Cisco Nexus 7000 Series FPGA/EPLD Upgrade Release Notes, Release 4.1

Table 1 shows the online history change for this document.

Table 1   Online History Change

Part Number	Revision	Date	Description
OL-18648-01	A0	12/18/2008	Created for Release 4.1(2).
	B0	12/19/2008	Indicated that Release 4.1(2) does not include EPLD updates for the Cisco Nexus 7018 fan controller.
	C0	12/27/2008	Updated the title for Table 2.
OL-18648-02	A0	2/6/2009	Included changes for Release 4.1(3).
	B0	2/9/2009	Made I/O module names consistent in Table 2 and Table 3.
	C0	2/20/2009	Included reasons for EPLD updates in Table 2.
	D0	3/10/2009	Included guidelines for deciding on upgrades.
OL-18648-03	A0	3/17/2009	Updated for Release 4.1(4)
OL-18648-04	A0	4/3/2009	Updated for Release 4.1(5)

Contents

This document includes the following sections:

Americas Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

Introduction

The Cisco Nexus 7000 Series switches contain several programmable logical devices (PLDs) that provide hardware functionalities in all modules. Cisco provides electronic programmable logical device (EPLD) image upgrades to enhance hardware functionality or to resolve known issues. PLDs include electronic programmable logical 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 great 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 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.

Cisco Systems does not provide upgrade EPLD images very frequently, and you do not have to upgrade your EPLD images unless they fix the functions for the hardware that you are using in your Cisco Nexus 7000 switch. The EPLD image upgrades are independent from the Cisco NX-OS 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

It is not always necessary to upgrade EPLD images; however, 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 it is best to postpone the upgrade until a better time.

Table 2 provides high-level guidelines to help network administrators determine whether an EPLD upgrade is necessary.

Table 2   Conditions For Upgrading EPLD Images

Condition	Modules Targeted for Upgrades
Upgrading the Cisco NX-OS operating system from Release 4.0 to Release 4.1(2)	Supervisor modules (N7K-SUP1) 32-port 10-Gbps Ethernet I/O modules (N7K-M132XP-12) (if installed) Fabric modules (N7K-C7018-FAB1) 48-port 10/100/1000 Ethernet I/O modules (N7K-M148GT-11) (if installed)—this upgrade is not mandatory but can be performed to correct random blinking of LEDs.
Moving 32-port 10-Gbps Ethernet I/O modules from a Cisco Nexus 7010 switch to a Cisco Nexus 7018 switch	32-port 10-Gbps Ethernet I/O modules (N7K-M132XP-12)
Moving 48-port 10/100/1000 Ethernet I/O modules from a Cisco Nexus 7010 switch to a Cisco Nexus 7018 switch	48-port 10/100/1000 Ethernet I/O modules (N7K-M148GT-11)
Moving the supervisor (N7K-SUP1) modules from a Cisco Nexus 7010 switch to a Cisco Nexus 7018 switch.	Supervisor (N7K-SUP1) modules
Upgrading the Cisco NX-OS operating system from Release 4.1(2) to Release 4.1(3) on a switch that shipped with Release 4.1(2).	32-port 10-Gbps Ethernet I/O modules (N7K-M132XP-12) Fabric modules for Cisco Nexus 7018 (N7K-C7018-FAB1)
Upgrading the Cisco NX-OS operating system from Release 4.1(2) to Release 4.1(3) on a switch that did not ship with Release 4.1(2) and a full EPLD upgrade to Release 4.1(2) was not performed.	Supervisor (N7K-SUP1) modules 48-port 10/100/1000 Ethernet I/O modules (N7K-M148GT-11)
Using vPC.	32-port 10-Gbps Ethernet I/O modules (N7K-M132XP-12)
Using Cisco Trusted Security.	32-port 10-Gbps Ethernet I/O modules (N7K-M132XP-12)

Switch Requirements

This section includes the following topics:

- Hardware Requirements, page 4
- Supported Switch Operating Systems, page 4

Hardware Requirements

The Cisco Nexus 7000 Series switch must include the following hardware:

- One or two supervisor modules, each with at least 120 MB of available bootflash or slot0 memory
- One or more I/O modules
- One or more fabric modules
- Two fabric fan tray modules
- Two system fan tray modules

You must be able to access the switch through a console, SSH, or Telnet.

You must have administrator privileges to work with the Cisco Nexus 7000 Series switch.

Supported Switch Operating Systems

The Cisco Nexus 7000 Series switch must be running the Cisco NX-OS operating system, which is used to perform the EPLD upgrades.

New EPLDs Available with Release 4.1

Each EPLD image that you can download from http://www.cisco.com is a bundle of EPLD upgrades. To see which EPLD versions were updated for Release 4.1, see Table 3. To see all of the current EPLD versions for each device, see Table 5 on page 21.

Note There are no new EPLD images for Release 4.1(5)—the EPLD images are the same for Release 4.1(3), 4.1(4), and 4.1(5).

.

Table 3   Newly Updated EPLDs for the Cisco NX-OS Release 4.1

Cisco NX-OS Release	Module Type	EPLD Device	New EPLD Version
4.1(2)	Supervisor (N7K-SUP1)	Power Manager	3.7
		IO	3.26
		Local Bus CPLD	3.0
	32-port 10 Gbps Ethernet I/O (N7K-M132XP-12)	Power Manager	4.6
		IO	1.13
	48-port 10/100/1000 Ethernet I/O (N7K-M148GT-11)	Power Manager	5.4
		IO	2.11
	48-port 1 Gbps Ethernet I/O (N7K-M148GS-11)	Power Manager	4.6
		IO	1.3
		SFP	1.4
		Forwarding Engine	1.6
	Fabric Module (Cisco Nexus 7010)	Power Manager	2.9
	Fabric Module (Cisco Nexus 7018) (N7K-C7018-FAB1)	Power Manager	1.1
4.1(3)	32-port 10 Gbps Ethernet I/O (N7K-M132XP-12)	IO	1.14
	Fabric Module (Cisco Nexus 7018) (N7K-C7018-FAB1)	Power Manager	1.2
4.1(4)	N.A.	N.A.	None

Note To list the EPLDs running on your switch, use the **show version** *module_number* **epld** command. If any of the versions that you list are older than what is listed in Table 5, it is recommended that you update the EPLDs.

EPLD Images Needed for vPC

The virtual port channel (vPC) feature is available beginning with Cisco NX-OS Release 4.1(3). When you enable vPC on the chassis, you must have EPLD Release 186.3 on the 32-port 10 Gbps Ethernet IO modules (N7K-M132XP-12).

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.

Most of the N7K-M132XP-12 modules in the chassis already meet this minimum EPLD requirement, but if you are working with a N7K-M132XP-12 module that was shipped before June 2008, you might need to upgrade the EPLD version.

To determine the EPLD version for all N7K-M132XP-12 modules, enter the **show version module** *module_id* **epld**. If the line FE Bridge(x) version displays a version earlier than 186.3 (for example, 186.2), you should schedule an EPLD upgrade to a version that is compatible with the target NX-OS release. For example, if you want to run Cisco NX-OS Release 4.1(3), you should choose Release 4.1(3) EPLDs.

The following example shows Release 186.3 on the FE Bridge line, which is the correct EPLD version:

```
Nexus-7k(config)# show ver mod 7 epld

EPLD Device Version
--------------------------------------
Power Manager 4.4
IO 1.10
Forwarding Engine 1.6
FE Bridge(1) 186.3 << OK!
FE Bridge(2) 186.3 << OK!
Linksec Engine(1) 1.5
Linksec Engine(2) 1.5
Linksec Engine(3) 1.5
Linksec Engine(4) 1.5
Linksec Engine(5) 1.5
Linksec Engine(6) 1.5
Linksec Engine(7) 1.5
Linksec Engine(8) 1.5
```

Installation Guidelines

You can upgrade (or downgrade) EPLDs using CLI commands on the Cisco Nexus 7000 Series switch. Follow these guidelines when you upgrade or downgrade 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 image.
- You can execute an upgrade from the active supervisor module only. All the modules, including the active supervisor module, can be updated individually.
- You can individually update each module whether it is online or offline as follows:
  - If you upgrade EPLD images on an online module, only the EPLD images with version numbers that differ from the new EPLD images are upgraded.
  - If you upgrade EPLD images on an offline module, all of the EPLD images are upgraded.
- On a switch that has two supervisor modules, upgrade the EPLDs for the standby supervisor and then switch the active supervisor to standby mode to upgrade its EPLDs (the supervisor switchover is not disruptive to traffic on Cisco Nexus 7000 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.

Downloading the EPLD images

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

To download the EPLD images, follow these steps:

Step 1   From a browser, go to the following URL:

http://www.cisco.com

The browser will display the Cisco website.

Step 2   From the Products & Services tab, choose **Switches**.

The Switches page opens.

Step 3   In the Data Center area, click the arrow next to View Products.

The page lists the Data Center products.

Step 4   Click **Nexus 7000**.

The Cisco Nexus 7000 Series Switches page opens.

Step 5   In the Support area, click **Download Software**.

The Downloads page opens and lists the Data Center switches.

Step 6   Choose a Cisco Nexus 7000 Series switch from the list under **Data Center Switches** > **Cisco Nexus 7000 Series Switches**.

The Log In page opens.

Step 7   If you are an existing user, enter your username in the **User Name** field and your password in the **Password** field. 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.

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

Step 8   Click **NX-OS EPLD Updates**.

The Downloads page lists software releases that you can download.

Step 9   Choose **Latest Releases > 4.1(3)**.

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

Step 10   Click the link for the Tar file.

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

Step 11   Click **Download**.

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

Step 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.

Step 13   Click **Save**.

The Save As dialog box appears.

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

The Tar file saves to the location that you specified.

You are ready to prepare the EPLD images for Installation (see the "Preparing the EPLD Images for Installation" section on page 8).

Preparing the EPLD Images for Installation

Before you can update the EPLD images for each of your switch modules, you must determine the Cisco NX-OS version that your switch is using, make sure there is space for the new EPLD images, and download the images.

To prepare the EPLD images for installation, follow these steps:

Step 1 Log into the switch through the console port, an SSH session, or a Telnet session.

Step 2 Verify that the switch is using the expected version of the Cisco NX-OS operating system. The kickstart and system lines indicate the Cisco NX-OS version. This step determines the versions of EPLD images that you must download.

```
switch# show version
Cisco Nexus Operating System (NX-OS) Software
TAC support: http://www.cisco.com/tac
Copyright (c) 2002-2008, Cisco Systems, Inc. All rights reserved.
The copyrights to certain works contained in this software are
owned by other third parties and used and distributed under
license. Certain components of this software are licensed under
the GNU General Public License (GPL) version 2.0 or the GNU
Lesser General Public License (LGPL) Version 2.1.. A copy of each
such license is available at
http://www.opensource.org/licenses/gpl-2.0.php and
http://www.opensource.org/licenses/lgpl-2.1.php
Software
  BIOS:      version 3.17.0
  loader:    version N/A
  kickstart: version 4.0(2) [gdb]
  system:    version 4.0(2) [gdb]
...
```

Step 3 Verify that you have 120 MB of free space on the active or standby supervisor memory devices for the EPLD images that you will be downloading by using the **dir bootflash:** or **dir slot0:** commands. By default, these commands display the used and free memory for the active supervisor. If your switch has an additional supervisor (a standby supervisor), use the **show module** command to find the module number for the other supervisor, use the **attach module** command to attach to the module number, and then use the **dir bootflash:** or **dir slot0:** command to determine the amount of used and free memory. See Example 1 to determine the amount of available bootflash memory, and see Example 2 to determine the amount of available slot0 memory.

Example 1   Determining the Amount of Available Bootflash Memory

```
switch# dir bootflash:
    4096     Mar 18 17:31:11 2008 bak/
 2429706     May 23 10:57:10 2008 dplug
89154513     May 27 22:04:37 2008 n7-dk9-nk
89151767     May 23 16:06:01 2008 n7-dk9-nk-old
 2429706     May 23 10:53:50 2008 n7000-s1-debug-sh.4.0.2.bin1
```

```
22171136     May 23 10:55:40 2008 n7000-s1-kickstart.4.0.2.bin1
    4096     May 23 13:03:37 2008 newer-fs/
    4096     May 28 15:13:30 2008 nk/
     127     Mar 20 16:37:59 2008 setip.sh

Usage for bootflash://sup-local
572186624 bytes used
306606080 bytes free
878792704 bytes total

switch# show module
Mod  Ports  Module-Type                     Model              Status
---  -----  ------------------------------- ------------------ ------------
2    32     10 Gbps Ethernet Module         N7K-M132XP-12      ok
5    0      Supervisor module-1X            N7K-SUP1           ha-standby
6    0      Supervisor module-1X            N7K-SUP1           active *
...
switch(standby)# dir bootflash:
...
    4096     Mar 18 17:31:11 2008 bak/
 2429706     May 23 10:57:10 2008 dplug
89154513     May 27 22:04:37 2008 n7-dk9-nk
89151767     May 23 16:06:01 2008 n7-dk9-nk-old
 2429706     May 23 10:53:50 2008 n7000-s1-debug-sh.4.0.2.bin1
22171136     May 23 10:55:40 2008 n7000-s1-kickstart.4.0.2.bin1
    4096     May 23 13:03:37 2008 newer-fs/
    4096     May 28 15:13:30 2008 nk/
     127     Mar 20 16:37:59 2008 setip.sh

Usage for bootflash://sup-local
572186624 bytes used
306606080 bytes free
878792704 bytes total
```

Example 2   Determining the Amount of Available Slot0 Memory

```
switch# dir slot0:
       25     Apr 28 23:07:28 2008  slot0

Usage for slot:
  642273280 bytes used
  261824512 bytes free
  904097792 bytes total

switch# show module
Mod  Ports  Module-Type                     Model              Status
---  -----  ------------------------------- ------------------ ------------
2    32     10 Gbps Ethernet Module         N7K-M132XP-12      ok
5    0      Supervisor module-1X            N7K-SUP1           ha-standby
6    0      Supervisor module-1X            N7K-SUP1           active *
...
switch# dir slot0://sup-standby/
       25     Apr 28 23:07:28 2008  slot0

Usage for slot:
  642273280 bytes used
  261824512 bytes free
  904097792 bytes total
```

Step 4   If there is not at least 120 MB of memory free for the EPLD files, delete some unneeded files, such as earlier images, so there is enough free memory.

```
switch# delete bootflash:n7000-s1-kickstart.4.0.1.bin
```

Step 5 Copy the EPLD image file from the FTP or management server to the bootflash or slot0 memory in the active supervisor module. The following example shows how to copy from the FTP server to the bootflash memory.

```
switch# copy ftp://10.1.7.2/n7000-s1-epld.4.0.2.img bootflash:n7000-s1-epld.4.0.2.img
```

Step 6 Copy the EPLD image to the standby supervisor.

```
switch# copy bootflash:n7000-s1-epld.4.0.2.img
bootflash://sup-standby/n7000-s1-epld.4.0.2.img
```

You are ready to upgrade the EPLD images (see the "Upgrading EPLD Images" section on page 10).

Upgrading EPLD Images

When you start upgrading the EPLD images for a module, the Cisco NX-OS software tries to list the current and new versions for each EPLD. If the module is installed and online, the software reports both the installed and new versions of each EPLD, and where there is a difference, the software upgrades (or downgrades) to the new version when you confirm that the upgrade should occur. For a module that is installed but offline, the software cannot determine the installed versions of its EPLDs so it upgrades all of the EPLDs for that module when you confirm the upgrade. For a module that is not installed, the software displays an error message and does not upgrade the EPLDs.

Example 3 shows how the software reports the current and new EPLD versions for a module that does not need EPLD upgrades. The current and new version numbers for each EPLD are the same.

Example 3   EPLD Version Comparison Report—No Upgrade Needed

```
EPLD                                    Curr Ver    New Ver
---------------------------------------------------------
Power Manager                           5.3         5.3
IO                                      2.10        2.10
Forwarding Engine                       1.6         1.6
Module 1 is upto date
```

Example 4 shows how the software reports the current and new EPLD versions for a module that has EPLD images that can be upgraded. According to this report, each of the downloaded Linksec Engine EPLDs has a different version than the same EPLD on the module, so the software will upgrade those EPLDs but will not upgrade the other EPLDs that have the same version numbers. If the new versions have a smaller version number compared to the current version, the software will downgrade the versions.

Example 4   EPLD Version Comparison Report—Upgrade Needed

```
EPLD                                    Curr Ver    New Ver
---------------------------------------------------------
Power Manager                           4.4         4.4
IO                                      1.10        1.10
Forwarding Engine                       1.6         1.6
FE Bridge(1)                            186.3       186.3
FE Bridge(2)                            186.3       186.3
Linksec Engine(1)                       1.5         1.7
Linksec Engine(2)                       1.5         1.7
Linksec Engine(3)                       1.5         1.7
```

```
Linksec Engine(4)                      1.5       1.7
Linksec Engine(5)                      1.5       1.7
Linksec Engine(6)                      1.5       1.7
Linksec Engine(7)                      1.5       1.7
Linksec Engine(8)                      1.5       1.7
```

The following sections explain how to upgrade the EPLD images for I/O and standby modules, the active supervisor module on switches with single-supervisor modules, fabric modules, and fan tray modules.

- Upgrading the EPLD Images for I/O or Standby Supervisor Modules, page 11
- Upgrading EPLDs for the Active Supervisor Module, page 13
- Upgrading EPLDs for a Fabric Module, page 14
- Upgrading EPLDs for a Fan Tray Module, page 15

Upgrading the EPLD Images for I/O or Standby Supervisor Modules

You can upgrade the EPLD images for an I/O module or standby supervisor module while the switch is operational. If you need to upgrade EPLD images for a single supervisor module, see the "Upgrading EPLDs for the Active Supervisor Module" section on page 13.

⚠ **Caution** Upgrading EPLD images for an online I/O module can disrupt traffic going through that module.

To upgrade EPLDs for an I/O module or the standby supervisor module, follow these steps:

Step 1 Determine the slot number for each module by entering the **show module** command.

```
switch# show module
Mod Ports Module-Type                      Model              Status
--- ----- -------------------------------- ------------------ ------------
1   48    10/100/1000 Mbps Ethernet Module N7K-N148GT-11      ok
3   32    10 Gbps Ethernet Module          N7K-M132XP-12      ok
5   0     Supervisor module-1X             N7K-SUP1           active
6   0     Supervisor module-1X             N7K-SUP1           ha-standby
10  48    10/100/1000 Mbps Ethernet Module N7K-M148GT-11      ok

Mod  Sw             Hw      World-Wide_name(s) (WWN)
---  -------------- ------  -------------------------------------------------
1    4.0(2)         0.503   --
3    4.0(2)         0.601   --
5    4.0(2)         0.900   --
6    4.0(2)         0.802   --
10   4.0(2)         0.902   --

Mod  MAC-Address(es)                       Serial-Num
---  ------------------------------------- ----------
1    00-19-07-6c-c0-6c to 00-19-07-6c-c0-a0 JAB11060144
3    00-1b-54-c1-33-98 to 00-1b-54-c1-33-bc JAB1152010K
5    00-1b-54-c1-16-18 to 00-1b-54-c1-16-20 JAB114902HF
6    00-19-07-c1-00-b8 to 00-1b-54-c1-00-c0 JAB114402JX
10   00-1b-54-c1-07-88 to 00-1b-54-c1-07-bc JAB114501RW

* this terminal session
switch#
```

Step 2   Install the EPLDs by entering the **install module** *slot_number* **epld** *url* command.

```
switch# install module 6 epld bootflash:n7000-s1-epld.4.0.2.img


EPLD image file , built on Fri May 16 20:36:39 2008


EPLD                                       Curr Ver    New Ver
------------------------------------------------------
Power Manager                              3.4         3.6
IO                                         3.23        3.23
Inband                                     1.7         1.7
Local Bus CPLD                             2.1         2.1
CMP CPLD                                   6.0         6.0
WARNING: Upgrade process could take upto 30 minutes.

Standby supervisor is being upgraded.
Do you want to continue (y/n) ?
```

Step 3   Begin upgrading the EPLD images by entering Y for yes.

```
Do you want to continue (y/n) ? Y
```

Step 4   For releases 4.0(2) or earlier, if you updated the power management EPLD image, you must reset the power for the module so that EPLD can take effect (this is not required for release 4.0(3) or later). You can reset the power in one of the following two ways:

- To reset the power for a module, physically remove the module and reinstall it.

> **Note**   A module reload or just pressing the ejector buttons on the module is not sufficient for this reset requirement.

- To reset an entire switch, power cycle the switch.

To confirm the EPLD upgrade, see the "Displaying EPLD Versions for an I/O or Supervisor Module" section on page 16.

> **Caution**   Resetting the power disrupts any data traffic going through the affected modules. If you power cycle the entire switch, all data traffic going through the switch at the time of the power cycling is disrupted. This is not necessary for release 4.0(3) or later.

> **Note**   As of release 4.0(3), the switch automatically loads the new power management EPLD after an upgrade, so it is no longer necessary to reset the power for the module or switch.

Upgrading EPLDs for the Active Supervisor Module

When you upgrade EPLDs on a switch with only one supervisor module, data traffic on the switch will be affected when you reload the device after the upgrade. If you are upgrading EPLDs for a switch with two supervisor modules, you can upgrade the standby supervisor while the switch is operational as explained in the "Upgrading the EPLD Images for I/O or Standby Supervisor Modules" section on page 11.

To upgrade EPLDs for a switch with a single supervisor module, follow these steps:

Step 1   Determine the slot number for each module. The active supervisor is in either slot 5 or slot 6.

```
switch# show module
Mod Ports Module-Type                        Model              Status
--- ----- ------------------------------ ------------------ ------------
1   48    10/100/1000 Mbps Ethernet Module N7K-N148GT-11      ok
3   32    10 Gbps Ethernet Module          N7K-M132XP-12      ok
5   0     Supervisor module-1X             N7K-SUP1           active
10  48    10/100/1000 Mbps Ethernet Module N7K-M148GT-11      ok

Mod  Sw            Hw     World-Wide_name(s) (WWN)
---  ------------- ------ -----------------------------------------------
1    4.0(2)        0.503  --
3    4.0(2)        0.601  --
5    4.0(2)        0.900  --
10   4.0(2)        0.902  --

Mod  MAC-Address(es)                       Serial-Num
---  ------------------------------------- ----------
1    00-19-07-6c-c0-6c to 00-19-07-6c-c0-a0 JAB11060144
3    00-1b-54-c1-33-98 to 00-1b-54-c1-33-bc JAB1152010K
5    00-1b-54-c1-16-18 to 00-1b-54-c1-16-20 JAB114902HF
10   00-1b-54-c1-07-88 to 00-1b-54-c1-07-bc JAB114501RW

* this terminal session
```

Step 2   Install the EPLDs by entering the **install module** *slot_number* **epld** *url* command.

```
switch# install module 5 epld bootflash:n7000-s1-epld.4.0.2.img


EPLD image file , built on Fri May 16 20:36:39 2008


EPLD                                Curr Ver   New Ver
-------------------------------------------------------
Power Manager                        3.4        3.6
IO                                   3.23       3.23
Inband                               1.7        1.7
Local Bus CPLD                       2.1        2.1
CMP CPLD                             6.0        6.0
WARNING: Upgrade process could take upto 30 minutes.

Active Supervisor is being upgraded.
Data traffic on the switch will be affected!!
The switch will reload after the upgrade process.
Do you want to continue (y/n) ?
```

Step 3   Confirm the upgrade by entering Y for yes.

```
Do you want to continue (y/n) ? Y
```

The Cisco Nexus 7000 Series switch will reload as soon as the upgrade occurs.

Step 4   For releases 4.0(2) or earlier, if you updated the power management EPLD image, you must reset the power for the module so that EPLD can take effect (this is not required for release 4.0(3) or later). You can reset the power in one of the following two ways:

- To reset the power for a module, physically remove the module and reinstall it.

✎
Note   A module reload or just pressing the ejector buttons on the module is not sufficient for this reset requirement.

- To reset an entire switch, power cycle the switch.

To confirm the EPLD upgrade, see the "Displaying EPLD Versions for an I/O or Supervisor Module" section on page 16.

⚠
Caution   Resetting the power disrupts any data traffic going through the affected modules. If you power cycle the entire switch, all data traffic going through the switch at the time of the power cycling is disrupted. This is not necessary for release 4.0(3) or later.

✎
Note   As of release 4.0(3), the switch automatically loads the new power management EPLD after an upgrade, so it is no longer necessary to reset the power for the module or switch.

Upgrading EPLDs for a Fabric Module

You can upgrade EPLDs for a fabric (Xbar) module while the switch is operational as long as at least one other fabric module is operational.

To upgrade EPLDs for a fabric module, follow these steps:

Step 1   Determine which fabric modules are present on the Cisco Nexus 7000 Series switch.

```
switch# show module xbar
Xbar Ports  Module-Type                      Model              Status
---  -----  -------------------------------- ------------------ ------------
1    0      Xbar                             N7K-C7010-FAB-1    ok
2    0      Xbar                             N7K-C7010-FAB-1    ok
3    0      Xbar                             N7K-C7010-FAB-1    ok

Xbar Sw             Hw     World-Wide-Name(s)  (WWN)
---  -------------- ------ -------------------------------------------------
1    NA             0.404  --
2    NA             0.405  --
4    NA             0.405  --

Xbar MAC-Address(es)                       Serial-Num
------------------------------------------ -----------------
1    NA                                    JAB114700WL
2    NA                                    JAB115000LU
4    NA                                    JAB115000LJ

* this terminal session
```

Step 2   Install the EPLD images for a fabric module by entering the **install xbar-module** *slot_number* **epld** *url* command.

```
switch# install xbar-module 1 epld bootflash:n7000-s1-epld.4.0.2.img

EPLD image file , built on Fri May 16 20:36:39 2008

EPLD                                    Curr Ver    New Ver
-------------------------------------------------------
Power Manager                           2.7         2.8
WARNING: Upgrade process could upto 30 minutes.
Module could be powered down and up.

Xbar Module 1 will be powered down now!!
Do you want to continue (y/n) ?  [n]
```

Step 3   Confirm the upgrade by entering Y for yes.

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

To confirm the EPLD upgrade, see the "Displaying EPLD Versions for a Fabric Module" section on page 17.

Upgrading EPLDs for a Fan Tray Module

You can upgrade EPLDs for fan tray modules while the switch is operational.

To upgrade EPLDs for a fan tray module, follow these steps:

Step 1   Display fan tray information, such as module numbers and fan tray types.

```
switch# show environment fan

Fan:
-------------------------------------------------------
Fan             Model           Hw          Status
-------------------------------------------------------
Fan1(sys_fan1)                  0.0         Ok
Fan2(sys_fan2)                  0.0         Ok
Fan3(fab_fan1)                  0.0         Ok
Fan4(fab_fan2)                  0.0         Ok
Fan_in_PS1      --              --          Ok
Fan_in_PS2      --              --          Ok
Fan_in_PS3      --              --          Ok
Fan Air Filter : Absent
switch#
```

Step 2   Upgrade the EPLD images for the fan tray module by entering the **install fan-module** *slot_number* **epld** *url* command.

```
switch# install fan-module 1 epld bootflash:n7000-s1-epld.4.0.2.img

EPLD image file , built on Fri May 16 20:36:39 2008

EPLD                                    Curr Ver    New Ver
-------------------------------------------------------
Fan Controller                          0.5         0.7
Fan Controller                          0.5         0.7
WARNING: Upgrade process could upto 30 minutes.
```

```
Module could be powered down and up.

Programming Fan Module 1 !!
Do you want to continue (y/n) ?  [n]
```

Step 3   Confirm the upgrade by entering Y for yes.

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

To confirm the EPLD upgrade, see the "Displaying EPLD Versions for a Fan Tray Module" section on page 17.

Displaying the EPLD Versions

The following sections describe how to display the EPLD versions on each module in your switch and the available EPLD versions:

Displaying EPLD Versions for an I/O or Supervisor Module

To display all of the current EPLD versions on a specific I/O or supervisor module, use the **show version module** *slot_number* **epld** command as shown in Example 5.

Example 5   Displaying the Current EPLD Versions for a Module

```
switch# show version module 2 epld

EPLD Device                   Version
--------------------------------------
Power Manager                 4.2
IO                            1.10
Forwarding Engine             1.6
FE Bridge(1)                  186.2
FE Bridge(2)                  186.2
Linksec Engine(1)             1.2
Linksec Engine(2)             1.2
Linksec Engine(3)             1.2
Linksec Engine(4)             1.2
Linksec Engine(5)             1.2
Linksec Engine(6)             1.2
Linksec Engine(7)             1.2
Linksec Engine(8)             1.2
```

Displaying EPLD Versions for a Fabric Module

To view all current EPLD versions on a fabric module, use the **show version xbar** *slot_number* **epld** command as shown in Example 6.

Example 6   Displaying the Current EPLD Versions for a Fabric Module

```
switch# show version xbar 1 epld

EPLD Device               Version
-------------------------------------
Power Manager               2.7
```

Displaying EPLD Versions for a Fan Tray Module

To view all current EPLD versions on a specific fan tray, use the **show version fan** *slot_number* **epld** command as shown in Example 7.

Example 7   Displaying Current EPLD Versions for Fan Tray 1

```
switch# show version fan 1 epld
EPLD Device               Version
-------------------------------------
Fan Controller(BUS A)       2.7
Fan Controller(BUS B)       2.7
```

Displaying the Available EPLD Versions

To view the available EPLD versions, use the **show version epld** *url* command as shown in Example 8.

Example 8   Displaying the Available EPLD Versions

```
switch# show version epld bootflash:n7000-s1-epld.4.1.3.img

EPLD image file , built on Fri Jan  9 00:40:41 2009


Module Type                     EPLD Device        Version
-----------------------------------------------------------------
Supervisor-1X                   Power Manager        3.7
Supervisor-1X                   IO                   3.26
Supervisor-1X                   Inband               1.7
Supervisor-1X                   Local Bus CPLD       3.0
Supervisor-1X                   CMP CPLD             6.0

10/100/1000 Mbps Eth Module     Power Manager        5.4
10/100/1000 Mbps Eth Module     IO                   2.11
10/100/1000 Mbps Eth Module     Forwarding Engine    1.6

10 Gbps Ethernet Module         Power Manager        4.6
10 Gbps Ethernet Module         IO                   1.14
10 Gbps Ethernet Module         Forwarding Engine    1.6
10 Gbps Ethernet Module         FE Bridge            186.3
10 Gbps Ethernet Module         Linksec Engine       1.8
```

```
1000 Mbps Optical Ethernet Module    Power Manager         4.6
1000 Mbps Optical Ethernet Module    IO                    1.3
1000 Mbps Optical Ethernet Module    Forwarding Engine     1.6
1000 Mbps Optical Ethernet Module    SFP                   1.4

Fabric Module                        Power Manager         2.9

Fabric Module 2                      Power Manager         1.1

Fan(Cisco Nexus 7010)                Fan Controller        0.7
Fan(Cisco Nexus 7010)                Fan Controller        0.7

Fan(Cisco Nexus 7018)                Fan Controller        0.2
Fan(Cisco Nexus 7018)                Fan Controller        0.2
```

Displaying the Status of EPLD Upgrades

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

Example 9   Displaying EPLD Upgrades

```
switch# show install epld status

1) Module 2 upgraded on Wed Sep 17 00:27:15 (354639 us)
Status: EPLD Upgrade was Successful

EPLD                         Curr Ver    Old Ver
-------------------------------------------------------
Power Manager                   5.4         5.0
IO                              2.11        2.8
Forwarding Engine               1.6         1.3
```

Default Settings

Table lists the default hardware settings.

Table 4   Default Hardware Settings

Parameters	Default
Power mode	Power supply redundancy mode.

Caveats

This section includes the following topics:

Open Caveats in Release 4.1(3)

There are no open caveats for Release 4.1(3).

Resolved Caveats in Release 4.1(2)

This section lists the resolved caveats for Release 4.1(2).

- CSCsq28232

    Symptom: In 18 slot chassis, Supervisor can detect intermittent Power Management Bus, Status Bus and Fabric access errors.

    Condition: 18 slot chassis.

    Workaround: None

    Resolution:

    – New supervisor module IOFPGA version 3.25 or newer

    – New supervisor module PMFPGA version 3.7

    – New 48-port 10/100/1000 Ethernet I/O module IOFPGA version 2.11

    – New 48-port 10/100/1000 Ethernet I/O module PMFPGA version 5.4

    – New 32-port 10 Gbps Ethernet I/O module IOFPGA version 1.13

    – New 32-port 10 Gbps Ethernet I/O module PMFPGA version 4.6

- CSCsq97271

    Symptom: When the Link LED on 48-port 10/100/1000 Ethernet I/O module is turned on, it can intermittently turn off and then back on within a half second.

    Condition: Link LED is lit.

    Workaround: None

    Resolution: Fixed in 48-port 10/100/1000 Ethernet I/O module IOFPGA version 2.11

- CSCsr03766

    Symptom: First byte of NVRAM occasionally becomes corrupted after power cycling the Supervisor.

    Conditions: Supervisor power cycle.

    Workaround: Software detects the corrupted byte and writes the correct value.

    Resolution: Supervisor IO FPGA version 3.19 fixes this issue.

- CSCsr42519

    Symptom: Incorrect MAC statistic counter values.

    Condition: Occurs when CTS is enabled and close to line-rate traffic.

    Workaround: None

    Resolution: Fixed in GE LC IOFPGA version 2.11.

- CSCsr44846

    Symptom: Module did not power down after you opened and closed the ejectors.

    Condition: Ejectors are opened and immediately closed within two hundred milliseconds.

Workaround: None

Resolution: Fixed in Supervisor IOFPGA version 3.19, 48-port 10/100/1000 Ethernet IOFPGA version 2.11, and 32-port 10 Gbps Ethernet IOFPGA version 1.14.

- CSCsu50821

  Symptom: Intermittent parity error when reading status from LinkSec Engine FPGA.

  Condition: Reading status from LinkSec Engine FPGA.

  Workaround: None

  Resolution: Fixed in the 32-port 10 Gbps Ethernet I/O module IOFPGA version 1.14

Resolved Caveats in Release 4.1(3)

This section lists the resolved caveats for Release 4.1(3).

- CSCsv92355

  Symptom: When you replace a 32-port 10-Gigabit Ethernet I/O module, temporary packet drops occur with other I/O modules.

  Conditions: This condition occurs only if you replace the 32-port 10-Gigabit Ethernet I/O module without powering down the I/O module first.

  Workaround: Power down the 32-port 10-Gigabit Ethernet I/O module before performing an OIR. This can be done using the **poweroff module** *slot_number* command.

  ```
  switch(config)# poweroff module 4
  ```

  Resolution: You must upgrade the IO FPGA EPLD for the 32-port 10-Gbps Ethernet I/O module in addition to installing the Cisco NX-OS software for Release 4.1(3).

- CSCsx22079

  Symptom: SPROM test failure during MFG testing.

  Conditions: Reading or writing to SPROM.

  Workaround: None

  Resolution: Fixed in PMFPGA version 1.2. This image is also bundled in 4.1(3).

Limitations

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

- You cannot upgrade the Local Bus CPLD and CMP CPLD while you are upgrading a supervisor module in the 4.0(1) release only.

- You must upgrade each installed module individually. If the module is online, Cisco NX-OS upgrades only the EPLD images that have different current and new versions. If the module is offline, all EPLDs are upgraded, even if their version numbers are the same.

- If you interrupt an upgrade, you must upgrade the module again.

- You can execute an upgrade or downgrade only from the active supervisor module. On switches with two supervisors, upgrade the standby supervisor and then switch the standby supervisor to active to place the previously active supervisor module in standby mode. Upgrade the EPLDs on the standby supervisor. On switches that have only one supervisor, you must upgrade or downgrade the EPLDs on the active supervisor, which will interfere with data traffic during the upgrade.

- Release 4.1(2) does not provide EPLD upgrades for the Cisco Nexus 7018 fan controller.

Current EPLD Versions

Table 5 lists the complete list of EPLD versions. To see which versions are new for Release 4.1, see Table 3 on page 5.

Table 5   Complete List of EPLDs Used for the Cisco NX-OS Release 4.1(3)

Module Type	EPLD Device	EPLD Version
Supervisor module (N7K-SUP1)	Power Manager	3.7
	IO	3.26
	Inband	1.7
	Local Bus CPLD	3.0
	CMP CPLD	6.0
48-port 10/100/1000 Mbps Ethernet I/O module (N7K-M148GT-11)	Power Manager	5.4
	IO	2.11
	Forwarding Engine	1.6
48-port 1 Gbps Ethernet I/O module (N7K-M148GS-11)	Power Manager	4.6
	IO	1.3
	SFP	1.4
	Forwarding Engine	1.6
32-port 10 Gbps Ethernet I/O module (N7K-M132XP-12)	Power Manager	4.6
	IO	1.14
	Forwarding Engine	1.6
	FE Bridge	186.3
	LinkSec Engine	1.8
Fabric module (Cisco Nexus 7010)	Power Manager	2.9
Fabric module (Cisco Nexus 7018) (N7K-C7018-FAB1)	Power Manager	1.2
Fan (Cisco Nexus 7010)	Fan Controller	0.7
Fan (Cisco Nexus 7018)	Fan Controller	0.2[1]

1. Release 4.1(3) does not support EPLD upgrades for the Cisco Nexus 7018 fan controller.

Related Documentation

Cisco Nexus 7000 Series documentation is available at the following URL:

http://www.cisco.com/en/US/products/ps9402/tsd_products_support_series_home.html

The documentation set includes the following documents:

- *Cisco Nexus 7000 Series Site Preparation Guide*
- *Cisco Nexus 7000 Series Hardware Installation and Reference Guide*
- *Cisco Nexus 7000 Series Regulatory Compliance and Safety Information*
- *Cisco Nexus 7000 Series Connectivity Management Processor Configuration Guide*

The release notes for upgrading Cisco NX-OS are available at the following URL:

http://www.cisco.com/en/US/docs/switches/datacenter/sw/4_1/nx-os/release/notes/41_nx-os_release_note.html

The release notes for upgrading DCNM are available at the following URL:

http://www.cisco.com/en/US/docs/switches/datacenter/sw/4_1/dcnm/release/notes/dcnm_4_1_relnotes.html

Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html

Subscribe to the *What's New in Cisco Product Documentation* as a Really Simple Syndication (RSS) feed and set content to be delivered directly to your desktop using a reader application. The RSS feeds are a free service and Cisco currently supports RSS version 2.0.