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

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:

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 FCs,) and hardware modules (fan trays) on the router.

```
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 modulesshould 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
                                                                    FPD Versions
                                                                    ================
Location   Card type        HWver FPD device       ATR Status   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 N560-1MA1W interface module is supported on the routers.

```
RP/0/RP1/CPU0:ios#show hw-module fpd
 Tue Jun 23 16:10:04.026 IST
                                                                    FPD Versions
                                                                    ================
Location   Card type             HWver FPD device       ATR Status   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.

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

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

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.