



Cisco Nexus 3600 Platform FPGA/EPLD Upgrade Release Notes, Release 10.5(3)

This document lists the current and past versions of EPLD images and describes how to update them for use with the Cisco Nexus 3636C-R, and 36180YC-R switches.

The table lists the changes to this document.

Date	Description
April 24, 2025	Release 10.5(3) became available.

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Introduction

The Cisco Nexus 9000 Series NX-OS mode switches contain several programmable logic devices (PLDs) that provide hardware functionalities in all modules. Cisco provides electronic programmable logic device (EPLD) image upgrades to enhance hardware functionality or to resolve known issues. PLDs include EPLDs, field programmable gate arrays (FPGAs), and complex programmable logic devices (CPLDs), but they do not include ASICs. In this document, the term EPLD is used for FPGA and CPLDs.

The advantage of having EPLDs for some module functions is that when you need to upgrade those functions, you just upgrade their software images instead of replacing their hardware.

Note: EPLD image upgrades for a line card disrupt the traffic going through the module because the module must power down briefly during the upgrade. The system performs EPLD upgrades on one module at a time, so at any one time the upgrade disrupts only the traffic going through one module.

Cisco provides the latest EPLD images with each release. Typically, these images are the same as provided in earlier releases but occasionally some of these images are updated. These EPLD image updates are not mandatory unless otherwise specified. The EPLD image upgrades are independent from the Cisco In Service Software Upgrade (ISSU) process, which upgrades the system and kickstart images with no impact on the network environment.

Note: Beginning with Release 10.5(3), Cisco provides a single image for NXOS and EPLD images. There will no longer be separate images. Instead, the EPLD image is bundled with all NXOS images and so the image sizes are correspondingly larger.

Here's the link to [Cisco Nexus 3600 Series NX-OS Software Upgrade and Downgrade Guide, Release 10.5\(x\)](#).

Starting with release 10.5(3), Cisco Nexus 3600 series top of rack (TOR) -R switches will use the 64-bit Cisco NXOS image file name with nxos64-msll as the prefix (for example, nxos64-msll.10.5.3.F.bin) for EPLD upgrades.

When Cisco makes an EPLD image upgrade available, these release notes announce their availability, and you can download them from here [Software Download page](#).

Deciding When to Upgrade EPLDs

When new EPLD images are available, the upgrades are always recommended if your network environment allows for a maintenance period in which some level of traffic disruption is acceptable. If such a disruption is not acceptable at this time, then you might consider postponing the upgrade until a better time.

Note: The EPLD upgrade operation is a disruptive operation. You should execute this operation only at a programmed maintenance time. The system ISSU upgrade is a nondisruptive upgrade.

Note: The EPLD upgrade will cause the 3600 TOR switch to reload.

Switch Requirements

- The Cisco Nexus 3600-R switches must be running the Cisco NX-OS operating system.

- You must be able to access the switch through a console, SSH, or Telnet (required for setting up a switch running in NX-OS mode but not required for a switch running in ACI-mode).
- You must have administrator privileges to work with the Cisco Nexus 9000 Series switch.

EPLD Upgrades Available for NX-OS Mode Release 10.5(3)

Each EPLD image that you can download from [Software Download page](#), is a bundle of EPLD upgrades. To see the updated EPLD versions for the Cisco Nexus 3600 platform switches, see the table.

Note: All updates to an image are shown in boldface

Available EPLD Images for the Cisco Nexus 3600 Platform Switches

Component	EPLD Device	Release 9.2(3)	Release 9.3(1)	Release 9.3(3)	Release 9.3(4)	Release 9.3(5)	Release 10.5(3)
Cisco Nexus 36180YC-R	MIFPGA	0x4 (0.004)	0x4 (0.004)	0x4 (0.004)	0x4 (0.004)	0x4 (0.004)	0x4 (0.004)
	IOFPGA	0x6 (0.006)	0x7 (0.007)	0x8 (0.008)	0x8 (0.008)	0x8 (0.008)	0x11 (0.011)
	CPU IOFPGA	0x6 (0.006)	0x8 (0.008)	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)
Cisco Nexus 3636C-R	MIFPGA	0x1 (0.001)	0x1 (0.001)	0x1 (0.001)	0x1 (0.001)	0x1 (0.001)	0x1 (0.001)
	IOFPGA	0x5 (0.005)	0x6 (0.006)	0x7 (0.007)	0x7 (0.007)	0x7 (0.007)	0x7 (0.007)
	CPU IOFPGA	0x6 (0.006)	0x8 (0.008)	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)

Determining Whether to Upgrade EPLD Images

To determine which devices need upgraded EPLDs, use the `show install impact epld bootflash: command` for a device and indicate the latest NXOS image file (`nxos64-msll.10.5.3.F.bin`). The output for this command indicates the current EPLD images, new EPLD images, and whether the upgrades would be disruptive to switch operations. If the currently installed EPLD version number is greater than the new EPLD image number, you can skip the upgrade.

- To determine the EPLD upgrades needed for a Cisco Nexus 3600 series TOR -R switches, use the `show install impact epld bootflash: command` on that switch and indicate the `nxos64-msll.10.5.3.F.bin`. In the following example, the IOFPGA and CPU IOFPGA EPLD images can be upgraded for the switch. These upgrades are disruptive.

```
switch# show install all impact epld bootflash:nxos64-msll.10.5.3.F.bin
```

Retrieving EPLD versions.... Please wait.

Images will be upgraded according to following table:

Module	Type	EPLD	Running-Version	New-Version	Upg-Required
1	SUP	MI FPGA	0x04	0x04	No
1	SUP	IO FPGA	0x07	0x11	Yes
1	SUP	CPU IOFPGA	0x08	0x09	Yes

Compatibility check:

Module	Type	Upgradable	Impact	Reason
1	SUP	Yes	disruptive	Module Upgradable

switch#

Downloading the EPLD Images

Before you can prepare the EPLD images for installation, you must download them to the FTP or management server.

Note: Starting with release 10.5(3), Cisco Nexus 3600 series top of rack (TOR) -R switches will use the 64-bit Cisco NXOS image file name with `nxos64-msll` as the prefix (for example, `nxos64-msll.10.5.3.F.bin`) for EPLD upgrades.

Procedure

- 1 From a browser, go to [Software Download page](#).
The browser will display the Cisco website.
- 2 From the Products & Services tab, choose Switches.
The Switches page opens.

- 3 In the Switches page, click Data Center Switches.

The page lists the Data Center products.

- 4 Click Nexus 3000 Series Switches.

The Cisco Nexus 3000 Series Switches page opens.

- 5 Choose a Cisco Nexus 3600 platform switch from the list under Data Center Switches > Cisco Nexus 3000 Series Switches.

The Downloads page opens and lists the software types.

- 6 From the software types, choose NX-OS System Software.

A new page opens with different NX-OS releases and images.

- 7 Choose the latest release: 10.5(3)F.

The Log In page opens.

- 8 Log In as follows:

- If you are an existing user, enter your username and password.
- If you are a new user, click Register Now and provide the required information before returning to the Log In page and logging in with your new username and password.

- 9 Click Download.

The Supporting Documents page opens to display the rules for downloading the software.

- 10 Read the rules and click Agree.

A File Download dialog box opens to ask if you want to open or save the images file.

- 11 Click Save.

The Save As dialog box appears.

- 12 Indicate where to save the Tar file and click Save.

Please navigate through the download page to choose. The Tar file saves to the location that you specified.

EPLD Upgrade Using Install EPLD Command

To install the EPLD upgrades needed for a Cisco Nexus 9000 Series switch running 10.5(3) software, use the **install epld bootflash:<image-name> module all** command on that switch. Where the image-name given is **nxos64-msll.10.5.3.F.bin**. First, copy this file to the bootflash to proceed. In this example, the IOFPGA EPLD image need to be upgraded.

EPLD Upgrade Using Install EPLD Command

Note: The CLI content in this document is only an example. The CLI output might change depending on the hardware/software.

switch# **install epld bootflash: nxos64-msll.10.5.3.F.bin module all**

Compatibility check:

Module	Type	Upgradable	Impact	Reason
1	SUP	Yes	disruptive	Module Upgradable

Retrieving EPLD versions.... Please wait.

Images will be upgraded according to the following table:

Module	Type	EPLD	Running-Version	New-Version	Upg-Required
1	SUP	MI FPGA	0x04	0x04	No
1	SUP	IO FPGA	0x10	0x11	Yes
1	SUP	CPU IOFPGA	0x09	0x09	No

The above modules require upgrade. EPLD Upgrade may result in multiple modules going offline. The switch will be reloaded at the end of the upgrade.

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

Proceeding to upgrade Modules.

Starting Module 1 EPLD Upgrade

Module 1 : IO FPGA [Programming] : 100.00% (64 of 64 sectors)

Module 1 EPLD upgrade is successful...

Module	Type	Upgrade-Result
1	SUP	Success

Module 1 EPLD upgrade is successful.

Resetting Active SUP (Module 1) FPGAs. Please wait...

Reload in 10 seconds.....

switch#

EPLD Upgrade During Install All

Beginning with Release 10.5(3), the EPLD image can be upgraded along with the nxos image during **install all**. To upgrade your EPLD image using the **install all** command, use **install all nxos <image-name>**. This command will upgrade both NXOS and EPLD, if required.

```
switch# install all nxos nxos64-msll.10.5.3.F.bin
```

Installer will perform compatibility check first. Please wait.

Installer is forced disruptive

Verifying image bootflash:/nxos64-msll.10.5.3.F.bin for boot variable "nxos".

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

Verifying EPLD/FPGA image //bootflash/nxos64-msll.10.5.3.F.bin.

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

Verifying image type.

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

Preparing "nxos" version info using image bootflash:/nxos64-msll.10.5.3.F.bin.

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

Preparing "bios" version info using image bootflash:/nxos64-msll.10.5.3.F.bin.

```
[#####] 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	default upgrade is not hitless

Images will be upgraded according to the following table:

Module	Image	Running-Version(pri:alt)	New-Version	Upg-Required
1	Inxos	10.5(3)	10.5(3)	no
27	bios	v01.08(12/05/2024):v01.07(08/18/2017)	v01.08(12/05/2024)	no

FPGA microcode will be upgraded according to the following table:

Module	Type	EPLD	Running-Version	New-Version	Upg-Required
1	SUP	MI FPGA	0x04	0x04	No
1	SUP	IO FPGA	0x10	0x11	Yes
1	SUP	CPU IOFPGA	0x09	0x09	No

EPLD Upgrade may result in multiple modules going offline.

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.

Performing runtime checks.

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

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

EPLD/FPGA upgrade can take up to 4 minutes.

Performing EPLD/FPGA upgrade .

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

Finishing the upgrade, switch will reboot in 10 seconds.

Install has been successful.

switch#

NXOS system and EPLD upgrades are disruptive Cisco Nexus 3600 Series switches. If the switch does not need to be reloaded after EPLD upgrade, use the **install all nxos <image- name> no-reload** command. This command will program a new EPLD image. However, explicit power cycle or reload of the switch is required for the new EPLD image to take effect.

To upgrade only NXOS, you can use the **skip-epld** option. Use this command: **install all nxos <image-name> skip-epld**

For additional information about ISSU, please see the [Cisco Nexus 9000 Series NX-OS Software Upgrade and Downgrade Guide](#).

Verifying the EPLD Upgrades

To verify the EPLD upgrades for a switch or its modules, use the **show version module *slot_number* epld** command:

- To verify updates for a module, indicate the chassis slot number for *slot_number*.
switch# **show version module 1 epld**

Displaying the Status of EPLD Upgrades

To display the status of EPLD upgrades on the switch, use the `show install epld status` command.

Cisco Secure Boot Hardware Tampering Vulnerability and Remediation Steps

Secure Boot Hardware Tampering Vulnerability advisory:

<https://tools.cisco.com/security/center/content/CiscoSecurityAdvisory/cisco-sa-20190513-secureboot>

The below link describes how to update the EPLD for Cisco Nexus 9000 Series switches and Cisco Nexus 3600 Series switches to address the Secure Boot Vulnerability.

https://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus9000/sw/notice/epld-m/nxos_n9K_epldRN_sec_boot.html

Related Documentation

The entire [Cisco NX-OS 3000 Series documentation](#) set.

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