



CHAPTER 2

Bringing Up the Cisco IOS XR Software on a Standalone Router

This chapter provides instructions for bringing up the Cisco IOS XR software on a standalone router for the first time. This section applies to standalone routers that are delivered with Cisco IOS XR software installed.



Note

If you are upgrading a Cisco XR 12000 Series Router from Cisco IOS software to Cisco IOS XR software, see the Cisco IOS XR software document *Upgrading from Cisco IOS to Cisco IOS XR Software on the Cisco 12000 Series Router*.

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Prerequisites

The following sections describe the software and hardware requirements for bringing up a standalone system running Cisco IOS XR Software Release 4.1.

Software Requirements

The system requires compatible ROM Monitor firmware on all RPs.

**Caution**

The ROM Monitor firmware on all RPs must be compatible with the Cisco IOS XR software release currently running on the router before a Cisco XR 12000 Series Router system is upgraded to Cisco IOS XR Software Release 4.1. For minimum ROM Monitor requirements for Cisco IOS XR Software Release 3.2.0 and later releases, see the Software/Firmware Compatibility Matrix at the following URL:
http://www.cisco.com/web/Cisco_IOS_XR_Software/index.html

If the router is brought up with an incompatible version of the ROM Monitor software, the standby RP may fail to boot. For instructions to overcome a boot block in the standby RP in a single-chassis system, see *Cisco IOS XR ROM Monitor Guide for the Cisco XR 12000 Series Router*. If a boot block occurs in a multishelf system, contact your Cisco Technical Support representative for assistance. See the “[Related Documents](#)” section on page x.

Hardware Prerequisites and Documentation

The Cisco IOS XR software runs on the routers listed in the “[Supported Standalone System Configurations](#)” section on page 1-1. Before a router can be started, the following hardware management procedures must be completed:

- Site preparation
- Equipment unpacking
- Router installation

For information on how to complete these procedures for your router equipment, see the hardware documents listed in the “[Related Documents](#)” section on page x.

**Note**

If you are upgrading a Cisco 12000 Series Router from Cisco IOS software to Cisco IOS XR software, you must first prepare the router. For more information, see *Upgrading from Cisco IOS to Cisco IOS XR Software on the Cisco 12000 Series Router*. For a complete listing of available documents, see the “[Related Documents](#)” section on page x.

Bringing Up and Configuring a Standalone Router

To bring up a standalone router, connect to the router and configure the root-system username and password, as described in the following procedure:

SUMMARY STEPS

1. Establish a connection to the DSC Console port.
2. Type the username for the root-system login and press **Enter**.
3. Type the password for the root-system login and press **Enter**.
4. Log in to the router.

DETAILED STEPS

	Command or Action	Purpose
Step 1	Establish a connection to the DSC Console port.	Initiates communication with the router. • For instructions on connecting to the Console port, see the “Connecting to the Router Through the Console Port” section on page 1-10. • After you have successfully connected to the router through the Console port, the router displays the prompt: <code>Username:</code> • If the Username prompt appears, skip this procedure and continue the general router configuration as described in Chapter 4, “Configuring Additional Router Features.”
Step 2	Type the username for the root-system login and press Enter .	Sets the root-system username, which is used to log in to the router.
Step 3	Type the password for the root-system login and press Enter .	Creates an encrypted password for the root-system username. Note This password can be changed with the secret command.
Step 4	Retype the password for the root-system login and press Enter .	Allows the router to verify that you have entered the same password both times. • If the passwords do not match, the router prompts you to repeat the process.
Step 5	Log in to the router.	Establishes your access rights for the router management session. • Enter the root-system username and password that were created earlier in this procedure. • After you log in, the router displays the CLI prompt, which is described in the CLI Prompt.

Examples

The following example shows the root-system username and password configuration for a new router, and it shows the initial log in:

```
--- Administrative User Dialog ---
Enter root-system username: username1
  Enter secret:
    Enter secret again:
RP/0/0/CPU0:Jan 10 12:50:53.105 : exec[65652]: %MGBL-CONFIG-6-DB_COMMIT :
'Administration configuration committed by system'. Use 'show configuration
commit changes 2000000009' to view the changes.
Use the 'admin' mode 'configure' command to modify this configuration.
User Access Verification
Username: username1
Password:
RP/0/0/CPU0:router#
```

The *secret* line in the configuration command script shows that the password is encrypted. When you enter the password during configuration and login, the password is hidden.

Verifying the System After Initial Boot

To verify the status of the router, perform the following procedure:

SUMMARY STEPS

1. **show version**
2. **admin**
3. **show platform** [*node-id*]
4. **exit**
5. **show redundancy**
6. **show environment**

DETAILED STEPS

	Command or Action	Purpose
Step 1	show version Example: RP/0/0/CPU0:router# show version	Displays information about the router, including image names, uptime, and other system information.
Step 2	admin Example: RP/0/0/CPU0:router# admin	Places the router in administration EXEC mode.
Step 3	show platform [node-id] Example: RP/0/0/CPU0:router(admin)# show platform	Displays information about the status of cards and modules installed in the router. - Some cards support a CPU module and service processor (SP) module. Other cards support only a single module. - A card module is also called a <i>node</i>. When a node is working properly, the status of the node in the State column is IOS XR RUN. The status of the supported SPA interface is OK. - The show platform node-id command is used to display information for a specific node. Replace <i>node-id</i> with a node name from the show platform command Node column. Note To view the status of all the cards and modules, the show platform command must be executed in administration EXEC mode.
Step 4	exit Example: RP/0/0/CPU0:router(admin)# exit	Exits the administration EXEC mode.
Step 5	show redundancy Example: RP/0/0/CPU0:router# show redundancy	Displays the state of the primary (active) and standby (inactive) RPs, including the ability of the standby to take control of the system. If both RPs are working correctly, one node displays active role, the Partner node row displays standby role, and the Standby node row displays Ready.
Step 6	show environment Example: RP/0/0/CPU0:router# show environment	Displays information about the hardware attributes and status.

Examples of show Commands

The following sections provide examples of **show** commands:

- [show version Command: Example, page 2-22](#)
- [show platform Command: Example, page 2-23](#)
- [show redundancy Command: Example, page 2-24](#)
- [show environment Command: Example, page 2-25](#)

show version Command: Example

The following example shows how to display basic information about the router configuration by entering the **show version** command in EXEC mode:

```
RP/0/0/CPU0:router# show version
Mon May 31 02:03:29.133 DST

Cisco IOS XR Software, Version 4.1.0[Default]
Copyright (c) 2010 by Cisco Systems, Inc.

ROM: System Bootstrap, Version 12.0(20090226:235859) [rtauro-sw30346-33S 1.23dev
(0.35)] DEVELOPMENT SOFTWARE
Copyright (c) 1994-2009 by cisco Systems, Inc.

router uptime is 2 weeks, 6 days, 9 hours, 16 minutes
System image file is "disk0:c12k-os-mbi-4.1.0/mbiprp-rp.vm"

cisco 12406/PRP (7457) processor with 2097152K bytes of memory.
7457 processor at 1266Mhz, Revision 1.2

1 Cisco 12000 Series Performance Route Processor
1 Cisco 12000 Series - Multi-Service Blade Controller
1 Cisco 12000 4-Port ISE ATM Over SONET OC3/STM-1 Controller (4 ATM)
1 Cisco 12000 Series SPA Interface Processor-601/501/401
1 Cisco 12000 Series SPA Interface Processor-600
3 Management Ethernet
6 PLIM_QOS
1 MgmtMultilink
5 SONET/SDH
2 T3
3 Multilink network interface(s)
28 T1
21 E1
21 Serial network interface(s)
5 GigabitEthernet/IEEE 802.3 interface(s)
4 Asynchronous Transfer Mode
1018k bytes of non-volatile configuration memory.
3623092k bytes of disk0: (Sector size 512 bytes).
3623092k bytes of disk1: (Sector size 512 bytes).
65536k bytes of Flash internal SIMM (Sector size 256k).

Configuration register on node 0/0/CPU0 is 0x102
Boot device on node 0/0/CPU0 is disk0:
Package active on node 0/0/CPU0:
c12k-fwding, V 4.1.0[DT_IMAGE], Cisco Systems, at disk0:c12k-fwding-4.1.0.15
I
    Built on Thu May  6 17:07:57 DST 2010
    By sjc-lds-364 in /auto/ioxbuild6/production/4.1.0.DT_IMAGE/c12k/workspa
ce for pie

c12k-doc, V 4.1.0[DT_IMAGE], Cisco Systems, at disk0:c12k-doc-4.1.0
```

Built on Thu May 6 20:36:06 DST 2010

show platform Command: Example

The **show platform** command displays information on router resources. In EXEC mode, the **show platform** command displays the resources assigned to the secure domain router (SDR) that you are managing. In administration EXEC mode, the **show platform** command displays all router resources.



Note

Secure Domain Routers (SDRs) are introduced in [Chapter 3, “Configuring General Router Features.”](#)

The following EXEC mode example displays the nodes assigned to the default SDR, which is called the *owner SDR*:

```
RP/0/0/CPU0:router# show platform
Mon May 31 02:15:07.484 DST
Node                Type                PLIM                State                Config State
-----
0/0/CPU0            PRP(Active)          N/A                IOS XR RUN           PWR, NSHUT, MON
0/1/CPU0            L3 Service Eng       N/A                Admin Down           PWR, SHUT, MON
0/2/CPU0            L3LC Eng 3           OC3-ATM-4          IOS XR RUN           PWR, NSHUT, MON
0/3/CPU0            L3LC Eng 5+          Jacket Card         IOS XR RUN           PWR, NSHUT, MON
0/3/1               SPA                  SPA-IPSEC-2G-2      READY                PWR, NSHUT
0/3/2               SPA                  SPA-1XCHSTM1/OC     READY                PWR, NSHUT
0/4/CPU0            L3LC Eng 5           Jacket Card         IOS XR RUN           PWR, NSHUT, MON
0/4/0               SPA                  SPA-5X1GE           READY                PWR, NSHUT
```

The following administration EXEC mode example shows all router nodes:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# show platform
Mon May 31 02:18:17.048 DST
Node                Type                PLIM                State                Config State
-----
0/0/CPU0            PRP(Active)          N/A                IOS XR RUN           PWR, NSHUT, MON
0/1/CPU0            L3 Service Eng       N/A                Admin Down           PWR, SHUT, MON
0/2/CPU0            L3LC Eng 3           OC3-ATM-4          IOS XR RUN           PWR, NSHUT, MON
0/3/CPU0            L3LC Eng 5+          Jacket Card         IOS XR RUN           PWR, NSHUT, MON
0/3/1               SPA                  SPA-IPSEC-2G-2      READY                PWR, NSHUT
0/3/2               SPA                  SPA-1XCHSTM1/OC     READY                PWR, NSHUT
0/4/CPU0            L3LC Eng 5           Jacket Card         IOS XR RUN           PWR, NSHUT, MON
0/4/0               SPA                  SPA-5X1GE           READY                PWR, NSHUT
0/17/CPU0           CSC6(P)              N/A                PWD                  PWR, NSHUT, MON
0/18/CPU0           SFC6                 N/A                PWD                  PWR, NSHUT, MON
0/19/CPU0           SFC6                 N/A                PWD                  PWR, NSHUT, MON
0/20/CPU0           SFC6                 N/A                PWD                  PWR, NSHUT, MON
0/24/CPU0           ALARM6               N/A                PWD                  PWR, NSHUT, MON
0/25/CPU0           ALARM6               N/A                PWD                  PWR, NSHUT, MON
0/28/CPU0           GSR6-BLOWER         N/A                PWD                  PWR, NSHUT, MON
RP/0/0/CPU0:router# end
```



Note

LCs in Cisco CRS routers are called modular services cards (MSCs).

For more information on node IDs, see *Cisco IOS XR System Management Configuration Guide for the Cisco XR 12000 Series Router*.

For more information on the **show platform** command, see *Cisco IOS XR Interface and Hardware Component Command Reference for the Cisco XR 12000 Series Router*.

show redundancy Command: Example

The following example shows how to display information about the active and standby (inactive) RPs by entering the **show redundancy** command:

```
RP/0/0/CPU0:router# show redundancy
```

```
Mon May 31 02:22:27.482 DST
Redundancy information for node 0/0/CPU0:
=====
Node 0/0/CPU0 is in ACTIVE role
Node 0/0/CPU0 has no valid partner
```

```
Reload and boot info
-----
```

```
PRP reloaded Mon May 10 16:47:10 2010: 2 weeks, 6 days, 9 hours, 35 minutes ago
Active node booted Mon May 10 16:47:10 2010: 2 weeks, 6 days, 9 hours, 35 minutes ago
```

```
Active node reload "Cause: Turboboot completed successfully"
```

show environment Command: Example

To display environmental monitor parameters for the system, use the **show environment** command in EXEC or administration EXEC mode. The **show environment** [options] command syntax is used.

Enter the **show environment ?** command to display the command options:

```
RP/0/0/CPU0:router# show environment temperatures
```

The following example shows temperature information for a Cisco XR 12000 Series Router:

```
Mon May 31 02:27:06.397 DST
R/S/I  Modules Sensor          Temp. (deg C)

0/0/*   host  Inlet          32.5
        host  Hot           34.0
0/2/*   host  Inlet          31.0
        host  Hot           39.0
0/3/*   host  Inlet          32.0
        host  Hot           42.0
        spa2  Chan4          50.0
        spa2  Chan3          43.0
        spa2  Chan2          48.0
        spa2  Chan1          39.0
        spa2  Local          48.0
        spa1  Chan4          37.0
        spa1  Chan3          33.0
        spa1  Chan2          39.0
        spa1  Chan1          33.0
        spa1  Local          35.0
0/4/*   host  Hot           38.5
        host  Inlet          36.5
        spa0  DownStream_    35.0
        spa0  UpStream_      31.5
```

For more information, see *Cisco IOS XR Interface and Hardware Component Command Reference for the Cisco XR 12000 Series Router*.

Where to Go Next

For information on configuring basic router features, see [Configuring General Router Features](#).

