



## Perform Preliminary Checks

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After successfully logging into the XR VM 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 Active VMs, on page 1](#)
- [Verify Status of Hardware Modules, on page 4](#)
- [Verify Node Status, on page 5](#)
- [Verify Software Version, on page 8](#)
- [Verify Firmware Version, on page 8](#)
- [Verify Interface Status, on page 10](#)
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- [Verify SDR Information, on page 12](#)
- [Verify Control Ethernet Connections, on page 13](#)
- [Monitor Craft Panel Interface , on page 15](#)

## Verify Active VMs

On the router both the XR VM and the System Admin VM must be operational. Instances of both VMs should be running on every RP and LC . Complete this task to verify the VMs are active.

### SUMMARY STEPS

1. **admin**
2. **show vm**

### DETAILED STEPS

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**Step 1**     **admin**

**Example:**

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

Enters System Admin EXEC mode.

**Step 2**     **show vm**

**Example:**

```
sysadmin-vm:0_RP0#show vm
sysadmin-vm:0_RP1# sh vm
```

```
Location: 0/0
```

| Id          | Status  | IP Address | HB Sent/Recv |
|-------------|---------|------------|--------------|
| sysadmin    | running | 192.0.64.1 | NA/NA        |
| default-sdr | running | 192.0.64.3 | 1528/1528    |

```
Location: 0/1
```

| Id          | Status  | IP Address | HB Sent/Recv |
|-------------|---------|------------|--------------|
| sysadmin    | running | 192.0.68.1 | NA/NA        |
| default-sdr | running | 192.0.68.3 | 1528/1528    |

```
Location: 0/2
```

| Id          | Status  | IP Address | HB Sent/Recv |
|-------------|---------|------------|--------------|
| sysadmin    | running | 192.0.72.1 | NA/NA        |
| default-sdr | running | 192.0.72.3 | 1528/1528    |

```
Location: 0/3
```

| Id          | Status  | IP Address | HB Sent/Recv |
|-------------|---------|------------|--------------|
| sysadmin    | running | 192.0.76.1 | NA/NA        |
| default-sdr | running | 192.0.76.3 | 1528/1528    |

```
Location: 0/4
```

| Id          | Status  | IP Address | HB Sent/Recv |
|-------------|---------|------------|--------------|
| sysadmin    | running | 192.0.80.1 | NA/NA        |
| default-sdr | running | 192.0.80.3 | 1528/1528    |

```
Location: 0/5
```

| Id          | Status  | IP Address | HB Sent/Recv |
|-------------|---------|------------|--------------|
| sysadmin    | running | 192.0.84.1 | NA/NA        |
| default-sdr | running | 192.0.84.3 | 1529/1529    |

```
Location: 0/6
```

| Id          | Status  | IP Address | HB Sent/Recv |
|-------------|---------|------------|--------------|
| sysadmin    | running | 192.0.88.1 | NA/NA        |
| default-sdr | running | 192.0.88.3 | 1531/1531    |

```
Location: 0/7
```

| Id          | Status  | IP Address | HB Sent/Recv |
|-------------|---------|------------|--------------|
| sysadmin    | running | 192.0.92.1 | NA/NA        |
| default-sdr | running | 192.0.92.3 | 1531/1531    |

```
Location: 0/RP0
```

| Id          | Status  | IP Address | HB Sent/Recv |
|-------------|---------|------------|--------------|
| sysadmin    | running | 192.0.0.1  | NA/NA        |
| default-sdr | running | 192.0.0.4  | 29736/29736  |

```
Location: 0/RP1
```

| Id          | Status  | IP Address | HB Sent/Recv |
|-------------|---------|------------|--------------|
| sysadmin    | running | 192.0.4.1  | NA/NA        |
| default-sdr | running | 192.0.4.4  | 30534/30534  |

Displays the status of the VMs running on various nodes.

```
----- VMs found at location 0/3 -----
  Id      : sysadmin
  Status  : running
  IP Addr: 192.0.76.1
  HB Interval : 0s 0ns
  Last HB Sent: 2026
  Last HB Rec : 2026
  -----
  Id      : default-sdr
  Status  : running
  IP Addr: 192.0.76.3
  HB Interval : 10s 0ns
  Last HB Sent: 2026
  Last HB Rec : 2026
  -----
----- VMs found at location 0/RP0 -----
  Id      : sysadmin
  Status  : running
  IP Addr: 192.0.0.1
  HB Interval : 0s 0ns
  Last HB Sent: 40660
  Last HB Rec : 40659
  -----
  Id      : default-sdr
  Status  : running
  IP Addr: 192.0.0.4
  HB Interval : 0s 500000000ns
  Last HB Sent: 40708
  Last HB Rec : 40707
  -----
----- VMs found at location 0/RP1 -----
  Id      : sysadmin
  Status  : running
  IP Addr: 192.0.4.1
  HB Interval : 0s 0ns
  Last HB Sent: 40708
  Last HB Rec : 40708
  -----
  Id      : default-sdr
  Status  : running
  IP Addr: 192.0.4.4
  HB Interval : 0s 500000000ns
  Last HB Sent: 40708
  Last HB Rec : 40708
  -----
```

In the above result:

- Id—Name of the VM. "sysadmin" represents System Admin VM; "default-sdr" represents XR VM
- Status—Status of the VM
- IP Addr—Internal IP address of the VM

If a VM is not running on a node, in the output of the **show vm** command, no output is shown for that node.

**What to do next**

If the XR VM is not running on a node, try reloading the node. To do so, use the **hw-module location *node-id* reload** command in the System Admin EXEC mode. Also, use the **show sdr** command in the System Admin EXEC mode to verify that the SDR is running on the node.

## Verify Status of Hardware Modules

Hardware modules include RPs, LCs, fan trays, fabric cards, 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. For installation details, see [Cisco Network Convergence System 6000 Series Routers Hardware Installation Guide](#).

**SUMMARY STEPS**

1. **admin**
2. **show hw-module *fpd location***

**DETAILED STEPS****Step 1 admin****Example:**

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

Enters System Admin EXEC mode.

**Step 2 show hw-module *fpd location***

Displays the list of hardware modules detected on the router.

```
LOCATION  SHOW
-----
0/RP0   -
0/RP1   -
0/FC0   -
0/FT0   -
0/FT1   -
0/3     -
0/PT1   -
```

From the result, verify that all the hardware modules installed on the chassis are listed. If a module is not listed, it indicates either that module is malfunctioning, or it is not properly installed. Remove and reinstall the hardware module.

# 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 VM and System Admin VM CLIs.

For the multi-chassis system, run the command from one chassis. The verification commands will list information for all chassis.

## SUMMARY STEPS

1. **sh platform**
2. **admin**
3. **show platform**

## DETAILED STEPS

### Step 1 **sh platform**

#### Example:

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

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

This is an example for single-chassis system:

```
RP/0/RP1/CPU0:#sh platform
Mon Feb 13 15:07:03.729 UTC
Node                               Type                               State                               Config state
-----
0/0/CPU0                           NC6-10X100G-M-K                   IOS XR RUN                          NSHUT
0/0/NPU0                             Slice                              UP
0/0/NPU1                             Slice                              UP
0/0/NPU2                             Slice                              UP
0/0/NPU3                             Slice                              UP
0/0/NPU4                             Slice                              UP
0/1/CPU0                           NC6-60X10GE-L-S                   IOS XR RUN                          NSHUT
0/1/NPU0                             Slice                              UP
0/1/NPU1                             Slice                              UP
0/1/NPU2                             Slice                              UP
0/1/NPU3                             Slice                              UP
0/2/CPU0                           NC6-10X100G-M-K                   IOS XR RUN                          NSHUT
0/2/NPU0                             Slice                              UP
0/2/NPU1                             Slice                              UP
0/2/NPU2                             Slice                              UP
0/2/NPU3                             Slice                              UP
0/2/NPU4                             Slice                              UP
0/3/CPU0                           NC6-10X100G-M-K                   IOS XR RUN                          NSHUT
0/3/NPU0                             Slice                              UP
0/3/NPU1                             Slice                              UP
0/3/NPU2                             Slice                              UP
0/3/NPU3                             Slice                              UP
0/3/NPU4                             Slice                              UP
0/4/CPU0                           NC6-2/10X100G-L-K                 IOS XR RUN                          NSHUT
```

## Verify Node Status

```

0/4/NPU0      Slice      UP
0/4/NPU1      Slice      UP
0/4/NPU2      Slice      UP
0/4/NPU3      Slice      UP
0/4/NPU4      Slice      UP
0/5/CPU0      NC6-10X100G-M-K  IOS XR RUN      NSHUT
0/5/NPU0      Slice      UP
0/5/NPU1      Slice      UP
0/5/NPU2      Slice      UP
0/5/NPU3      Slice      UP

```

This is an example for multi-chassis system:

| Node       | Type         | PLIM | State      | Config State    |
|------------|--------------|------|------------|-----------------|
| 1/RP1/CPU0 | RP (Standby) | N/A  | IOS XR RUN | PWR, NSHUT, MON |
| 1/7/CPU0   | LC           | GE   | IOS XR RUN | PWR, NSHUT, MON |
| 0/RP1/CPU0 | RP (Standby) | N/A  | IOS XR RUN | PWR, NSHUT, MON |
| 0/RP0/CPU0 | RP (Active)  | N/A  | IOS XR RUN | PWR, NSHUT, MON |
| 0/0/CPU0   | LC           | GE   | IOS XR RUN | PWR, NSHUT, MON |
| 1/0/CPU0   | LC           | GE   | IOS XR RUN | PWR, NSHUT, MON |
| 0/7/CPU0   | LC           | GE   | IOS XR RUN | PWR, NSHUT, MON |
| 1/RP0/CPU0 | RP (Active)  | N/A  | IOS XR RUN | PWR, NSHUT, MON |

RP/0/RP0/CPU0:MCDDT3#

Verify that all RPs and LCs are listed and their state is "IOS XR RUN". This indicates that the XR VM is operational on the cards.

If the XR VM is not running, no output is shown for that location in the result. In this case, verify the state of SDR on the node using the **show sdr** command in the System Admin EXEC mode. For details, see [Verify SDR Information, on page 12](#). Also, verify that the node state is "OPERATIONAL" in the result of **show platform** command in the System Admin EXEC mode, as described in Step 3.

**Step 2 admin****Example:**

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

Enters System Admin EXEC 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, LCs, and FCs), and hardware modules (fan trays) on the router.

This is an example for single-chassis system:

| Location | Card Type   | HW State    | SW State    | Config State |
|----------|-------------|-------------|-------------|--------------|
| 0/RP0    | NC6-RP      | OPERATIONAL | OPERATIONAL | NSHUT        |
| 0/RP1    | NC6-RP      | OPERATIONAL | OPERATIONAL | NSHUT        |
| 0/FC0    | NC6-FC      | OPERATIONAL | N/A         | NSHUT        |
| 0/FT0    | P-L-FANTRAY | OPERATIONAL | N/A         | NSHUT        |
| 0/FT1    | P-L-FANTRAY | OPERATIONAL | N/A         | NSHUT        |

|       |                   |             |             |       |
|-------|-------------------|-------------|-------------|-------|
| 0/3   | NC6-10X100G-M     | OPERATIONAL | OPERATIONAL | NSHUT |
| 0/7   | NC6-10X100G-M     | FAILED      | FAILED      | NSHUT |
| 0/PT1 | PWR-2KW-DC-V2 1.0 | OPERATIONAL | N/A         | NSHUT |

This is an example for multi-chassis system:

```

Wed Jun 4 15:08:09.495 UTC
Location Card Type HW State SW State Config State
-----
0/3 NC6-10X100G-M-P OPERATIONAL OPERATIONAL NSHUT
0/6 NC6-10X100G-M-P OPERATIONAL OPERATIONAL NSHUT
0/RP0 NC6-RP OPERATIONAL OPERATIONAL NSHUT
0/RP1 P-L-RP OPERATIONAL OPERATIONAL NSHUT
0/FC2 NC6-FC-MC OPERATIONAL N/A NSHUT
0/FC3 NC6-FC-MC OPERATIONAL N/A NSHUT
0/FC4 NC6-FC-MC OPERATIONAL N/A NSHUT
0/FC5 NC6-FC-MC OPERATIONAL N/A NSHUT
0/FT0 NC6-FANTRAY OPERATIONAL N/A NSHUT
0/FT1 NC6-FANTRAY OPERATIONAL N/A NSHUT
0/PT1 PROTO-AC-PWRTRAY OPERATIONAL N/A NSHUT
1/FC2 NC6-FC-MC OPERATIONAL N/A NSHUT
1/FC3 NC6-FC-MC OPERATIONAL N/A NSHUT
1/FC4 NC6-FC-MC OPERATIONAL N/A NSHUT
1/FC5 NC6-FC-MC OPERATIONAL N/A NSHUT
1/CI0 NCS-CRFT OPERATIONAL N/A NSHUT
1/FT0 NC6-FANTRAY OPERATIONAL N/A NSHUT
1/FT1 NC6-FANTRAY OPERATIONAL N/A NSHUT
1/PT0 NCS-AC-PWRTRAY OPERATIONAL N/A NSHUT
1/PT1 NCS-AC-PWRTRAY OPERATIONAL N/A NSHUT
F0/SC0 P-F-SCSW OPERATIONAL OPERATIONAL NSHUT
F0/SC1 P-F-SC OPERATIONAL OPERATIONAL NSHUT
F0/FT0 NCS-FCC-FANTRAY OPERATIONAL N/A NSHUT
F0/FT1 NCS-FCC-FANTRAY OPERATIONAL N/A NSHUT
F1/PT1 P-F-AC-PWRTRAY OPERATIONAL N/A NSHUT
F1/SW0 NCS-F-SCSW (SW) OPERATIONAL N/A NSHUT

```

Verify that all cards installed on the router are displayed in the result. The software state of LCs and RPs and the hardware state of FC and FTs 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:

- DIAG\_MODE—User has changed the card state to OFFLINE for diagnosis
- 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

**Note** In the result, the RPs are not highlighted as active and standby. This is because, at all times, the System Admin VM is operational on both RPs. If one RP fails, the System Admin VM running on the other RP continues to manage all the System Admin functions of the router.

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## Verify Software Version

The Cisco NCS 6008 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.

### SUMMARY STEPS

1. `show version`

### DETAILED STEPS

---

#### `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, its various components, and BIOS information.

Only that portion of the output where the Cisco IOS XR software version is displayed is shown here:

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#### **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.

### SUMMARY STEPS

1. `admin`
2. `show hw-module fpd`



## DETAILED STEPS

### Step 1 admin

#### Example:

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

Enters System Admin EXEC mode.

### Step 2 show hw-module fpd

#### Example:

```
sysadmin-vm:0_RP0#show hw-module fpd
```

Displays the firmware information for various hardware components of the router.

```
RP/0/RP1/CPU0:#show hw-module fpd
```

| Location | Card type       | HWver | FPD device       | ATR | Status    | FPD Versions |          |
|----------|-----------------|-------|------------------|-----|-----------|--------------|----------|
|          |                 |       |                  |     |           | Running      | Programd |
| 0/0      | NC6-10X100G-M-K | 2.0   | Backup-BIOS      | BSP | CURRENT   |              | 14.00    |
| 0/0      | NC6-10X100G-M-K | 2.0   | Backup-CCC-PwrOn | BSP | CURRENT   |              | 1.36     |
| 0/0      | NC6-10X100G-M-K | 2.0   | Backup-EthSwitch | BSP | CURRENT   |              | 1.33     |
| 0/0      | NC6-10X100G-M-K | 2.0   | BAO-DB-FPGA      |     | CURRENT   | 1.06         | 1.06     |
| 0/0      | NC6-10X100G-M-K | 2.0   | BAO-MB-FPGA      |     | CURRENT   | 1.06         | 1.06     |
| 0/0      | NC6-10X100G-M-K | 2.0   | CCC-Bootloader   | BSP | CURRENT   |              | 2.09     |
| 0/0      | NC6-10X100G-M-K | 2.0   | CCC-FPGA         | S   | CURRENT   | 2.11         | 2.11     |
| 0/0      | NC6-10X100G-M-K | 2.0   | CCC-Power-On     | S   | CURRENT   | 1.41         | 1.41     |
| 0/0      | NC6-10X100G-M-K |       | CPAK-bay-0-FPD   |     | NOT READY |              |          |
| 0/0      | NC6-10X100G-M-K |       | CPAK-bay-1-FPD   |     | NOT READY |              |          |
| 0/0      | NC6-10X100G-M-K |       | CPAK-bay-2-FPD   |     | NOT READY |              |          |
| 0/0      | NC6-10X100G-M-K |       | CPAK-bay-3-FPD   |     | NOT READY |              |          |
| 0/0      | NC6-10X100G-M-K |       | CPAK-bay-4-FPD   |     | NOT READY |              |          |
| 0/0      | NC6-10X100G-M-K |       | CPAK-bay-5-FPD   |     | NOT READY |              |          |
| 0/0      | NC6-10X100G-M-K | 2.0   | CPAK-bay-6-SR10  |     | CURRENT   | 2.03         | 2.03     |
| 0/0      | NC6-10X100G-M-K | 2.0   | CPAK-bay-7-SR10  |     | CURRENT   | 2.03         | 2.03     |
| 0/0      | NC6-10X100G-M-K | 2.0   | CPAK-bay-8-LR10  |     | CURRENT   | 2.03         | 2.03     |
| 0/0      | NC6-10X100G-M-K | 2.0   | CPAK-bay-9-SR10  |     | CURRENT   | 2.03         | 2.03     |
| 0/0      | NC6-10X100G-M-K | 2.0   | Ethernet-Switch  | S   | CURRENT   | 1.33         | 1.33     |
| 0/0      | NC6-10X100G-M-K | 2.0   | PLX-8748         |     | CURRENT   |              |          |

In the result, the "RUN" column displays the current version of the firmware running on the FPD.

The "ATR Status" column displays the upgrade status of the firmware. It can display these states:

- **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.
- **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.

### What to do next

- Upgrade the required firmware by using the **upgrade hw-module location all fpd** command in the System Admin EXEC mode. For the FPD upgrade to take effect, the router needs a power cycle.
- If required, turn on the auto fpd upgrade function. To do so, use the **fpd auto-upgrade enable** command in the System Admin Config mode. After it is enabled, if there are new FPD binaries present in the image being installed on the router, FPDs are automatically upgraded during the system upgrade operation.

## 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.

For the multi-chassis system, run the command from one chassis. The verification commands will list information for all chassis.

### SUMMARY STEPS

1. **show ipv4 interface summary**

### DETAILED STEPS

#### 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.

| IP address<br>config | State<br>up, up | State<br>up, down | State<br>down, down | State<br>shutdown, down |
|----------------------|-----------------|-------------------|---------------------|-------------------------|
| Assigned             | 0               | 0                 | 0                   | 0                       |
| Unnumbered           | 0               | 0                 | 0                   | 0                       |
| Unassigned           | 0               | 0                 | 0                   | 4                       |

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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## Verify Fabric Plane

The packets traverse from the ingress to the egress interfaces over the fabric plane. There can be a maximum of six fabric planes. The Cisco NCS routing system fabric is implemented through multiple redundant fabric cards (FCs) installed in the line card chassis.

For the multi-chassis system, run the command from one chassis. The verification commands will list information for all chassis.

Complete this task to verify the status of the fabric planes.

### Before you begin

Install all required fabric cards on the router.

### SUMMARY STEPS

1. **admin**
2. **show controller fabric plane all**

### DETAILED STEPS

---

#### Step 1 admin

##### Example:

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

Enters System Admin EXEC mode.

#### Step 2 show controller fabric plane all

##### Example:

```
sysadmin-vm:0_RP0#show controller fabric plane all
```

Displays the status of the switch fabric plane.

Verify that the Admin State and Plane State for all operational planes is "UP". Each fabric card represents one plane. If the Plane State is "DN", it indicates that traffic is not able to reach any destination using the plane. If the Plane State is "MCAST\_DN", it indicates that some destinations are not reachable using the plane. This indicates that one fabric card in the line card chassis (LCC) is not operational. Reinstall the fabric card and verify that its state is "OPERATIONAL" in the result of **show platform** command in the System Admin EXEC mode.

---

# Verify SDR Information

Secure domain routers (SDRs) divide a single physical system into multiple logically-separated routers. SDRs are also known as logical routers (LRs). On the Cisco NCS 6008 router, only one SDR is supported. This SDR is termed the default-sdr. Every router is shipped with the default-sdr, which owns all RPs and LCs installed in the routing system. An instance of this SDR runs on all nodes. Complete this task to verify the details of the SDR instances.

For the multi-chassis system, run the command from one chassis. The verification commands will list information for all chassis.

## SUMMARY STEPS

1. **admin**
2. **sh sdr**

## DETAILED STEPS

### Step 1 admin

#### Example:

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

Enters System Admin EXEC mode.

### Step 2 sh sdr

#### Example:

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

Displays the SDR information for every node.

```
SDR: default-sdr
Location      IP Address      Status          Boot Count  Time Started
-----
0/RP0/VM1    192.0.0.4      RUNNING        1           02/13/2017 10:06:01
0/RP1/VM1    192.0.4.4      RUNNING        2           02/13/2017 07:27:25
0/0/VM1      192.0.64.3     RUNNING        1           02/10/2017 12:44:02
0/1/VM1      192.0.68.3     RUNNING        1           02/10/2017 12:44:02
0/2/VM1      192.0.72.3     RUNNING        1           02/10/2017 12:44:01
0/3/VM1      192.0.76.3     RUNNING        1           02/10/2017 12:44:01
0/4/VM1      192.0.80.3     RUNNING        1           02/10/2017 12:55:10
0/5/VM1      192.0.84.3     RUNNING        1           02/10/2017 12:44:02
0/6/VM1      192.0.88.3     RUNNING        1           02/10/2017 12:44:04
0/7/VM1      192.0.92.3     RUNNING        1           02/10/2017 12:44:01
1/RP0/VM1    192.1.0.4      RUNNING        1           02/13/2017 10:06:14
1/RP1/VM1    192.1.4.4      RUNNING        1           02/13/2017 07:28:54
1/0/VM1      192.1.64.3     RUNNING        1           02/13/2017 04:31:21
1/1/VM1      192.1.68.3     RUNNING        1           02/13/2017 04:31:22
1/2/VM1      192.1.72.3     RUNNING        1           02/13/2017 04:31:22
1/3/VM1      192.1.76.3     RUNNING        1           02/13/2017 05:19:19
1/4/VM1      192.1.80.3     RUNNING        1           02/13/2017 04:31:20
1/5/VM1      192.1.84.3     RUNNING        1           02/13/2017 04:31:22
```

```
1/6/VM1      192.1.88.3    RUNNING      1           02/13/2017 04:40:26
1/7/VM1      192.1.92.3    RUNNING      1           02/13/2017 04:31:22
```

For a functional SDR, the VM State is "RUNNING". If the SDR is not running on a node, no output is shown in the result, for that location. At times the node performs a core dump. During such times the VM State is "Paused & Core Dump in Progress".

### What to do next

If you find SDR is not running on a node, try reloading the node. To do that, use the **hw-module location node-id reload** command in the System Admin EXEC mode.

## Verify Control Ethernet Connections

The control ethernet connections connect the chassis within the multi-chassis system. A control ethernet failure disconnects one or more chassis from rest of the system. If the chassis is disconnected, the connectivity with the fabric cards chassis is impaired. The disconnect can be due to fiber cut, hardware failure or software failure.

For the multi-chassis system, run the command from one chassis. The verification commands will list information for all chassis.

Complete this task to verify the status of the control ethernet connections.

### SUMMARY STEPS

1. **admin**
2. **show controller switch summary**

### DETAILED STEPS

|        | Command or Action                                                                                            | Purpose                                                                                                                                                                                                                                                                                                                                            |
|--------|--------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step 1 | <b>admin</b><br><b>Example:</b><br>RP/0/RP0/CPU0:router# admin                                               | Enters System Admin EXEC mode.                                                                                                                                                                                                                                                                                                                     |
| Step 2 | <b>show controller switch summary</b><br><b>Example:</b><br>sysadmin-vm:0_RP0#show controller switch summary | Displays the summary of the switch.<br><br><pre>Wed Jun  4 17:23:19.752 UTC Rack Card Switch Rack Serial Number ----- 0    RP0  RP-SW  FMP12020050       Phys Admin Port  Protocol Forward Port State State Speed  State  State Connects To ----- 0    Down  Up    10-Gbps Down    -   LC7 2    Up    Up    10-Gbps Standby Forwarding   LC6</pre> |

|  | Command or Action | Purpose                                                                                                                                                                                                                                  |
|--|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                   | 4 Down Up 1-Gbps Down -<br>FC0                                                                                                                                                                                                           |
|  |                   | 5 Down Up 1-Gbps Down -<br>FC1                                                                                                                                                                                                           |
|  |                   | 6 Down Up 10-Gbps Down -<br>LC5                                                                                                                                                                                                          |
|  |                   | 8 Down Up 10-Gbps Down -<br>LC4                                                                                                                                                                                                          |
|  |                   | 10 Up Up 1-Gbps Standby Forwarding<br>FC2                                                                                                                                                                                                |
|  |                   | 16 Down Up 10-Gbps Down -<br>LC0                                                                                                                                                                                                         |
|  |                   | 18 Down Up 10-Gbps Down -<br>LC1                                                                                                                                                                                                         |
|  |                   | 20 Up Up 1-Gbps Standby Forwarding<br>FC5                                                                                                                                                                                                |
|  |                   | 21 Up Up 1-Gbps Standby Forwarding<br>FC4                                                                                                                                                                                                |
|  |                   | 22 Down Up 10-Gbps Down -<br>LC2                                                                                                                                                                                                         |
|  |                   | 24 Up Up 10-Gbps Standby Forwarding<br>LC3                                                                                                                                                                                               |
|  |                   | 26 Up Up 1-Gbps Standby Forwarding<br>FC3                                                                                                                                                                                                |
|  |                   | 32 Up Up 10-Gbps Standby Forwarding<br>RP1 Card (RP0 Ctrl)                                                                                                                                                                               |
|  |                   | 34 Up Up 10-Gbps - Forwarding<br>RP1 Card (RP1 Ctrl)                                                                                                                                                                                     |
|  |                   | 36 Up Up 1-Gbps - Forwarding<br>Mgmt Eth0                                                                                                                                                                                                |
|  |                   | 37 Up Up 1-Gbps - Forwarding<br>CCC (RP1 Ctrl)                                                                                                                                                                                           |
|  |                   | 38 Up Up 1-Gbps Standby Forwarding<br>CCC (RP0 Ctrl)                                                                                                                                                                                     |
|  |                   | 40 Up Up 10-Gbps - Forwarding<br>RP0 CPU (0)                                                                                                                                                                                             |
|  |                   | 48 Down Up 10-Gbps - -<br>I/F Shelf Eth4                                                                                                                                                                                                 |
|  |                   | 49 Down Up 10-Gbps - -<br>I/F Shelf Eth5                                                                                                                                                                                                 |
|  |                   | 50 Down Up 10-Gbps - -<br>I/F Shelf Eth2                                                                                                                                                                                                 |
|  |                   | 51 Down Up 10-Gbps - -<br>I/F Shelf Eth3                                                                                                                                                                                                 |
|  |                   | 54 Up Up 1-Gbps - Forwarding<br>Mgmt Eth1                                                                                                                                                                                                |
|  |                   | 56 Down Up 10-Gbps - -<br>I/F Shelf Eth0                                                                                                                                                                                                 |
|  |                   | 57 Down Up 10-Gbps - -<br>I/F Shelf Eth1                                                                                                                                                                                                 |
|  |                   | 58 Up Up 10-Gbps Active Forwarding<br>Exp Eth0                                                                                                                                                                                           |
|  |                   | 59 Up Up 10-Gbps Standby Blocking<br>Exp Eth1                                                                                                                                                                                            |
|  |                   | Verify the state of Exp Eth 0 and Exp Eth 1 ports. One port must be in Active (Forwarding) state, and one port in Standby (Blocking) state. The state of the ethernet port is decided by the system. Verify that the connected ports are |

|  | Command or Action | Purpose                                                                                                            |
|--|-------------------|--------------------------------------------------------------------------------------------------------------------|
|  |                   | up, active and in forwarding state. If the states are not displayed correctly, check the control ethernet cabling. |

## Monitor Craft Panel Interface

Network Convergence System (NCS) 6000 system has a craft panel interface on the front of fabric card chassis (FCC). The craft panel interface assists the field operator in monitoring and troubleshooting the router. It consists of a touch screen LCD display and three LEDs. The LEDs indicate minor, major and critical alarms.

For more information about completing the hardware installation, see [Cisco Network Convergence System 6000 Series Routers Hardware Installation Guide](#).

On powering up, the main screen is displayed on the craft panel LCD. The craft panel has a settings screen to adjust the brightness, volume of audio alarms and inactivity timer for the LCD. You can turn off the LCD display with the help of the sleep button. There is a help option on every screen. This option displays information (in text) for each button. Refresh and back buttons (available on each screen) enable the user to refresh and go back to the previous screen, respectively.

Craft panel interface is used to fetch the following information from the chassis:

- Chassis power configuration and consumption. This is similar to the output of the **show environment power** command.
- Power Entry Module (PEM) status information of the chassis. This is similar to the output of the **show environment power** command.
- Fan operation speed and current status. This is similar to the output of the **show environment fan** command.
- Alarms in the chassis. This is similar to the output of the **show alarms** command.
- Chassis temperature information for the route processors and shelf controllers.
- Hardware and software state of all cards in the chassis.
- Router name and rack-id of chassis (on each screen).
- Uptime of the route processors.
- Messages for the craft operator from the administrator sent from a remote location.

