

# Cisco Nexus 9000 Series ACI-Mode Switch FPGA/EPLD Upgrade Release Notes, Release 11.2(2g)

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**First Published:** February 22, 2016

**Last Modified:** July 25, 2016

## Update History

This document lists the current and past versions of EPLD images and describes how to update them for use with the Cisco Nexus 9000 Series switches.

The following table shows the history of changes for this document.

Date	Description
February 22, 2016	Created the release notes for Release 1.2(2).
March 1, 2016	Removed sections with instructions that do not apply to ACI-mode operations.
May 1, 2016	Changed the number of supported Cisco Nexus 9516 I/O modules to ten.
July 25, 2015	Changed release numbering from 1.x(xx) format to 11.x(xx) format.

## Introduction

The Cisco Nexus 9000 Series ACI-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

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EPLD image upgrades for an I/O module 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.

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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 ACI 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/kickstart ISSU upgrade is a nondisruptive upgrade.


**Note**

Do not perform an EPLD upgrade during an ISSU system/kickstart upgrade.

## Switch Requirements

The Cisco Nexus 9000 Series switch must be running the Cisco ACI operating system and include the following hardware:

- Supervisor modules—one or two, each with at least 200 MB of available bootflash memory (Cisco Nexus 9504, 9508, and 9516 switches)
- System controller modules—one or two (Cisco Nexus 9504, 9508, and 9516 switches)
- I/O modules (Cisco Nexus 9504, 9508, and 9516 switches)
  - One to four modules for the Cisco Nexus 9504 switch
  - One to eight modules for the Cisco Nexus 9508 switch
  - One to ten modules for the Cisco Nexus 9516 switch
- Fabric modules—three to six (Cisco Nexus 9504, 9508, and 9516 switches)
- Fan modules
  - Two for the Cisco Nexus 93120TX switch
  - Three for the Cisco Nexus 93128TX, 9396PX, and 9396TX switches
  - Four for the Cisco Nexus 9332PQ, 9372PX, 9372PX-E, 9372TX, and 9372TX-E switches
- Fan trays

- Three for the Cisco Nexus 9504, 9508, and 9516 modular switches
- Power supplies
  - One or two of the following power supplies for the Cisco Nexus 9332PQ, 9372PX, 9372PX-E, 9372TX, 9372TX-E, 9396PX, and 9396TX switches:
    - 650-W AC power supply with port-side intake airflow (N9K-PAC-650W)
    - 650-W AC power supply with port-side exhaust airflow (N9K-PAC-650W-B)
    - 930-W DC power supply with port-side intake airflow (UCSC-PSU-930WDC)
    - 930-W DC power supply with port-side exhaust airflow (UCS-PSU-6332-DC)
  - One or two 1200-W AC or one or two 930-W DC power supplies for the Cisco Nexus 93120TX, 93128TX, and 9336PQ switches:
    - 1200-W HVAC/HVDC power supply with dual direction airflow (N9K-PUV-1200W)
    - 1200-W AC power supply with port-side intake airflow (N9K-PAC-1200W) (Cisco Nexus 93120TX and 9336PQ only)
    - 1200-W AC power supply with port-side exhaust airflow (N9K-PAC-1200W-B) (Cisco Nexus 93120TX and 9336PQ only)
    - 930-W DC power supply with port-side intake airflow (UCSC-PSU-930WDC)
    - 930-W DC power supply with port-side exhaust airflow (UCS-PSU-6332-DC)
  - Up to four 3000-W AC power supplies or up to four 3000-W Universal AC/DC power supplies for the Cisco Nexus 9504 switch
  - Up to eight 3000-W AC power supplies or up to eight 3000-W Universal AC/DC power supplies for the Cisco Nexus 9508 switch
  - Up to 10 3000-W AC power supplies or up to 10 3000-W Universal AC/DC power supplies for the Cisco Nexus 9516 switch
- Uplink module (Cisco Nexus 93128TX, 9396PX, and 9396TX switches only)
  - M6PQ
  - M6PQ-E
  - M12PQ

You must have administrator privileges to work with the Cisco Nexus 9000 Series switch.

## EPLD Upgrades Available for ACI-Mode Releases 11.0(4X) to 11.2(2g)

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 93xxx ACI-mode switches and the Cisco Nexus 95xx ACI-mode switches, see the following tables.

**Note**

All updates to an image are shown in boldface.

**Table 1: EPLD images for the Cisco Nexus 93xxx ACI-Mode Fixed Switches**

Component	EPLD Device	Release 11.0(4X) (5/2015)	Release 11.1(1X) (6/2015)	Release 11.1(2) (8/2015)	Release 11.2(1i) (12/2015)	Release 11.2(2g) (2/2016)
Cisco Nexus 93120TX Switch (N9K-C93120TX)	IOFPGA	N.A. <sup>1</sup>	N.A. <sup>1</sup>	N.A. <sup>1</sup>	<b>0x8 (0.008)</b>	0x8 (0.008)
	MIFPGA	N.A. <sup>1</sup>	N.A. <sup>1</sup>	N.A. <sup>1</sup>	<b>0x9 (0.009)</b>	0x9 (0.009)
Cisco Nexus 93128TX Switch (N9K-C93128TX)	IOFPGA	<b>0x8 (0.008)</b>	<b>0x9 (0.009)</b>	0x9 (0.009)	<b>0x10 (0.016)</b>	0x10 (0.016)
	MIFPGA	<b>0x9 (0.009)</b>	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)	0x9 (0.009)
Cisco Nexus 9332PQ Switch (N9K-C9332PQ)	IOFPGA	<b>0x10 (0.016)</b>	0x10 (0.016)	0x10 (0.016)	<b>0x11 (0.017)</b>	0x11 (0.017)
	MIFPGA	<b>0x13 (0.019)</b>	<b>0x15 (0.021)</b>	0x15 (0.021)	0x15 (0.021)	0x15 (0.021)
Cisco Nexus 9336PQ Switch (N9K-C9336PQ)	IOFPGA	<b>0x8 (0.008)</b>	0x8 (0.008)	0x8 (0.008)	<b>0x9 (0.009)</b>	0x9 (0.009)
	MIFPGA	<b>0x10 (0.016)</b>	0x10 (0.016)	0x10 (0.016)	0x10 (0.016)	0x10 (0.016)
Cisco Nexus 9372PX Switch (N9K-C9372PX)	IOFPGA	<b>0x6 (0.006)</b>	0x6 (0.006)	0x6 (0.006)	<b>0x7 (0.007)</b>	0x7 (0.007)
	MIFPGA	<b>0x11 (0.017)</b>	<b>0x14 (0.020)</b>	0x14 (0.020)	0x14 (0.020)	0x14 (0.020)
Cisco Nexus 9372PX-E Switch (N9K-C9372PX-E)	IOFPGA	<b>0x6 (0.006)</b>	0x6 (0.006)	0x6 (0.006)	<b>0x7 (0.007)</b>	0x7 (0.007)
	MIFPGA	<b>0x11 (0.017)</b>	<b>0x14 (0.020)</b>	0x14 (0.020)	0x14 (0.020)	0x14 (0.020)
Cisco Nexus 9372TX Switch (N9K-C9372TX)	IOFPGA	<b>0x4 (0.004)</b>	0x4 (0.004)	0x4 (0.004)	<b>0x5 (0.005)</b>	0x5 (0.005)
	MIFPGA	<b>0x13 (0.019)</b>	<b>0x14 (0.020)</b>	0x14 (0.020)	<b>0x15 (0.021)</b>	0x15 (0.021)
Cisco Nexus 9372TX-E Switch (N9K-C9372TX)	IOFPGA	N.A. <sup>1</sup>	N.A. <sup>1</sup>	N.A. <sup>1</sup>	N.A. <sup>1</sup>	0x5 (0.005)
	MIFPGA	N.A. <sup>1</sup>	N.A. <sup>1</sup>	N.A. <sup>1</sup>	N.A. <sup>1</sup>	0x2 (0.002)
Cisco Nexus 9396PX Switch (N9K-C9396PX)	IOFPGA	<b>0x14 (0.020)</b>	0x14 (0.020)	0x14 (0.020)	<b>0x15 (0.021)</b>	0x15 (0.021)
	MIFPGA	<b>0x14 (0.020)</b>	0x14 (0.020)	0x14 (0.020)	0x14 (0.020)	0x14 (0.020)
Cisco Nexus 9396TX Switch (N9K-C9396TX)	IOFPGA	<b>0x7 (0.007)</b>	0x7 (0.007)	0x7 (0.007)	<b>0x8 (0.008)</b>	0x8 (0.008)

Component	EPLD Device	Release 11.0(4X) (5/2015)	Release 11.1(1X) (6/2015)	Release 11.1(2) (8/2015)	Release 11.2(1i) (12/2015)	Release 11.2(2g) (2/2016)
6-port 40-Gigabit optical uplink module (N9K-M6PQ and N9K-M6PQ-E)	MIFPGA	<b>0x9 (0.009)</b>	<b>0x10 (0.016)</b>	0x10 (0.016)	0x10 (0.016)	0x10 (0.016)
12-port optical uplink module (N9K-M12PQ)	MIFPGA	<b>0x18 (0.024)</b>	<b>0x20 (0.032)</b>	0x20 (0.032)	0x20 (0.032)	0x20 (0.032)

<sup>1</sup> Not available in this release.

**Table 2: EPLD images for the Cisco Nexus 95xx ACI-Mode Modular Switches**

Component	EPLD Device	Release 11.0(4X) (5/2015)	Release 11.1(1X) (6/2015)	Release 11.1(2) (8/2015)	Release 11.2(1i) (12/2015)	Release 11.2(2g) (2/2016)
Supervisor A (N9K-SUP-A)	IOFPGA	<b>0x22 (0.034)</b>	0x22 (0.034)	0x22 (0.034)	0x22 (0.034)	<b>0x27 (0.039)</b>
Supervisor B (N9K-SUP-B)	IOFPGA	<b>0x22 (0.034)</b>	0x22 (0.034)	0x22 (0.034)	0x22 (0.034)	<b>0x27 (0.039)</b>
System Controller (N9K-SC-A)	IOFPGA	<b>0x19 (0.025)</b>	0x19 (0.025)	0x19 (0.025)	0x19 (0.025)	0x19 (0.025)
36-port 40-Gigabit QSFP+ I/O module (N9K-X9736PQ)	MIFPGA	<b>0x5 (0.019)</b>	0x5 (0.019)	0x5 (0.019)	0x5 (0.019)	0x5 (0.019)
	IOFPGA	<b>0x5 (0.019)</b>	0x5 (0.019)	0x5 (0.019)	0x5 (0.019)	0x5 (0.019)
Fabric module for Cisco Nexus 9504 chassis (N9K-C9504-FM)	IOFPGA	<b>0x18 (0.024)</b>	0x18 (0.024)	0x18 (0.024)	0x18 (0.024)	<b>0x19 (0.025)</b>
Fabric module for Cisco Nexus 9508 chassis (N9K-C9508-FM)	IOFPGA	<b>0x18 (0.024)</b>	0x18 (0.024)	0x18 (0.024)	0x18 (0.024)	<b>0x19 (0.025)</b>
Fabric module for Cisco Nexus 9516 chassis (N9K-C9516-FM)	IOFPGA	<b>0x12 (0.018)</b>	0x12 (0.018)	0x12 (0.018)	0x12 (0.018)	<b>0x13 (0.019)</b>

## Related Documentation

### Cisco Application Centric Infrastructure (ACI) Documentation

The ACI documentation is available at the following URL: <http://www.cisco.com/c/en/us/support/cloud-systems-management/application-policy-infrastructure-controller-apic/tsd-products-support-series-home.html>.

### Cisco Application Centric Infrastructure (ACI) Simulator Documentation

The Cisco ACI Simulator documentation is available at <http://www.cisco.com/c/en/us/support/cloud-systems-management/application-centric-infrastructure-simulator/tsd-products-support-series-home.html>.

### Cisco Nexus 9000 Series Switches Documentation

The Cisco Nexus 9000 Series Switches documentation is available at <http://www.cisco.com/c/en/us/support/switches/nexus-9000-series-switches/tsd-products-support-series-home.html>.

### Cisco Application Virtual Switch Documentation

The Cisco Application Virtual Switch (AVS) documentation is available at <http://www.cisco.com/c/en/us/support/switches/application-virtual-switch/tsd-products-support-series-home.html>.

### Cisco Application Centric Infrastructure (ACI) Integration with OpenStack Documentation

Cisco ACI integration with OpenStack documentation is available at <http://www.cisco.com/c/en/us/support/cloud-systems-management/application-policy-infrastructure-controller-apic/tsd-products-support-series-home.html>.

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