



## Perform Preliminary Checks

After successfully logging into the console, you must perform some preliminary checks to verify the default setup. If any setup issue is detected when these checks are performed, take corrective action before making further configurations. These preliminary checks are:

- [Verify Status of Hardware Modules, on page 1](#)
- [Verify Node Status, on page 2](#)
- [Verify Environmental Parameters, on page 3](#)
- [Verify Software Version, on page 4](#)
- [Verify Firmware Version, on page 5](#)
- [Verify Interface Status, on page 7](#)

## Verify Status of Hardware Modules

Hardware modules include RPs, fan trays, and so on. On the router, multiple hardware modules are installed. Perform this task to verify that all hardware modules are installed correctly and are operational.

### Before you begin

Ensure that all required hardware modules have been installed on the router.

### Procedure

#### show platform

#### Example:

```
sysadmin-vm:0_RP0# show platform
```

Displays the list of hardware modules detected on the router.

```
Mon Jul 29 10:59:22.163 UTC+00:00
Location  Card Type                HW State  SW State  Config State
-----
0/RP0     N560-RSP4-E              OPERATIONAL OPERATIONAL NSHUT
0/FT0     A907-FAN-E               OPERATIONAL N/A       NSHUT
0/PM2     A900-PWR1200-A           OPERATIONAL N/A       NSHUT
```

# Verify Node Status

Each card on the router represents a node. The operational status of the node is verified using the **show platform** command. This command is to be executed independently from both XR and System Admin mode CLIs.

## Procedure

### Step 1 **show platform**

#### Example:

```
RP/0/RP0/CPU0:router#show platform
```

The **show platform** command when executed from the XR EXEC mode displays the status of XR console running on various RPs and LCs.

Verify that all RPs are listed and their state is OPERATIONAL. This indicates that the XR console is operational on the cards.

### Step 2 **admin**

#### Example:

```
RP/0/RP0/CPU0:router# admin
```

Enters mode.

### Step 3 **show platform**

#### Example:

```
sysadmin-vm:0_RP0#show platform
```

The **show platform** command when executed from the System Admin EXEC mode displays the status of all hardware units like cards (RPs, IMs ) and hardware modules (fan trays) on the router.

This is an example for single-chassis system:

```
sysadmin-vm:0_RP0# show platform
Thu Mar 28 08:19:08.640 UTC+00:00
```

Location	Card Type	HW State	SW State	Config State
0/0	NCS4200-1T16G-PS	OPERATIONAL	N/A	NSHUT
0/1	NCS4200-1T16G-PS	OPERATIONAL	N/A	NSHUT
0/2	NCS4200-1T16G-PS	OPERATIONAL	N/A	NSHUT
0/3	NCS4200-1T16G-PS	OPERATIONAL	N/A	NSHUT
0/4	A900-IMA8Z	OPERATIONAL	N/A	NSHUT
0/5	A900-IMA8Z	OPERATIONAL	N/A	NSHUT
0/7	N560-IMA1W	OPERATIONAL	N/A	NSHUT
0/9	N560-IMA2C	OPERATIONAL	N/A	NSHUT
0/10	A900-IMA8Z	OPERATIONAL	N/A	NSHUT
0/11	A900-IMA8Z	OPERATIONAL	N/A	NSHUT
0/12	NCS4200-1T16G-PS	OPERATIONAL	N/A	NSHUT
0/13	NCS4200-1T16G-PS	OPERATIONAL	N/A	NSHUT
0/14	NCS4200-1T16G-PS	OPERATIONAL	N/A	NSHUT
0/15	NCS4200-1T16G-PS	OPERATIONAL	N/A	NSHUT
0/RP0	N560-RSP4-E	OPERATIONAL	OPERATIONAL	NSHUT
0/RP1	N560-RSP4-E	OPERATIONAL	OPERATIONAL	NSHUT

```

0/FT0      N560-FAN-H      OPERATIONAL  N/A      NSHUT
0/PM0      A900-PWR1200-A  OPERATIONAL  N/A      NSHUT
0/PM2      A900-PWR1200-A  OPERATIONAL  N/A      NSHUT

```

```
sysadmin-vm:0_RP0#
```

Verify that all cards installed on the router are displayed in the result. The software state of LCs/IMs and RPs and the hardware state of FTs and power modules should be "OPERATIONAL". Various hardware and software states are listed here.

Hardware states:

- **OPERATIONAL**—Card is operating normally and is fully functional
- **POWERED\_ON**—Power is on and the card is booting up
- **FAILED**—Card is powered on but has experienced some internal failure
- **PRESENT**—Card is in the shutdown state
- **OFFLINE**—User has changed the card state to OFFLINE. The card is accessible for diagnostics

Software states:

- **OPERATIONAL**—Software is operating normally and is fully functional
- **SW\_INACTIVE**—Software is not completely operational
- **FAILED**—Software is operational but the card has experienced some internal failure

## Verify Environmental Parameters

The following commands display the environmental parameters. Execute these commands independently from both XR and System Admin mode commands.

### Procedure

#### Step 1 show environment temperatures

##### Example:

```
sysadmin-vm:0_RP0# show environment temperatures
Mon Jul 29 11:12:24.828 UTC+00:00
```

```

=====
Location  TEMPERATURE      Value  Crit Major Minor Minor Major  Crit
          Sensor      (deg C) (Lo) (Lo) (Lo) (Hi) (Hi) (Hi)
-----
0/RP0
    QMX Die Temp      55    -40   -30   -20   100   108   112
    Inlet              34    -40   -30   -20    70    75    85
    FPGA Die           60    -40   -30   -20    95    98   102
    Outlet             53    -40   -30   -20    85    90    95
    Humidity           21    -40   -30   -20    85    95    98
0/FT0
    Fan Inlet          37    -10    -5    0   100   110   120

```

```

0/PM2
      Inlet Temperature      38    -40    -30    -20    95    100    105
      Outlet Temperature     42    -40    -30    -20    75     80     85
sysadmin-vm:0_RP0#

```

## Step 2 show environment fan

### Example:

```

sysadmin-vm:0_RP0# show environment fan
Mon Jul 29 11:13:30.258 UTC+00:00
=====
                        Fan speed (rpm)
Location  FRU Type      FAN_0  FAN_1  FAN_2  FAN_3  FAN_4  FAN_5
                        FAN_6  FAN_7  FAN_8  FAN_9  FAN_10 FAN_11
                        FAN_12 FAN_13 FAN_14 FAN_15
-----
0/FT0     A907-FAN-E      10298  10369  10288  10351  10330  10373
                        10351  10252  10341  10348  10273  10316
                        13215  13321  16189  16304

```

# Verify Software Version

The router is shipped with the Cisco IOS XR software pre-installed. Verify that the latest version of the software is installed. If a newer version is available, perform a system upgrade. This will install the newer version of the software and provide the latest feature set on the router.

Perform this task to verify the version of Cisco IOS XR software running on the router.

## Procedure

### show version

#### Example:

```
RP/0/RP0/CPU0:router# show version
```

Displays the version of the various software components installed on the router. The result includes the version of Cisco IOS XR software and its various components.

### Example

#### What to do next

Verify the result to ascertain whether a system upgrade or additional package installation is required. If that is required, refer to the tasks in the chapter [Perform System Upgrade and Install Feature Packages](#).

# Verify Firmware Version

The firmware on various hardware components of the router must be compatible with the Cisco IOS XR image installed. Incompatibility might cause the router to malfunction. Complete this task to verify the firmware version.

## Procedure

### show hw-module fpd

#### Example:

```
RP/0/RP0/CPU0:N560_SYSPSV#show hw-module fpd
Wed Mar 13 22:35:40.387 IST
```

Location	Card type	HWver	FPD device	ATR Status	FPD Versions	
					=====	
					Running	Programd
0/0	NCS4200-1T16G-PS	0.0	IMFPGA	CURRENT	1.76	1.76
0/1	NCS4200-1T16G-PS	0.0	IMFPGA	CURRENT	1.76	1.76
0/2	NCS4200-1T16G-PS	0.0	IMFPGA	CURRENT	1.76	1.76
0/3	NCS4200-1T16G-PS	0.0	IMFPGA	CURRENT	1.76	1.76
0/4	A900-IMA8Z	0.0	IMFPGA	CURRENT	17.02	17.02
0/5	A900-IMA8Z	0.0	IMFPGA	CURRENT	17.02	17.02
0/7	N560-IMA2C	0.0	IMFPGA	CURRENT	3.04	3.04
0/9	N560-IMA2C	0.0	IMFPGA	CURRENT	3.04	3.04
0/10	A900-IMA8Z	0.0	IMFPGA	CURRENT	17.02	17.02
0/11	A900-IMA8Z	0.0	IMFPGA	CURRENT	17.02	17.02
0/12	NCS4200-1T16G-PS	0.0	IMFPGA	CURRENT	1.76	1.76
0/13	NCS4200-1T16G-PS	0.0	IMFPGA	CURRENT	1.76	1.76
0/14	NCS4200-1T16G-PS	0.0	IMFPGA	CURRENT	1.76	1.76
0/15	NCS4200-1T16G-PS	0.0	IMFPGA	CURRENT	1.76	1.76
0/RP0	N560-RSP4-E	0.0	IOFPGA	CURRENT	0.53	0.53
0/RP0	N560-RSP4-E	0.0	PRIMARY-BIOS	CURRENT	0.14	0.14
0/RP1	N560-RSP4-E	0.0	IOFPGA	CURRENT	0.53	0.53
0/RP1	N560-RSP4-E	0.0	PRIMARY-BIOS	CURRENT	0.14	0.14
0/FT0	N560-FAN-H	0.256	PSOC	CURRENT	2.01	2.01
0/PM0	A900-PWR1200-A	0.0	PrIMCU	CURRENT	0.00	0.00
0/PM0	A900-PWR1200-A	0.0	SecMCU	CURRENT	0.00	0.00
0/PM2	A900-PWR1200-A	0.0	PrIMCU	CURRENT	0.00	0.00
0/PM2	A900-PWR1200-A	0.0	SecMCU	CURRENT	0.00	0.00

Effective Cisco IOS XR Release 7.2.1, the N560-IMA1W interface module is supported on the routers.

```
RP/0/RP1/CPU0:ios#show hw-module fpd
Tue Jun 23 16:10:04.026 IST
```

Location	Card type	HWver	FPD device	ATR Status	FPD Versions	
					=====	
					Running	Programd
0/0	A900-IMA8CS1Z-M	0.0	IMFPGA	CURRENT	1.95	1.95
0/1	A900-IMA8CS1Z-M	0.0	IMFPGA	CURRENT	1.95	1.95
0/2	A900-IMA8CS1Z-M	0.0	IMFPGA	CURRENT	1.95	1.95
0/7	N560-IMA1W	66.32	CFP2-DE-DCO	CURRENT	38.27397	38.27397
0/7	N560-IMA1W	0.0	IMFPGA	CURRENT	1.16	1.16
0/9	N560-IMA2C	0.0	IMFPGA	CURRENT	4.80	4.80
0/10	A900-IMA8Z	0.0	IMFPGA	CURRENT	17.05	17.05
0/11	A900-IMA8Z	0.0	IMFPGA	CURRENT	17.05	17.05
0/RP0	N560-RSP4-E	0.0	ADM	CURRENT	1.05	1.05

```

0/RP0      N560-RSP4-E      0.0  IOFPGA      CURRENT    0.56    0.56
0/RP0      N560-RSP4-E      0.0  PRIMARY-BIOS CURRENT    0.16    0.16
0/RP0      N560-RSP4-E      0.0  SATA        CURRENT    1.30    1.30
0/RP1      N560-RSP4-E      0.0  ADM         CURRENT    1.05    1.05
0/RP1      N560-RSP4-E      0.0  IOFPGA      CURRENT    0.56    0.56
0/RP1      N560-RSP4-E      0.0  PRIMARY-BIOS CURRENT    0.16    0.16
0/RP1      N560-RSP4-E      0.0  SATA        CURRENT    1.30    1.30
0/FT0      N560-FAN-H       1.0  PSOC        CURRENT    2.02    2.02
RP/0/RP1/CPU0:ios#

```

**Note**

Ensure that the CFP2-DCO firmware version is also compatible with Cisco IOS XR Release 7.2.1.

**Note**

To upgrade firmware on CFP2-DCO, controller optics (R/S/I/P) must be shut down.

Displays the list of hardware modules detected on the router.

**Note**

This command can be run from both XR VM and System Admin VM modes.

In the above output, some of the significant fields are:

- FPD Device—Name of the hardware component, such as IO FPGA, IM FPGA, and BIOS.
- Status—Upgrade status of the firmware. The different states are:
  - CURRENT—The firmware version is the latest version.
  - READY—The firmware of the FPD is ready for an upgrade.
  - NOT READY—The firmware of the FPD is not ready for an upgrade.
  - NEED UPGD—A newer firmware version is available in the installed image. It is recommended that an upgrade be performed.
  - RLOAD REQ—The upgrade has been completed, and the ISO image requires a reload.
  - UPGD DONE—The firmware upgrade is successful.
  - UPGD FAIL—The firmware upgrade has failed.
  - BACK IMG—The firmware is corrupted. Reinstall the firmware.
  - UPGD SKIP—The upgrade has been skipped because the installed firmware version is higher than the one available in the image.
- Running—Current version of the firmware running on the FPD.
- Programmd—Version of the FPD programmed on the module.

**What to do next**

- Upgrade the required firmware by using the **upgrade hw-module location all fpd** command in the EXEC mode. For the FPD upgrade to take effect, the router needs a power cycle.



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**Note** BIOS and IOFPGA upgrades require power cycle of the router for the new version to take effect.

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## Verify Interface Status

After the router has booted, all available interfaces must be discovered by the system. If interfaces are not discovered, it might indicate a malfunction in the unit. Complete this task to view the number of discovered interfaces.

### Procedure

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**show ipv4 interface summary**

**Example:**

```
RP/0/RP0/CPU0:router#show ipv4 interface summary
```

When a router is turned on for the first time, all interfaces are in the 'unassigned' state. Verify that the total number of interfaces displayed in the result matches with the actual number of interfaces present on the router.

In the above result:

- Assigned— An IP address is assigned to the interface.
- Unnumbered— Interface which has borrowed an IP address already configured on one of the other interfaces of the router.
- Unassigned—No IP address is assigned to the interface.

You can also use the **show interfaces brief** and **show interfaces summary** commands in the XR EXEC mode to verify the interface status.

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