



Cisco Nexus 3600 Platform and Cisco Nexus 9500 Platform FPGA/EPLD Upgrade Release Notes, Release 7.0(3)F3(4)

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, 36180YC-R, and 9508 switches.

The following table lists the changes to this document.

Date	Description
February 28, 2018	Updated the EPLD image for the 3636C-R chassis for Release 7.0(3)F3(4).
December 11, 2017	Updated the EPLD image for the N9K-X9636Q-R line card.
February 5, 2018	Updated the image to include Release 7.0(3)F3(3a).

Table of Contents

INTRODUCTION	3
DECIDING WHEN TO UPGRADE EPLDS	3
SWITCH REQUIREMENTS	4
EPLD UPGRADES AVAILABLE FOR NX-OS MODE RELEASES 7.0(3)I4(1) TO 7.0(3)I5(1)	5
CAVEATS	7
RESOLVED CAVEATS— CISCO NX-OS RELEASE 7.0(3)I5(1)	ERROR! BOOKMARK NOT DEFINED.
OPEN CAVEATS— CISCO NX-OS RELEASE 7.0(3)I5(1)	ERROR! BOOKMARK NOT DEFINED.
DETERMINING WHETHER TO UPGRADE EPLD IMAGES	8
DOWNLOADING THE EPLD IMAGES	8
INSTALLATION GUIDELINES	10
UPGRADING THE EPLD IMAGES	11
VERIFYING THE EPLD UPGRADES	12
DISPLAYING THE STATUS OF EPLD UPGRADES	12
LIMITATIONS	12
RELATED DOCUMENTATION	13
RELEASE NOTES	13
DOCUMENTATION FEEDBACK	13
OBTAINING DOCUMENTATION AND SUBMITTING A SERVICE REQUEST	13

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 <http://www.cisco.com>.

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.

Switch Requirements

The Cisco Nexus 3636C-R switch must be running the Cisco NX-OS operating system and include the following hardware:

- Fan modules (3)
 - NXA-FAN-65CFM-PE (port-side exhaust airflow)
 - NXA-FAN-65CFM-PI (port-side intake airflow)
- Power supplies (1 plus 1 for redundancy)
 - NXA-PAC-2KW-PE (port-side exhaust airflow)
 - NXA-PAC-2KW-PI (port-side intake airflow)
 - NXA-PDC-2KW-PE (port-side exhaust airflow)
 - NXA-PDC-2KW-PI (port-side intake airflow)

The Cisco Nexus 36180YC-R switch must be running the Cisco NX-OS operating system and include the following hardware:

- Fan modules (2)
 - NXA-FAN-65CFM-PE (port-side exhaust airflow)
 - NXA-FAN-65CFM-PI (port-side intake airflow)
- Power supplies (1 plus 1 for redundancy)
 - NXA-PAC-1100W-PE2 (port-side exhaust airflow)
 - NXA-PAC-1100W-PI2 (port-side intake airflow)
 - NXA-PHV-1100W-PE (port-side exhaust airflow)
 - NXA-PHV-1100W-PI (port-side intake airflow)
 - NXA-PDC-1100W-PE (port-side exhaust airflow)
 - NXA-PDC-1100W-PI (port-side intake airflow)

The Cisco Nexus 9508 switch must be running the Cisco NX-OS operating system and include the following hardware:

- Supervisor B modules (2)—each with at least 800 MB of available bootflash memory (Cisco Nexus 9508 switches)
- System controller modules (2)

EPLD Upgrades Available for NX-OS Mode Release 7.0(3)F3(4)

- Line cards (1-8)
 - N9K-X9636C-R 36-port 100-Gigabit Ethernet QSFP28 line card
 - N9K-X9636C-RX 36-port 100-Gigabit Ethernet QSFP28 line card
 - N9K-X9636Q-R 36-port 40-Gigabit Ethernet QSFP+ line card
- Fabric modules
 - Fabric modules for 100-Gigabit –R line cards on a Cisco Nexus 9508 switch
 - Maximum of 5 (plus 1 for redundancy) for N9K-X9636C-R and N9K-X9636Q-R line cards
 - Maximum of 6 for N9K-X9636C-RX line cards
- Fan modules (3)
- Power supplies (up to 8)
 - 3000-W AC power supplies or 3000-W Universal AC/DC or 3000-W DC power supplies

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 7.0(3)F3(4)

Each EPLD image that you can download from <http://www.cisco.com> is a bundle of EPLD upgrades. To see the updated EPLD versions for the Cisco Nexus 36000 platform switches and Cisco Nexus 9500 platform switches, see the following tables.

NOTE: All updates to an image are shown in boldface.

Available EPLD Images for the Cisco Nexus 3600 Platform Switches

Component	EPLD Device	Release 7.0(3)F2(1)	Release 7.0(3)F3(1)	Release 7.0(3)F3(4)	Release 7.0(3)F3(3a)	Release 7.0(3)F3(4)
Cisco Nexus 36180YC-R	MIFPGA	N.A. ¹	0x4 (0.004)	0x4 (0.004)	0x4 (0.004)	0x4 (0.004)
	IOFPGA	N.A. ¹	0x5 (0.005)	0x6 (0.006)	0x6 (0.006)	0x6 (0.006)
	CPU IOFPGA	N.A. ¹	0x6 (0.006)	0x6 (0.006)	0x6 (0.006)	0x6 (0.006)
Cisco Nexus 3636C-R	MIFPGA	N.A. ¹	N.A. ¹	N.A. ¹	N.A. ¹	0x1 (0.001)
	IOFPGA	N.A. ¹	N.A. ¹	N.A. ¹	N.A. ¹	0x5 (0.005)
	CPU IOFPGA	N.A. ¹	N.A. ¹	N.A. ¹	N.A. ¹	0x6 (0.006)

¹ Not available in this release.

Available EPLD Images for the Cisco Nexus 9500 Platform Switches

Component	EPLD Device	Release 7.0(3)F1(1)	Release 7.0(3)F2(1)	Release 7.0(3)F3(1)	Release 7.0(3)F3(4)	Release 7.0(3)F3(3a)
Supervisor B (N9K-SUP-B)	IOFPGA	0x27 (0.039)	0x27 (0.039)	0x27 (0.039)	0x27 (0.039)	0x27 (0.039)
System Controller (N9K-SC-A)	IOFPGA	0x20 (0.032)	0x20 (0.032)	0x20 (0.032)	0x20 (0.032)	0x20 (0.032)
36-port 100-Gigabit QSFP28 line card (N9K-X9636C-R)	IOFPGA	0xE (0.014)	0xF (0.015)	0xF (0.015)	0xF (0.015)	0xF (0.015)
	MIFPGA	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)
36-port 100-Gigabit QSFP28 line card (N9K-X9636C-RX)	DBFPGA	N.A. ²	N.A. ²	0xE (0.014)	0xE (0.014)	0xE (0.014)
	IOFPGA	N.A. ²	N.A. ²	0x15 (0.021)	0x15 (0.021)	0x15 (0.021)
	MIFPGA	N.A. ²	N.A. ²	0x3 (0.003)	0x3 (0.003)	0x3 (0.003)
36-port 40-Gigabit QSFP+ line card (N9K-X9636Q-R)	IOFPGA	0x13 (0.019)	0x14 (0.020)	0x16 (0.022)	0x16 (0.022)	0x16 (0.022)
	MIFPGA	0x3 (0.003)	0x3 (0.003)	0x3 (0.003)	0x3 (0.003)	0x3 (0.003)

Component	EPLD Device	Release 7.0(3)F1(1)	Release 7.0(3)F2(1)	Release 7.0(3)F3(1)	Release 7.0(3)F3(4)	Release 7.0(3)F3(3a)
Fabric module for –R 100-Gigabit line cards in the Cisco Nexus 9508 chassis (N9K-C9508-FM-R)	IOFPGA	0xF (0.015)	0x10 (0.016)	0x10 (0.016)	0x10 (0.016)	0x10 (0.016)

² Not available in this release.

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 EPLD image file (n9000-epld.7.0.3.f3.3.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:** command on that switch and indicate the n9000-epld.7.0.3.f3.3 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.

```
Nexus95xx_switch# show install all impact epld bootflash:n9000-epld.7.0.3.f3.3.img
```

```
Compatibility check:
```

Module	Type	Upgradable	Impact	Reason
2	LC	Yes	disruptive	Module Upgradable
7	LC	Yes	disruptive	Module Upgradable
22	FM	Yes	disruptive	Module Upgradable
23	FM	Yes	disruptive	Module Upgradable
24	FM	Yes	disruptive	Module Upgradable
25	FM	Yes	disruptive	Module Upgradable
26	FM	Yes	disruptive	Module Upgradable
27	SUP	Yes	disruptive	Module Upgradable
29	SC	Yes	disruptive	Module Upgradable

```
Retrieving EPLD versions... Please wait.
```

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

Module	Type	EPLD	Running-Version	New-Version	Upg-Required
2	LC	MI FPGA	0x14	0x15	Yes
2	LC	IO FPGA	0x9	0x9	No
7	LC	MI FPGA	0x14	0x15	Yes
7	LC	IO FPGA	0x9	0x9	No
22	FM	IO FPGA	0x18	0x18	No
23	FM	IO FPGA	0x18	0x18	No
24	FM	IO FPGA	0x18	0x18	No
25	FM	IO FPGA	0x18	0x18	No
26	FM	IO FPGA	0x18	0x18	No
27	SUP	IO FPGA	0x27	0x27	No
29	SC	IO FPGA	0x20	0x20	No

Downloading the EPLD Images

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

Downloading the EPLD Images

Procedure

- 1 From a browser, go to <http://www.cisco.com>.

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 9000**.

The Cisco Nexus 9000 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 9508 switch from the list under Data Center Switches > Cisco Nexus 9000 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.

Installation Guidelines

- 9 Choose **Latest Releases > 7.0(3)F3(4)**.

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

CAUTION: Do not install EPLD images for a release later than the installed release. The Cisco Nexus 9000 Series switches support only the images for the current or earlier 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.

What to Do Next

You are ready to prepare the EPLD images for Installation.

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.

CAUTION: Do not install EPLD images for a release later than the installed release. The Cisco Nexus 9500 platform switches support only the images for the current or earlier releases.

Upgrading the EPLD Images

- You can execute an upgrade from the active supervisor module only. This upgrade is for one or all of the modules as follows:
- You can upgrade a module individually.
 - You can upgrade all modules sequentially.
 - You can update the images for online modules only.
- On a Cisco Nexus 9500 platform switch that has two supervisor modules, upgrade the EPLDs for the standby supervisor and then switch the active supervisor to the standby mode to upgrade its EPLDs (the supervisor switchover is not disruptive to traffic on Cisco Nexus 9500 platform switches). On a switch that has only one supervisor module, you can upgrade the active supervisor, but this will disrupt its operations during the upgrade.
- 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 9500 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.

CAUTION: Do not install EPLD images for a release later than the installed release. The Cisco Nexus 9500 platform switches support only the images for the current or earlier releases.

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-dk9.7.0.3.f3.3.bin** command.
- 4 Enter the **copy running-config startup-config** command to set the startup boot variables to the NX-OS image.

Verifying the EPLD Upgrades

- 5 If you need to upgrade the BIOS, enter the **install all nxos bootflash:n9000-dk9.7.0.3.f3.3.bin** command.
- 6 Enter the **install epld bootflash:n9000-epld.7.0.3.f3.3.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 22 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 9000 Series documentation set is available at the following URL:

<https://www.cisco.com/c/en/us/support/switches/nexus-9000-series-switches/tsd-products-support-series-home.html>

The entire Cisco NX-OS 3000 Series documentation set is available at the following URL:

<https://www.cisco.com/c/en/us/support/switches/nexus-3000-series-switches/tsd-products-support-series-home.html>

Release Notes

The release notes are available at the following URL:

https://www.cisco.com/en/US/products/ps13386/prod_release_notes_list.html

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.

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, using the Cisco Bug Search Tool (BST), submitting a service request, and gathering additional information, see *What's New in Cisco Product Documentation*, at:

<https://www.cisco.com/c/en/us/td/docs/general/whatsnew/whatsnew.html>.

Subscribe to *What's New in Cisco Product Documentation*, which lists all new and revised Cisco technical documentation as an RSS feed and delivers content directly to your desktop using a reader application. The RSS feeds are a free service.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: <https://www.cisco.com/go/trademarks>. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1110R)

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

© 2017-18 Cisco Systems, Inc. All rights reserved.