####] 100% -- SUCCESS
```

Compatibility check is done:

Module	bootable	Impact	Install-type	Reason
1	yes	disruptive	reset	Forced by the user

Images will be upgraded according to following table:

Module	Image	Running-Version	New-Version	Upg-Required
1	system	6.0(2)A8(8)	6.0(2)A8(8)	no
1	bios	v1.9.0(10/13/2012)	v1.14.0(10/28/2017)	yes
1	power-seq	v2.1	v2.1	no

Switch will be reloaded for disruptive upgrade.

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

Time Stamp: Wed Feb 14 08:24:21 2001

Install is in progress, please wait.

```
Performing runtime checks.
[#####] 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.

[# ] 0%

Time Stamp: Wed Feb 14 08:28:09 2001

Install has been successful.

```
switch#
switch#
switch# show version
```



```
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
Documents: http://www.cisco.com/en/US/products/ps9372/tsd_products_support_series_home.html
Copyright (c) 2002-2018, 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 1.14.0 [last: 1.9.0]
loader: version N/A
kickstart: version 6.0(2)A8(8)
system: version 6.0(2)A8(8)
Power Sequencer Firmware:
Module 1: version v2.1
BIOS compile time: 10/28/2017 [last: 10/13/2012]
kickstart image file is: bootflash:///n3500-uk9-kickstart.6.0.2.A8.8.bin
kickstart compile time: 12/21/2017 5:00:00 [12/21/2017 14:36:09]
system image file is: bootflash:///n3500-uk9.6.0.2.A8.8.bin
system compile time: 12/21/2017 5:00:00 [12/21/2017 15:05:47]
```

```
Hardware
cisco Nexus 3548 Chassis ("48x10GE Supervisor")
Intel(R) Pentium(R) CPU @ 1.50GHz with 3805852 kB of memory.
Processor Board ID FOC16512H9C
```

```
Device name: switch
bootflash: 2007040 kB
```

```
Kernel uptime is 19 day(s), 9 hour(s), 42 minute(s), 27 second(s)
```

```
Last reset at 712488 usecs after Thu Jan 25 22:54:40 2001
Reason: Disruptive upgrade
System version: 6.0(2)A8(8)
Service:
```

```
plugin
Core Plugin, Ethernet Plugin
switch#
switch#
switch#
switch#
switch# reload
WARNING: This command will reboot the system
Do you want to continue? (y/n) [n] y
```

## Downgrading to an Earlier Software Release



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**Note** If an error message appears during the downgrade, the downgrade will fail because of the reason indicated. See the *Cisco Nexus 3500 Series NX-OS Troubleshooting Guide* for a list of possible causes and solutions.

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## Procedure

**Step 1** Read the release notes for the software image file for any exceptions to this downgrade procedure. See the *Cisco Nexus 3500 Series NX-OS Release Notes*.

**Step 2** Log in to the device on the console port connection.

**Step 3** Verify that the image files for the downgrade are present on the device bootflash:

```
switch# dir bootflash:
49152 May 10 14:43:39 2014 lost+found/
80850712 May 10 15:57:44 2014 n3500-uk9-kickstart.6.0.2.A6.7.bin
80850712 May 10 15:57:44 2014 n3500-uk9.6.0.2.A6.7.bin
...

Usage for bootflash://sup-local
 4825743360 bytes used
16312102912 bytes free
21137846272 bytes total
```

**Step 4** If the software image file is not present, log in to Cisco.com, choose the software image file for your device from the following URL, and download it to a file server: <http://software.cisco.com/download/navigator.html>.

**Note** If you need more space on the device bootflash:, use the **delete** command to remove unnecessary files.

**Step 5** Copy the software images to the device using a transfer protocol. You can use FTP, TFTP, SCP, or SFTP.

```
switch# copy scp://user@scpserver.cisco.com//download/n3500-uk9-kickstart.6.0.2.A6.7.bin
bootflash:n3500-uk9-kickstart.6.0.2.A6.7.bin
```

```
switch# copy scp://user@scpserver.cisco.com//download/n3500-uk9.6.0.2.A6.7.bin
bootflash:n3500-uk9.6.0.2.A6.7.bin
```

**Step 6** Check for any software incompatibilities.

```
switch# show incompatibility system bootflash:n3500-uk9.6.0.2.A6.7.bin
Checking incompatible configuration(s)
No incompatible configurations
```

The resulting output displays any incompatibilities and remedies.

**Step 7** Disable any features that are incompatible with the downgrade images.

**Step 8** Save the running configuration to the startup configuration.

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

**Step 9** Downgrade the Cisco NX-OS software.

```
switch# install all kickstart bootflash:n3500-uk9-kickstart.6.0.2.A6.7.bin system
n3500-uk9.6.0.2.A6.7.bin
Installer is forced disruptive
```

```
Verifying image bootflash:/n3500-uk9-kickstart.6.0.2.A6.7.bin for boot variable "kickstart".
[#####] 100% -- SUCCESS
```

```
Verifying image bootflash:/n3500-uk9.6.0.2.A6.7.bin for boot variable "system".
```

```

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

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

Extracting "system" version from image bootflash:/n3500-uk9.6.0.2.A6.7.bin.
[#####] 100% -- SUCCESS

Extracting "kickstart" version from image bootflash:/n3500-uk9-kickstart.6.0.2.A6.7.bin.
[#####] 100% -- SUCCESS

Extracting "bios" version from image bootflash:/n3500-uk9.6.0.2.A6.7.bin.
[#####] 100% -- SUCCESS

Collecting "running" plugin(s) information.
[#####] 100% -- SUCCESS

Collecting plugin(s) information from "new" image.
[#####] 100% -- SUCCESS

Performing runtime checks.
[#                               ] 100% -- SUCCESS

```

**Note** If you enter the **install all** command without specifying a filename, the command performs a compatibility check, notifies you of the modules that will be upgraded, and confirms that you want to continue with the installation. If you choose to proceed, it installs the NXOS software image that is currently running on the switch and upgrades the BIOS of various modules from the running image if required.

**Step 10** (Optional) Display the entire downgrade process.

**Example:**

```
switch# show install all status
```

**Step 11** (Optional) Log in and verify that the device is running the required software version.

```
switch# show version
```

