Perform System Upgrade and Install Feature Packages

You can execute the system upgrade and package installation processes using the **install** commands on NCS 1014. The processes involve adding and activating the ISO images (*.iso*) and feature packages (*.rpm*) on NCS 1014. You can accesss these files from a network server and then activate on NCS 1014. If the installed package or SMU causes any issue, you can uninstall it.

Note We recommend that you collect the output of **show tech-support ncs1014** command before performing operations such as a reload or CPU OIR on NCS 1004. The command provides information about the state of the system before reload or before the CPU OIR operation is performed. This information is useful in debugging.

Upgrade Software

Upgrading the software is the process of installing a new version of the Cisco IOS XR operating system on NCS 1014. NCS 1014 is preinstalled with the Cisco IOS XR image. However, you can install a new version to keep features up to date. You can perform the software upgrade operation using an ISO image from the XR mode.

Note NCS1014 and NCS1014 platform uses the same IOS-XR packaging image. Nomenclature of ISO image of IOS-XR base image example: "ncs1010-x64-[sw-rel-ver].iso'.

Before you begin

- Configure Management Interface

- Copy the ISO image to be installed either on the NCS 1014 hard disk or on a network server to which NCS 1014 has access.

Procedure

Step 1   Execute one of these commands:

Installs the new ISO image from the harddisk or from the network server. The install operation takes between 20–40 minutes to complete.

- **install replace /harddisk:***iso-image-name*
- **install package replace** *<ftp or http or https protocol>/package_path/ filename1 filename2 ...*

> **Note**   The **install package replace** command upgrades the ISO image but doesn't reload the RP automatically. But the **install replace** command upgrades the ISO image and reloads the RP.

Example:

```
RP/0/RP0/CPU0:ios#install replace /harddisk:/ncs1010-x64-7.11.1.iso
Wed Nov 15 09:44:44.491 UTC
Once the packaging dependencies have been determined, the install operation may have to
reload the system.
If you want to control the timing of system reload, you must not continue, but use the
'install package replace' command instead, followed by 'install apply'.
Continue? [yes/no]:[yes]
Install replace operation 1.1 has started
Install operation will continue in the background
.....................
.....................
ios con0/RP0/CPU0 is now available
```

> **Note**   Boot time FPD upgrade happens before XR boot. All the FPDs belonging to the RP location are upgraded during the boot time FPD upgrade.

> **Note**   Automatic Field Programmable Device(FPD) upgrade is enabled by default.. When the automatic FPD upgrade is enabled, the install operation also upgrades the FPDs (except the Golden FPDs and Power modules) that need to be upgraded.

Step 2   **show install request**

Displays the current status of the install operation.

Example:

```
RP/0/RP0/CPU0:ios#show install request
Wed Nov 15 10:00:35.713 UTC
User request: install replace /harddisk:/ncs1010-golden-x86_64-7.11.1.48I-Weekly.iso
Operation ID: 1.1
State:In progress since 2023-11-15 09:50:23 UTC
Current activity:    Package add or other package operation
Next activity:       Apply
Time started:        2023-11-15 09:55:24 UTC
Timeout in:          84m 43s
```

```
Locations responded: 0/1
Location          Packaging operation stage Notification Phase Clients responded
---------------- ------------------------ ----------------- -----------------
0/RP0/CPU0        Package operations       None in progress              N/A
```

When the install operation completes successfully, the device automatically reloads.

Note   In case of the **install package replace** command, you'll be prompted to enter the next command (**install apply reload** command).

Step 3   **install commit**

Commits the new ISO image.

Example:

```
RP/0/RP0/CPU0:ios#install commit
Wed Nov 15 10:38:00.592 UTC
Install commit operation 1 has started
Install operation will continue in the background
```

Example:

Note   It is the mandatory to commit the install successfully to upgrade the software, missing this step followed by any controller reload/restart/power cycle will result in rollback to previously installed committed software/RPM package version.

Step 4   **show install committed**

Displays the commited package information.

Example:

```
RP/0/RP0/CPU0:ios#show install committed
Wed Nov 15 10:41:20.454 UTC
Software Hash: ec69dcceb81c0da69b297aa7de1d00f56b8aef52403c5e0ffe6e5db098bd83b8
Package                                                                  Version
-------------------------------------------------------------------------------
xr-aaa                                                          7.11.1.48Iv1.0.0-1
xr-acl                                                          7.11.1.48Iv1.0.0-1
xr-apphosting                                                   7.11.1.48Iv1.0.0-1
xr-appmgr                                                       7.11.1.48Iv1.0.0-1
xr-bcdl                                                         7.11.1.48Iv1.0.0-1
xr-bfd                                                          7.11.1.48Iv1.0.0-1
xr-bgp                                                          7.11.1.48Iv1.0.0-1
xr-bgputil                                                      7.11.1.48Iv1.0.0-1
xr-bng-stubs                                                    7.11.1.48Iv1.0.0-1
xr-bundles                                                      7.11.1.48Iv1.0.0-1
```

Install Packages and RPMs

Complete this task to install additional packages or rpm files. The rpm files that need to be installed must be placed in a folder.

✎

Note   This task can be used to install SMUs as well.

Before you begin

- Configure and connect to the management interface. You can access the installable file through the management interface. For details about configuring the management interface, see Workflow for Install Process.

- Copy the package or rpm to be installed either on the NCS 1014 hard disk or on a network server to which NCS 1014 has access.

Procedure

Step 1   **install package add source /harddisk:/** *iso-image-name or rpm-folder-name*

Example:

```
RP/0/RP0/CPU0:ios#install package add source harddisk:/rpm
Wed Nov 15 18:10:14.784 UTC

Install add operation 2.1.2 has started
Install operation will continue in the background

RP/0/RP0/CPU0:ios#install package add source harddisk:/rpm/
Thu Apr 20 18:09:49.582 UTC
Install add operation 7.1.1 has started
Install operation will continue in the background
```

Ensure to add the respective packages or rpm files as appropriate. This operation may take time depending on the size of the files that are added. The operation takes place in an asynchronous mode. The **install package add source** command runs in the background, and the EXEC prompt is returned.

Step 2   **show install request**

Example:

```
RP/0/RP0/CPU0:ios#show install request

Thu Apr 20 18:13:00.720 UTC

User request: install package add source file:///harddisk:/rpm
Operation ID: 7.1.1
State:        Success since 2023-04-20 18:13:04 UTC

Current activity:    Await user input
Time started:        2023-04-20 18:13:04 UTC

The following actions are available:
    install package add
    install package remove
    install package upgrade
    install package downgrade
    install package abort latest
    install package abort all-since-apply
    install apply restart
    install apply reload
    install replace reimage

Least impactful apply method: install apply restart
```

Displays the current status of the install operation.

Step 3   **install apply reload**

Example:

```
RP/0/RP0/CPU0:ios#install apply


Thu Apr 20 18:13:18.514 UTC
Once the packaging dependencies have been determined, the install operation may have to
reload the system.
If you want more control of the operation, then explicitly use 'install apply restart' or
'install apply reload' as reported by 'show install request'.
Continue? [yes/no]:[yes] yes
Install apply operation 7.1 has started
Install operation will continue in the background
```

Enables NCS 1014 to reload.

Step 4   **show install request**

Example:

```
RP/0/RP0/CPU0:ios#show install request
Thu Apr 20 18:15:06.876 UTC

User request: install apply restart
Operation ID: 7.1
State:        Success since 2023-04-20 18:14:41 UTC

Current activity:    Await user input
Time started:        2023-04-20 18:14:41 UTC

The following actions are available:
install package add
install package remove
install package upgrade
install package downgrade
install package replace
install package rollback
install replace
install rollback
install source
install commit
install replace reimage
```

Displays the current status of the install operation.

Step 5   **install commit**

Example:

```
RP/0/RP0/CPU0:ios#install commit
Thu Apr 20 18:15:17.620 UTC
Install commit operation 7 has started
Install operation will continue in the background
```

Commits the package or rpm files.

Step 6   **show install request**

Example:

```
RP/0/RP0/CPU0:ios#show install request

User request: install commit
Operation ID: 2
State:        In progress since 2022-07-04 11:48:48 UTC

Current activity:    Commit transaction
```

```
Next activity:      Transaction complete
Time started:       2022-07-04 11:48:48 UTC

No per-location information.
```

Displays the current status of the install operation. The above output indicates that the install operation is in progress.

Example:

```
RP/0/RP0/CPU0:ios#show install request

User request: install commit
Operation ID: 2
State:         Success since 2022-07-04 11:50:32 UTC

Current activity:    No install operation in progress

The following actions are available:
    install package add
    install package remove
    install package upgrade
    install package downgrade
    install package replace
    install package rollback
    install replace
    install rollback
    install source
```

Displays the current status of the install operation. The above output indicates that the install operation is complete.

Step 7   **show install request**

Example:

```
RP/0/RP0/CPU0:ios#show install request

User request: install commit
Operation ID: 2
State:         Success since 2022-07-04 11:50:32 UTC

Current activity:    No install operation in progress

The following actions are available:
    install package add
    install package remove
    install package upgrade
    install package downgrade
    install package replace
    install package rollback
    install replace
    install rollback
    install source
```

Displays the current status of the install operation. The above output indicates that the install operation is complete.

Step 8   **show install active summary**

Example:

```
RP/0/RP0/CPU0:ios#show install active summary
Wed Nov 15 18:20:38.783 UTC
Active Packages: XR: 160 All: 1318
Label: 7.11.1.48I-Weekly
```

```
Software Hash: ec69dcceb81c0da69b297aa7de1d00f56b8aef52403c5e0ffe6e5db098bd83b8

Optional Packages                                         Version
-------------------------------------------------- --------------------------
xr-bgp 7.11.1.48I                                         v1.0.0-1
xr-cdp 7.11.1.48I                                         v1.0.0-1
xr-cosm 7.11.1.48I                                        v1.0.0-1
xr-dt-sit 7.11.1.48I                                      v1.0.0-1
xr-eigrp 7.11.1.48I                                       v1.0.0-1
xr-healthcheck 7.11.1.48I                                 v1.0.0-1
xr-ipsla 7.11.1.48I                                       v1.0.0-1
xr-is-is 7.11.1.48I                                       v1.0.0-1
xr-k9sec 7.11.1.48I                                       v1.0.0-1
xr-license-util 7.11.1.48I                                v1.0.0-1
xr-lldp 7.11.1.48I                                        v1.0.0-1
xr-mpls-oam 7.11.1.48I                                    v1.0.0-1
xr-netsim 7.11.1.48I                                      v1.0.0-1
xr-olc 7.11.1.48I                                         v1.0.0-1
xr-ospf 7.11.1.48I                                        v1.0.0-1
xr-perfmgmt 7.11.1.48I                                    v1.0.0-1
xr-rip 7.11.1.48I                                         v1.0.0-1
xr-telnet 7.11.1.48I                                      v1.0.0-1
xr-tftp 7.11.1.48I                                        v1.0.0-1
xr-track 7.11.1.48I                                       v1.0.0-1
```

Displays the list of active packages and rpm files.

Step 9   **show install committed summary**

Example:

```
RP/0/RP0/CPU0:ios#show install committed summary

Wed Nov 15 18:21:35.919 UTC
Committed Packages: XR: 160 All: 1318
Label: 7.11.1.48I-Weekly
Software Hash: ec69dcceb81c0da69b297aa7de1d00f56b8aef52403c5e0ffe6e5db098bd83b8

Optional Packages                         Version
-------------------------------------------------- --------------------------
xr-bgp 7.11.1.48I                         v1.0.0-1
xr-cdp 7.11.1.48I                         v1.0.0-1
xr-cosm 7.11.1.48I                        v1.0.0-1
xr-dt-sit 7.11.1.48I                      v1.0.0-1
xr-eigrp 7.11.1.48I                       v1.0.0-1
xr-healthcheck 7.11.1.48I                 v1.0.0-1
xr-ipsla 7.11.1.48I                       v1.0.0-1
xr-is-is 7.11.1.48I                       v1.0.0-1
xr-k9sec 7.11.1.48I                       v1.0.0-1
xr-license-util 7.11.1.48I                v1.0.0-1
xr-lldp 7.11.1.48I                        v1.0.0-1
xr-mpls-oam 7.11.1.48I                    v1.0.0-1
xr-netsim 7.11.1.48I                      v1.0.0-1
xr-olc 7.11.1.48I                         v1.0.0-1
xr-ospf 7.11.1.48I                        v1.0.0-1
xr-perfmgmt 7.11.1.48I                    v1.0.0-1
xr-rip 7.11.1.48I                         v1.0.0-1
xr-telnet 7.11.1.48I                      v1.0.0-1
xr-tftp 7.11.1.48I                        v1.0.0-1
xr-track 7.11.1.48I                       v1.0.0-1

-------------------------------------------------- --------------------------
```

Displays the list of committed packages and rpm files.

Related Commands

The following commands can be used to track the status of the install operation.

Related Commands	Purpose
show install active	Displays the list of active packages.
show install committed	Displays the list of committed packages.
show install log	Displays the log information for the install operation. This information is used for troubleshooting in case of installation failure.
show install package	Displays the details of the packages that are added to the repository. Use this command to identify individual components of a package.
show install request	Displays the current status of the install operation.
show install which	Displays the package information on an installed file.

Upgrade FPD

A Field Programmable Device (FPD) refers to any programmable hardware device on a system which includes a Field Programmable Gate Array (FPGA). You can use the following tasks to verify and upgrade the FPDs of line cards, which are critical for chassis operation.

The following table lists the NCS 1014 FPDs that are distributed across Route Processor (RP), Power Modules (PM), Line Cards (LC), and Rack.

Table 1: NCS 1014 FPDs

Location	FPDs
RP	• ADM-DB • ADM-MB • BIOS • BIOS-Golden • CpuFpga • CpuFpgaGolden • SsdIntelS4510 • SsdIntelSC2KB • SsdMicron5300 • TamFw • TamFwGolden
PM0 and PM1	• PO-PriMCU • PO-SecMCU
LC	• CpuModFw • OptModFw
Rack	• ADM-CHASSIS • IoFpga • IoFpgaGolden • SsdIntelSC2KB

Golden FPDs serve as backup FPDs for the primary FPDs. For example, **BIOS-Golden** is the backup Golden FPD for the **BIOS** primary FPD. If a primary FPD is corrupted, NCS 1014 boots with the corresponding Golden FPD. The Golden FPDs cannot be upgraded.

Retrieve FPD Information

There are multiple types of FPDs for each type of module. The **show hw-module fpd** command provides information about each FPD.

```
RP/0/RP0/CPU0:ios#show hw-module fpd
Wed Nov 15 19:29:37.061 UTC

Auto-upgrade:Enabled
Attribute codes: B golden, P protect, S secure, A Anti Theft aware
                                                          FPD Versions
                                                          ==============
Location    Card type       HWver   FPD device    ATR Status   Running Programd Reload Loc
```

```
-----------------------------------------------------------------------------------------
0/RP0/CPU0 NCS1K14-CNTLR-K9  0.2    ADM-DB               CURRENT   2.10  2.10   NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9  0.2    ADM-MB               CURRENT   2.30  2.30   NOT REQ
0/RP0/CPU0 NCS1K14-CNTLR-K9  0.2    BIOS S               CURRENT   4.70  4.70   0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  0.2    BIOS-Golden    BS CURRENT         4.70   0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  0.2    CpuFpga         S CURRENT   1.09  1.09   0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  0.2    CpuFpgaGolden  BS CURRENT         1.09   0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  0.2    SsdMicron5300   S CURRENT   0.01  0.01   0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  0.2    TamFw           S CURRENT   9.04  9.04   0/RP0
0/RP0/CPU0 NCS1K14-CNTLR-K9  0.2    TamFwGolden    BS CURRENT         9.04   0/RP0
0/PM0      NCS1K4-AC-PSU     0.1    PO-PriMCU          CURRENT   2.04  2.04   NOT REQ
0/PM0      NCS1K4-AC-PSU     0.1    PO-SecMCU          CURRENT   2.06  2.06   NOT REQ
0/PM1      NCS1K4-AC-PSU     0.1    PO-PriMCU          CURRENT   2.04  2.04   NOT REQ
0/PM1      NCS1K4-AC-PSU     0.1    PO-SecMCU          CURRENT   2.06  2.06   NOT REQ
0/0/NXR0   NCS1K4-1.2T-K9    0.1    CpuModFw        S CURRENT 234.10 234.10  NOT REQ
0/0/NXR0   NCS1K4-1.2T-K9    0.1    OptModFw        S CURRENT   1.38  1.38   NOT REQ
0/1/NXR0   NCS1K14-2.4T-K9   0.1    CpuModFw        S CURRENT 234.10 234.10  NOT REQ
0/2/NXR0   NCS1K14-CCMD-16-C 0.1    CpuModFw        S CURRENT 234.10 234.10  NOT REQ
0/2/NXR0   NCS1K14-CCMD-16-C 0.1    OptModFw        S CURRENT   1.38 1.38    NOT REQ
0/3/NXR0   NCS1K4-1.2T-K9    0.1    CpuModFw        S CURRENT 234.10 234.10  NOT REQ
0/3/NXR0   NCS1K4-1.2T-K9    0.1    OptModFw        S CURRENT   1.38 1.38    NOT REQ
0/Rack     NCS1014           0.1    ADM-CHASSIS        CURRENT   0.21 0.21   NOT REQ
0/Rack     NCS1014           0.1    IoFpga          S CURRENT   1.10 1.10    NOT REQ
0/Rack     NCS1014           0.1    IoFpgaGolden   BS CURRENT        1.05    NOT REQ
0/Rack     NCS1014           0.1    SsdIntelSC2KB   S CURRENT   1.20 1.20    0/Rack
```

The following table describes the significant fields in the output of the **show hw-module fpd** command.

Table 2: Description of Fields in show hw-module fpd Command

Field	Description
Location	Location of the FPD.
Card type	PID of the modules such as chassis, card, CPU, and PSU.
HWver	Hardware version where the FPD resides.
FPD device	Name of the FPD.
ATR	Attribute codes. The possible values are: • B - Golden Image • S - Secure Image • P - Protect Image The attribute code of the primary FPDs is S and the Golden FPDs is BS.
Status	Status of the FPD. See Table 3: Description of FPD Status Values in show hw-module fpd Command Output, on page 11.
Running	FPD image version that has been activated and currently running in the FPD device.

Field	Description
Programd	FPD image version that has been programmed into the FPD device, but might not be activated.
Reload Loc	Indicates whether reload of the location is required or not.

The following table describes the possible values of the **Status** field in the output of the **show hw-module fpd** command.

Table 3: Description of FPD Status Values in show hw-module fpd Command Output

FPD Status	Description
NOT READY	The driver that owns the FPD device has not initialized the FPD client to handle this device.
CURRENT	FPD version is up-to-date and upgrade is not required.
NEED UPGD	Upgrade is required for this FPD. Check the output of the **show fpd package** command to determine the recommended FPD version.
UPGD PREP	FPD is preparing for upgrade.
IN QUEUE	Upgrade of this FPD is in queue.
UPGD SKIP	FPD upgrade is not required. For example, • FPD version is up-to-date and compatible. • FPD image is protected.
UPGRADING	FPD upgrade has started and the driver has not reported the upgrade progress information yet.
%UPGD	Percentage of FPD upgrade completion.
RLOAD REQ	FPD upgrade is successful and the FPD must be reloaded for the new version to take effect.
UPGD FAIL	FPD upgrade has failed.Check the syslog for any timeout messages or any failure reported by the driver.
UPGD DONE	FPD upgrade is successfull.

Verify if an FPD Upgrade is Required

Procedure

Step 1 Use the **show hw-module fpd** command to check whether all the FPDs are in the Current state.

If the status of any FPD is **NEED UPGD**, then the upgrade is required for that FPD.

Step 2 Use the **show fpd package** command to determine the FPDs that are supported with the current software release and the minimum hardware requirements for each FPD.

```
RP/0/RP0/CPU0:ios#show  fpd package
Mon Dec  4 15:37:36.521 UTC

=============================== =================================================
                                        Field Programmable Device Package
                                =================================================
                                 Req      SW     Min Req   Min Req
Card Type              FPD Description          Reload   Ver    SW Ver    Board Ver
================== ========================= ====== ======= ======== =========
-----------------------------------------------------------------------------
NCS1014-SA             ADM-CHASSIS              NO      0.21     0.21      0.0
                       IoFpga                   NO      1.10     1.10      0.0
                       IoFpgaGolden             NO      1.05     1.05      0.0
                       SsdIntelSC2KB            YES     1.20     1.20      0.0
-----------------------------------------------------------------------------
NCS1K14-2.4T-K9        CpuModFw                 NO    234.10   234.10      0.0
-----------------------------------------------------------------------------
NCS1K14-2.4T-L-K9      CpuModFw                 NO    234.10   234.10      0.0
-----------------------------------------------------------------------------
NCS1K14-CCMD-16-C      CpuModFw                 NO    234.10   234.10      0.0
                       OptModFw                 NO     18.03    18.03      0.0
-----------------------------------------------------------------------------
NCS1K14-CCMD-16-L      CpuModFw                 NO    234.10   234.10      0.0
                       OptModFw                 NO     18.03    18.03      0.0
-----------------------------------------------------------------------------
NCS1K14-CNTLR-K9       ADM-DB                   NO      2.10     2.10      0.2
                       ADM-MB                   NO      2.30     2.30      0.2
                       BIOS                     YES     4.70     4.70      0.0
                       BIOS-Golden              YES     4.70     0.01      0.0
                       CpuFpga                  YES     1.09     1.09      0.0
                       CpuFpgaGolden            YES     1.09     1.09      0.0
                       SsdIntelS4510            YES    11.32    11.32      0.0
                       SsdIntelSC2KB            YES     1.20     1.20      0.0
                       SsdMicron5300            YES     0.01     0.01      0.0
                       TamFw                    YES     9.04     9.04      0.0
                       TamFwGolden              YES     9.04     9.04      0.0
-----------------------------------------------------------------------------
NCS1K14-CTLR-B-K9      ADM-DB                   NO      2.10     2.10      0.2
                       ADM-MB                   NO      2.30     2.30      0.2
                       BIOS                     YES     4.70     4.70      0.0
                       BIOS-Golden              YES     4.70     0.01      0.0
                       CpuFpga                  YES     1.09     1.09      0.0
                       CpuFpgaGolden            YES     1.09     1.09      0.0
                       SsdIntelS4510            YES    11.32    11.32      0.0
                       SsdIntelSC2KB            YES     1.20     1.20      0.0
                       SsdMicron5300            YES     0.01     0.01      0.0
                       TamFw                    YES     9.04     9.04      0.0
                       TamFwGolden              YES     9.04     9.04      0.0
```

```
-----------------------------------------------------------------------------
NCS1K4-1.2T-K9        CpuModFw                   NO     234.10    234.10     0.0
                      OptModFw                   NO       1.38      1.38     0.0
-----------------------------------------------------------------------------
NCS1K4-AC-PSU         PO-PriMCU                  NO       2.04      2.04     0.1
                      PO-SecMCU                  NO       2.06      2.06     0.1
-----------------------------------------------------------------------------
NCS1K4-AC-PSU-2       PO-PriMCU                  NO       1.03      1.03     0.1
                      PO-SecMCU                  NO       1.05      1.05     0.1
```

The following table describes the fields in the output of the **show fpd package** command.

Table 4: Description of Fields in show fpd package Command

Field	Description
Card Type	PID of the modules such as chassis, card, CPU, and PSU.
FPD Description	Description of the FPD.
Req Reload	Determines whether reload is required to activate the FPD image.
SW Ver	Recommended FPD software version for the associated module running the current Cisco IOS XR Software.
Min Req SW Ver	Minimum required FPD software version to operate the module.
Min Req Board Ver	Minimum required hardware version for the associated FPD. A minimum hardware requirement of version 0.0 indicates that all the hardware can support this FPD version.

FPD can be upgraded using two methods:

- Manual FPD Upgrade
- Automatic FPD upgrade

Manual FPD Upgrade

Use the following procedure to upgrade the FPDs manually.

Procedure

Step 1 Use the **upgrade hw-module location** *[location-id]* **fpd** *[fpd name]* command to upgrade a specific FPD.

Note FPD upgrades are non-traffic affecting.

Example:

```
RP/0/RP0/CPU0:ios#upgrade hw-module location 0/0/NXR0 fpd CPUModFw
```

Step 2   Use the **show hw-module fpd** command to display information about the completed FPD upgrade.

Step 3   (Optional) Use the **upgrade hw-module location** *[location-id]* **fpd** *[fpd name]* **force** command toforcibly upgrade a specific FPD irrespective of whether the upgrade is required or not.

Example:

```
RP/0/RP0/CPU0:ios#upgrade hw-module location 0/0/NXR0 fpd CPUModFw force
```

Step 4   Use the **reload location** *location-id* to reload the FPDs belonging to a specific location with the new version.

The **Reload Loc** field in the output of **show hw-module fpd** command indicates whether the reload is required or not.

Example:

```
RP/0/RP0/CPU0:ios#reload location 0/RP0/CPU0
```

Step 5   (Optional) Use the **upgrade hw-module location all fpd all** command to upgrade all the FPDs concurrently.

Example:

```
RP/0/RP0/CPU0:ios#upgrade hw-module location all fpd all
```

Note   You cannot upgrade PSU FPD using **location all fpd all** command. You can excecute **Step 6** command to upgrade PSU FPD.

Step 6   (Optional) Use the **upgrade hw-module [location** [*location-id* | **all**]] **fpd** [*fpd name*] | **all**] command to upgrade a specific FPD, all the FPDs, or the FPDs belonging to a specific location.

Note   You cannot forcefully upgrade FPDs of power modules and SSDs.

Automatic FPD upgrade

The automatic FPD upgrade automatically upgrades the firmware with the **NEED UPGD** status to **CURRENT** status. Use the **show hw-module fpd** command to view the latest status after the automatic upgrade is completed.

In NCS 1014, automatic FPD upgrade is enabled by default.

Procedure

Use the following commands to disable automatic FPD upgrade.

Example:

```
RP/0/RP0/CPU0:ios#configure
RP/0/RP0/CPU0:ios(config)#fpd auto-upgrade disable
RP/0/RP0/CPU0:ios(config)#commit
RP/0/RP0/CPU0:ios(config)#end
```

Note	• CpuModFw is upgraded during the automated FPD upgrade for cards NCS1K14-2.4T-K9 and NCS1K14-2.4T-L-K9.
	• OptModFw is upgraded first followed by CpuModFw during automated FPD upgrade for the cards NCS1K14-CCMD-16-C, NCS1K14-CCMD-16-L, and NCS1K4-1.2T-K9.
	• You cannot do an automatic upgrade for the FPD power module.