



Cisco Nexus 3600 Platform FPGA/EPLD Upgrade Release Notes, Release 9.3(5)

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 following table lists the changes to this document.

Date	Description
July 22, 2020	Release 9.3(5) became available.

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Introduction

The Cisco Nexus 9000 Series NX-OS mode switches contain several programmable logical 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 electronic programmable logic devices (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.

When Cisco makes an EPLD image upgrade available, these release notes announce their availability, and you can download them from [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: Do not perform an EPLD upgrade during an ISSU system/kickstart upgrade.

NOTE: The EPLD upgrade will cause the 3600 ToR switch to reload.

Cisco Secure Boot Hardware Tampering Vulnerability - Remediation Steps

- The following section details updating your EPLD version for affected switches listed in: <https://tools.cisco.com/security/center/content/CiscoSecurityAdvisory/cisco-sa-20190513-secureboot>

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 9.3(5)

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 following 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)
Cisco Nexus 36180YC-R	MIFPGA	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)
	CPU IOFPGA	0x6 (0.006)	0x8 (0.008)	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)
	IOFPGA	0x5 (0.005)	0x6 (0.006)	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)

Determining Whether to Upgrade EPLD Images

To determine which devices need upgraded EPLDs, use the `show install impact epld bootflash:n9000-epld.9.3.5.img` command for a device and indicate the latest EPLD image file (`n9000-epld.9.3.5.img`). 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 9500 platform modular switch, use the `show install impact epld bootflash:n9000-epld.9.3.5` command on that switch and indicate the `n9000-epld.9.3.5` image. In the following example, the MIFPGA and IOFPGA EPLD images can be upgraded for the line cards in slots 2 through 7 and all of the fabric modules. These upgrades are disruptive.

```
N3K-C36xx_switch# sh install all impact epld bootflash:n9000-epld.9.3.4.182.img.tmp
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             0x08            0x08         No
      1  SUP  CPU IOFPGA          0x09            0x09         No
Compatibility check:
Module  Type  Upgradable  Impact  Reason
-----  ---  -----
      1  SUP  Yes         disruptive  Module Upgradable
N3K-C36xx_switch#
```

Downloading the EPLD Images

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

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 Data Center area, click the arrow next to View Products.
The page lists the Data Center products.
- 4 Click Nexus 3000.
The Cisco Nexus 3000 Series Switches page opens.
- 5 In the Support area, click Download Software.
The Downloads page opens and lists the Data Center switches.

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

The Log In page opens.

- 7 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.

The Downloads page lists the software types that can be downloaded for the switch that you specified.

- 8 Click NX-OS EPLD Updates.

The Downloads page lists software releases that you can download.

- 9 Choose Latest Releases > 9.3(5).

The Downloads page displays image information, including a link to the downloadable Tar file, to the right of the releases.

- 10 Click the link for the Tar file.

The Downloads page displays a Download button and lists information for the Tar file.

- 11 Click Download.

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

- 12 Read the rules and click Agree.

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

- 13 Click Save.

The Save As dialog box appears.

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

The Tar file saves to the location that you specified.

Installation Guidelines

You can upgrade EPLDs using CLI commands on the Cisco Nexus 9500 platform switch. Follow these guidelines when you upgrade EPLDs:

- Before you upgrade any EPLD images, be sure that you have updated the Cisco NX-OS operating system to the level required for the images and be sure that you have an EPLD image file.
- You can execute an upgrade from the active supervisor module only. This upgrade is for one or all of the modules as follows:

Upgrading the EPLD Images

- You can upgrade a module individually.
 - You can upgrade all modules sequentially.
 - You can update e the images for online modules only.
- If you interrupt an upgrade, you must upgrade the module that is being upgraded again.
- The upgrade process disrupts traffic on the targeted module.
- Do not insert or remove any modules while an EPLD upgrade is in progress.

Upgrading the EPLD Images

If you have a Cisco Nexus 3600 platform switch that is running Cisco NX-OS Release 7.0(3)3(3) build or later build, follow the special upgrade steps presented here.

Procedure

- 1 Copy the binary and EPLD image files to bootflash.
- 2 To determine if you need to upgrade the BIOS for the image, use the `show install all impact` command and see the Upgrade Required (Upg-Required) field for the BIOS row in the command output.
- 3 If you do not need to upgrade the BIOS, set the boot variable using the `boot nxos boot flash:n9000-dk9.9.3.5.bin` command.
- 4 Enter the `copy running-config startup-config` command to set the startup boot variables to the NX-OS image.
- 5 If you need to upgrade the BIOS, enter the `install all nxos bootflash:n9000-dk9.9.3.5.bin` command.
- 6 Enter the `install epld bootflash:n9000-epld.9.3.5.img module all` command.
The switch automatically reboots.

Verifying the EPLD Upgrades

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

- 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.

Limitations

When EPLDs are upgraded, the following guidelines and observations apply:

- If a module is not online, you cannot upgrade its EPLD images.
- If there are two supervisors installed in the switch, you can either upgrade only the standby supervisor from the active supervisor or upgrade all modules (including both supervisor modules) by using the following commands:
 - install epld bootflash: *image module standby_supervisor_slot_number* (upgrades only the standby supervisor module)

NOTE: After you use this command, you can switchover the active and standby supervisor modules and then upgrade the other supervisor.

- install epld bootflash: *image module all* (upgrades all of the modules)
- If there is only one supervisor installed in the switch, your upgrading or downgrading of EPLD images is disruptive.

Related Documentation

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

Documentation Feedback

To provide technical feedback on this document, or to report an error or omission, please send your comments to nexus9k-docfeedback@cisco.com. We appreciate your feedback.

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