Boot Commands on Cisco IOS XR Software

This chapter describes the commands used to boot or reset Cisco IOS XR software.

For more information about ROM Monitor (ROMMON) and boot tasks, see *Cisco IOS XR ROM Monitor Guide* or *Cisco IOS XR Getting Started Guide*.

config-register

To define the configuration register boot value, use the **config-register** command in administration EXEC mode.

config-register *value* [**location** {*node-id* | **all**}]

Syntax Description

value	Hexadecimal or decimal value that represents the 16-bit configuration register value to be used the next time the router is reloaded. Range is from 0x0 to 0xFFFF (0 to 65535 in decimal). For information about common configuration register settings, see Table 5.
location {*node-id* | **all**}	Specifies the node in a multishelf system. The **all** keyword specifies all RP nodes.

Defaults

By default, the configuration register value is 0x102 after a TURBOBOOT.

Command Modes

Administration EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router. This command was moved from global configuration mode to administration configuration mode.
Release 3.3.0	Support was added for the **location** keyword.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The configuration register setting is a 16-bit, user-configurable value that determines how the route processor (RP) functions during initialization. The configuration register can cause the RP to boot normally from the default configuration, or to enter ROMMON mode during a reload. Configuration register settings can also be used to perform tasks such as password recovery.

The **config-register** command is entered in administration EXEC mode, on the designated system controller (DSC) of the system. The DSC is the primary RP of the owner secure domain router (owner SDR). When setting the configuration register value for the **config-register** command, note the following conditions:

- If both the primary and standby DSC are up and running when the configuration register value is set, the configuration register value applies to both the primary and standby DSC.
- By contrast, if only the primary DSC is up and running when the configuration register value is set and the standby DSC is introduced into the router at a later time, the router does *not* attempt to synchronize the configuration register value for the standby RP to that of the active RP; in this situation, the configuration register setting applied to the standby DSC is determined by the configuration register value set in ROMMON mode.
- To set the configuration register value for all RPs in a multishelf system, enter the command **config-register** *value* **location all**.

Note To display the current configuration settings, use the command **show variables boot**.

Enter the command **config-register** *value* to set the configuration register setting for the DSC (DSDRSC of the owner SDR).

The most commonly used configuration register settings are described in Table 5.

Table 5 Common Configuration Register Settings

Value	Description
0x0	RP enters ROMMON mode (`rommon B1>`) on the next system boot.
0x2	RP loads the Cisco IOS XR software and default configuration on the next system boot. After logging in, the user can access EXEC mode.
0x102	Router loads the Cisco IOS XR software with the console break key disabled on the next system boot.
0x40	Router enters the password recovery mode on the next system boot.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example shows how to set the configuration register on the DSC to 0x2. Setting the configuration registration to 0x2 causes the router to boot the **Cisco IOS XR software** and enter EXEC mode during a router reload.

```
RP/0/RP0/CPU0:router(admin)# config-register 0x2

Successfully set config-register to 0x2 on node 0/RP0/CPU0
Successfully set config-register to 0x2 on node 0/RP1/CPU0
```

Related Commands

Command	Description
reload	Performs a reload of the route processor.
show variables boot	Displays the configuration register setting and boot file setting for the RPs in the system.
show version	Displays information about the Cisco IOS XR software.

mirror

To configure disk mirroring on a node, use the **mirror** command in global configuration mode. To disable disk mirroring, use the **no** form of this command.

mirror location [**preconfigure**] *node-id primary-device***:***secondary-device***:**

no mirror location *node-id*

Syntax Description

*primary-device***:**	Specifies the primary boot device used to store installation packages and configuration files. • On the Cisco XR 12000 Series Router, the supported devices are **disk0:**, **disk1:**, and **compactflash:** (if installed). • On the Cisco CRS-1, the supported devices are **disk0:** and **disk1:** (if installed).
*secondary-device***:**	Storage device on the same RP as the *primary-device*, to where critical data is replicated. • Supported devices are the same as for *primary-device:*, but *secondary-device:* must be different than the *primary-device:*.
preconfigure	Enables you to specify a node that is not yet installed.
node-id	Node in a multishelf system. It can be a node that is not yet installed if the keyword **preconfigure** is used.

Defaults

No default behavior or values

Command Modes

Global configuration

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **mirror** command replicates all critical data contained in the primary partition of the primary boot device, onto a second storage device on the same RP. Therefore, if the primary boot device fails, applications continue to be serviced transparently by the secondary device, without having to switch control to a standby RP.

Before the mirror command can be used, the secondary storage device must be partitioned using the **format** command. If the primary boot device is not partitioned, once mirroring is enabled and all data on the primary boot device is replicated to the secondary device, the primary boot device is partitioned automatically. This guarantees that only critical data on the primary boot device is mirrored to the secondary device. Noncritical data, such as logging data, should not be mirrored and should, therefore, be saved to the secondary partition on the storage device.

To temporarily suspend disk mirroring without changing the configuration, use the **mirror pause** command in EXEC mode.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example shows how to configure disk mirroring from the primary boot device (disk0:) to the secondary storage device (disk1:):

```
RP/0/RP0/CPU0:router(config)# mirror location 0/rp0/cpu0 disk0: disk1:
```

Related Commands

Command	Description
format	Formats a file system.
mirror pause	Temporarily pauses disk mirroring on a node.
mirror resume	Resumes disk mirroring on a node after it has been temporarily stopped.

mirror pause

To temporarily pause disk mirroring on a node, use the **mirror pause** command in EXEC or administration EXEC mode.

mirror pause [**location** {*node-id* | **all**}]

Syntax Description

location {*node-id* | **all**}	Specifies the RP node in a multishelf system. The **all** keyword specifies all RP nodes.

Defaults

If no node is specified, disk mirroring is paused on the active RP.

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **mirror pause** command temporarily pauses the mirroring of the primary boot device. This command is primarily useful during an installation operation to prevent significant performance degradation on single CPU boards. The **mirror pause** command does not change the configured state of mirroring, but rather causes the mirroring to be suspended until the **mirror resume** command is used.

The **mirror pause** command has no affect if the **mirror** configuration command is not enabled.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example shows how to pause disk mirroring on the active RP:

```
RP/0/RP0/CPU0:router# mirror pause
```

Related Commands

Command	Description
mirror	Configures disk mirroring on a node.
mirror resume	Resumes disk mirroring on a node after it has been temporarily stopped.

mirror resume

To resume disk mirroring on a node after it has been temporarily stopped, use the **mirror resume** command in EXEC or administration EXEC mode.

mirror resume [**location** {*node-id* | **all**}]

Syntax Description

location {*node-id* | **all**}	Specifies the RP node in a multishelf system. The **all** keyword specifies all RP nodes.

Defaults

If no node is specified, disk mirroring is enabled on the active RP.

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **mirror resume** command resumes the mirroring of the primary boot device after it has been temporarily paused with the **mirror pause** command.

The **mirror resume** command has no affect if the **mirror** configuration command is not enabled and the **mirror pause** command has not been used.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example shows how to resume disk mirroring on the active RP:

```
RP/0/RP0/CPU0:router# mirror resume
```

Related Commands

Command	Description
mirror	Configures disk mirroring on a node.
mirror pause	Temporarily pauses disk mirroring on a node.

mirror verify

To verify disk synchronization for disk mirroring on a node, use the **mirror verify** command in EXEC or administration EXEC mode.

mirror verify [**location** *node-id*]

Syntax Description

location *node-id*	Specifies the RP node in a multishelf system.

Defaults

If no node is specified, the verification is done on the active RP.

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **mirror verify** command verifies the synchronization consistency between the primary and secondary media devices being used in mirroring. The command verifies that the full contents are identical between the mirrored devices and reports any inconsistencies found.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example shows how to verify the disk mirroring on the active RP:

```
RP/0/0/CPU0:router# mirror verify

Mirror Verify Information for 0/0/CPU0.
=======================================================
Primary device and secondary device are fully synchronized.
```

Related Commands

Command	Description
mirror	Configures disk mirroring on a node.

reload

To reload the designated secure domain router system controller (DSDRSC), use the **reload** command in EXEC mode.

reload

Syntax Description

This command has no arguments or keywords.

Defaults

No default behavior or values

Command Modes

EXEC

Command History

Releases	Modifications
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.4.1	The **force** keyword was not supported.
Release 3.5.0	Prompt was added to continue with reload in the event that there is no available standby node.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **reload** command to cause the DSDRSC to reload the Cisco IOS XR software according to the configuration register setting (for example, 0x0 to enter ROMMON mode and 0x2 to reload the RP to EXEC mode). If a standby DSDRSC is in the ready redundancy state, the **reload** command also causes the router to fail over to the standby DSDRSC. Use the **show redundancy** command in EXEC mode to display the status of the standby RP.

When the **reload** command is used and a failover occurs, the running (active) software configuration is automatically maintained during failover.

Caution If a standby RP is not installed or is not in the ready state, then the router experiences a loss of service while the active RP is reloading the Cisco IOS XR software. To view the status of the standby RP, issue the **show redundancy** command in EXEC mode.

If you use the **reload** command and there is no available standby node, you are prompted to continue with the reload:

```
RP/0/RP0/CPU0:router# reload
Standby card not present or not Ready for failover. Proceed?[confirm]
```

Task ID

Task ID	Operations
root-lr	execute

Examples

The following example shows how to reload the active RP. If a standby RP is in the ready state, then the router fails over to the standby RP. If the standby RP is not installed or is not in the ready state, then the router enters ROMMON mode and routing operations stop.

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

Updating Commit Database.  Please wait...[OK]
Proceed with reload? [confirm] y
PCI0 device[7]: Vendor ID 0x10ee

PCI0 device[7]: Device ID 0x300e

PCI1 device[7]: Device ID 0x1100
PCI1 device[7]: Vendor ID 0x1013
PCI1 device[8]: Device ID 0x649
PCI1 device[8]: Vendor ID 0x1095
PCI1 device[9]: Device ID 0x5618
PCI1 device[9]: Vendor ID 0x14e4
PCI1 device[10]: Device ID 0x5618
PCI1 device[10]: Vendor ID 0x14e4
System Bootstrap, Version 1.15(20040120:002852) ,
Copyright (c) 1994-2004 by cisco Systems, Inc.
Board type is 0x100000 (1048576)
Enabling watchdog

Broadcom 5618 #0 Found on PCI
Broadcom 5618 #1 Found on PCI
No. of BCM 56xx switches found 2 .
BCM Switch #0 initialisation complete.
BCM Switch #1 initialisation complete
G4(7450-SMP-GT64260_A) platform with 2048 Mb of main memory

rommon B1 >
```

Related Commands

Command	Description
config-register	Defines the configuration register setting in administration EXEC mode.
reload (administration EXEC)	Performs a reload of a single node or all nodes in the system.
show redundancy	Displays the redundancy status of the RPs.

reload (administration EXEC)

To reload a node or all nodes on a single chassis or multishelf system, use the **reload** command in administration EXEC mode.

reload [**location** {*node-id* | **all**} | **rack** *rack-number*]

Syntax Description

location	Specifies which node to reload.
node-id	The *node-id* argument is expressed in *rack*/*slot*/*module* notation.
all	Reloads all the nodes in the system.
rack	Reloads all the nodes on a specified chassis.
rack-number	Rack number of the line card chassis or fabric chassis.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.4.0	No modification.
Release 3.4.1	The **force** keyword was not supported.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Note Before reloading nodes on a Cisco CRS-1 router, we recommend using the **cfs check** command to check the sanity of the configuration file system and attempt to recover from internal inconsistencies. Enter the **cfs check** command on each secure domain router (SDR) that has nodes impacted by the reload. If you enter the **reload location all** command, run the **cfs check** command on every SDR in the system before reloading the router.

- To reload all the nodes in all chassis in a multishelf system, use the **reload location all** command.
- To reload all the nodes in a specific chassis, use the **reload rack** *rack-number* command. This command cannot be used to reload the DSC line card chassis (rack 0).

- To reload a specific node on the router, specify the **reload** command with the **location** *node-id* keyword and argument. The *node-id* is expressed as *rack*/*slot*/*module*.
- To ensure a graceful reload and ensure the sanity of the configuration file system, enter the **cfs check** command on each SDR that has nodes impacted by the reload.

Task ID

Task ID	Operations
root-system	execute

Examples

The following example shows how to reload all the nodes on the router:

```
RP/0/RP0/CPU0:router(admin)# reload location all

Graceful reload of all nodes not supported
Assuming 'force'
Operation may result in file corruptions or loss of config. Proceed [Y/N]? Y
```

Note To ensure the sanity of the configuration file system, enter the **cfs check** command on each SDR impacted by the reload operation. If you enter the **reload location all** command, run the **cfs check** command on every SDR in the system before reloading the router.

The following example shows how to reload all the nodes in a single chassis:

```
RP/0/RP0/CPU0:router(admin)# reload rack 1

Graceful reload of a rack in admin mode is not supported
Assuming 'force' mode
Operation may result in file corruption or loss of config. Proceed? [confirm]
```

You cannot reload the chassis containing the DSC. The following example shows the message displayed if an attempt is made to reload rack 0 (line card chassis 0) in a multishelf system:

```
RP/0/RP0/CPU0:router(admin)# reload rack 0

Reload of rack 0 is not supported in 3.6 release.
```

Related Commands

Command	Description
cfs check	Verifies the Configuration File System (CFS).
config-register	Defines the configuration register setting in administration EXEC mode.
reload	Performs a reload of the route processor.
show redundancy	Displays the redundancy status of the RPs.

show epm trace boot

To display execution path monitoring traces, use the **show epm trace boot** command in administration EXEC mode.

show epm trace boot [**hexdump**] [**last** *n*] [**reverse**] [**stats**] [**tailf**] [**unique**] [**verbose**] [**wrapping**] [**file** *filename* **original**] [**location** *node-id*]

Syntax Description

hexdump	Displays traces in hexidecimal format.
last *n*	Displays the last *n* number of traces only.
reverse	Displays the most recent traces first.
stats	Displays execution path statistics.
tailf	Displays new traces as they are added.
unique	Displays unique entries only, along with the count of the number of times this entry appears.
verbose	Displays additional internal debugging information.
wrapping	Displays wrapping entries.
file *filename* **original**	Specifies the filename of the file to display.
location *node-id*	Specifies the RP node for which to display the execution path monitoring information. The *node-id* argument is expressed in *rack*/*slot*/*module* notation.
all	Displays mirroring information for all RP nodes in the router.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **show epm trace boot** command provides a simple way of tracking and time-stamping critical events to clearly understand their temporal relationship to one another and the amount of time spent performing critical operations.

Task ID

Task ID	Operations
basic services	read

Examples

The following is sample output from the **show epm trace boot** command:

```
RP/0/RP0/CPU0:router(admin)# show epm trace boot

8 wrapping entries (1024 possible, 0 filtered, 8 total)
Jul 12 21:17:36.229 epm/boot 0/RP0/CPU0 t1  @ 00:00:14 - [init] start
Jul 12 21:17:54.746 epm/boot 0/RP0/CPU0 t1  @ 00:00:32 - [sysmgr] start
Jul 12 21:17:55.315 epm/boot 0/RP0/CPU0 t7  @ 00:00:33 - [sysmgr] start-level: start
Jul 12 21:17:59.899 epm/boot 0/RP0/CPU0 t9  @ 00:00:37 - [sysmgr] start-level: admin
Jul 12 21:20:13.564 epm/boot 0/RP0/CPU0 t15 @ 00:02:51 - [sysmgr] start-level: infra
Jul 12 21:21:47.562 epm/boot 0/RP0/CPU0 t11 @ 00:04:25 - [sysmgr] start-level: active
Jul 12 21:22:09.132 epm/boot 0/RP0/CPU0 t6  @ 00:04:47 - [sysmgr] start-level: final
Jul 12 21:22:17.475 epm/boot 0/RP0/CPU0 t9  @ 00:04:55 - [sysmgr] lr-plane-up
```

In this sample output, the time stamp following the @ sign is the elapsed time in the format hh:mm:ss since the execution phase started (for example, since node start, in the case of a boot).

show mirror

To display disk mirroring information, use the **show mirror** command in EXEC or administration EXEC mode.

show mirror [**location** {**all** | *node-id*}]

Syntax Description

location *node-id*	Specifies RP node for which to display the mirroring information. The *node-id* argument is expressed in *rack*/*slot*/*module* notation.
all	Displays mirroring information for all RP nodes in the router.

Defaults

No default behavior or values

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Task ID

Task ID	Operations
filesystem	read

Examples

The following is sample output from the **show mirror** command:

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

Mirror Information for 0/0/CPU0.
=========================================================
 Mirroring Enabled
   Configured Primary:         disk0:
   Configured Secondary:       disk1:

 Current Mirroring State:      Syncing Files
   Current Physical Primary:   disk1:
   Current Physical Secondary: disk0:

 Mirroring Logical Device:     disk0:
```

```
 Physical Device     State       Flags
-------------------------------------------------------------
  disk0:           Available     Enabled Formatted
  disk1:           Available     Enabled Formatted
  compactflash:    Not Present
  disk0a:          Available     Formatted
  disk1a:          Available     Formatted
  compactflasha:   Not Present

Mirroring Rommon Variable
 BOOT_DEV_SEQ_CONF = disk0:;disk1:
 BOOT_DEV_SEQ_OPER = disk1:
 MIRROR_ENABLE = Y

 Syncing Files
  Number Left:     5735
  Current file:    c12k-base-3.6.0.10I/schema/l2protocols_srp_action.schema
  Current state:   File is Syncing
```

Table 6 describes the significant fields shown in the display.

Table 6 show mirror Field Descriptions

Field	Description
Mirroring Enabled	Indicates whether mirroring is enabled or disabled.
Configured Primary	If mirroring is enabled, the configured primary disk for mirroring.
Configured Secondary	If mirroring is enabled, the configured secondary disk for mirroring.
Current Mirroring State	Current status of mirroring. Possible values are as follows: Syncing files—Files are being synchronized between the primary and secondary disks. Not Configured—Mirroring is not configured. Mirroring Paused—In this state no mirroring is being done to the secondary device and the disk redundancy has been removed. The values of the BOOT_DEV_SEQ_OPER and MIRROR_ENABLE variables reflect this. Redundant—The primary and secondary disks are totally in synchronization. Any read or write failure on the primary device results in disk redundancy failover such that all operations are performed on the secondary device.
Current Physical Primary	Current primary disk.
Current Physical Secondary	Current secondary disk.
Mirroring Logical Device	Device name used by the mirroring process to intercept all application requests to that named device before passing them through to one of the mirrored physical devices.
Physical Device	Physical disk in router.

Table 6 show mirror Field Descriptions (continued)

Field	Description
State	Status of the disk. Possible values are as follows: Available—Disk exists in router and is available. Not present—Disk does not exist in router. “a” partitions of disks are only available after the disk has been formatted with the **partition** keyword.
Flags	Enabled—Disk mirroring has been enabled on this device and the device is part of the mirroring process. Repaired—During the boot, some minor inconsistencies were discovered on the disk and were repaired to make the file system consistent. Formatted—Disk was formatted before mirroring was enabled.
BOOT_DEV_SEQ_CONF=	ROM Monitor environmental variable for the boot disk sequence. This variable is is set when mirroring is enabled through the **mirror** configuration command. The devices in this ROMMON variable declare the primary and the secondary devices of the mirroring process. The first device is the primary device and the second device is the secondary device in the mirroring process. **Note** This variable is also shared by the disk backup feature. This variable can also be set or unset using the system boot-sequence command of the disk backup feature. But the use of system boot-sequence and system backup commands is blocked, if mirroring is enabled.
BOOT_DEV_SEQ_OPER=	ROM Monitor environmental variable that reflects the state of the disk redundancy status. When mirroring is enabled and the state is redundant, this variable is set to the primary device followed by the secondary device. When mirroring is not in the redundancy state, then this variable is updated to contain only the primary device.
MIRROR_ENABLE	ROM Monitor environmental variable whose value reflects the mirroring status. If it is set to Y, then mirroring is enabled. If it is set to P, then mirroring is paused. If empty, mirroring is not enabled.

Related Commands

Command	Description
mirror	Configures disk mirroring on a node.
mirror verify	Verifies disk synchronization for disk mirroring on a node.

show reboot

To display reboot information for a node, use the **show reboot** command in EXEC or administration EXEC mode.

show reboot {[**first** | **last**] {**crashinfo** | **syslog** | **trace**} | **graceful** | **history** [**reverse**] | **pcds**} **location** *node-id*

Syntax Description

first	Displays information about the first ungraceful reboot.
last	Displays information about the last ungraceful reboot.
crashinfo	Displays crash information for an ungraceful reboot.
syslog	Displays the syslogs related to an ungraceful reboot.
trace	Displays trace information for an ungraceful reboot.
graceful	Displays information about the last graceful reboot.
history	Displays the reboot history of a specific node.
reverse	Displays the reboot history information in reverse chronological order.
pcds	Displays PCDS critical information about the last ungraceful reboot.
location *node-id*	Specifies which node to reload. The *node-id* argument is expressed in *rack*/*slot*/*module* notation.

Defaults

No default behavior or values

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 3.6.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

The **history** keyword for the **show reboot** command displays all reboot causes stored for previous node resets.

Crash information (**crashinfo**), syslog, and kernel dumper ltrace (**trace**) can be displayed for the first or last reboot if it is an ungraceful reboot.

Task ID

Task ID	Operations
system	read

Examples

The following is sample output from the **show reboot** command with the **history** keyword:

```
RP/0/RP0/CPU0:router# show reboot history location 0/rp0/cpu0

No  Time                        Cause Code  Reason
--------------------------------------------------------------------------------
01  Thu Jul 19 00:25:03 2007  0x00000001  Cause: User Initiated reload
                                            Process: reload
                                                Traceback: fc1941a0 fc194290 fc0
                                           42d90 48200624 48202120 0
02  Thu Jul 19 20:32:57 2007  0x21000010  Cause: Missed deadline, client: sc-reddrv-main,
                                                 timeout: 5
                                            Process: wd-critical-mon
                                                Traceback: fc1941a0 fc194290 482
                                           00738 482013cc 48201c04 fc1d4fb0
03  Thu Jul 19 22:21:05 2007  0x00000000
04 Thu Jul 19 22:44:37 2007 0x00000045 Cause: Non-dSC node booted with composite image
                                            Process: insthelper
                                                Traceback: fc1941a0 fc194290 fc6
                                           1e4a0 4820f928 48210654 48201cc0
05 Thu Jul 19 22:52:19 2007 0x00000045 Cause: Non-dSC node booted with composite image
                                            Process: insthelper
                                                Traceback: fc1941a0 fc194290 fc6
                                           204a0 4820f928 48210654 48201cc0
06  Fri Jul 20 02:10:51 2007  0x00000001  Cause: User Initiated reload
                                            Process: reload
                                                Traceback: fc15a1a0 fc15a290 fc0
                                           45d90 48200624 48202120 0
07 Mon Jul 23 19:39:49 2007 0x00000045 Cause: RP cold booted with incorrect software
                                            Process: insthelper
                                                Traceback: fc1941a0 fc194290 fc6
                                           1a4a0 4820f8b0 48210fc8 48201cc0
08  Mon Jul 23 19:54:45 2007  0x00000002  Cause: User Initiated Reboot
                                            Process: reboot
                                                Traceback: fc1941a0 fc194290 482
                                           00154 48201468 0 0
```

The following is sample output from the **show reboot** command with the **first crashinfo** keywords:

```
RP/0/RP0/CPU0:router# show reboot first crashinfo location 0/rp0/cpu0

Crashinfo Timestamp: Thu Jul 19 20:32:57 2007

20070719 20:32:57

Crash Reason: Cause code 0x21000010 Cause: Missed deadline, client: sc-reddrv-main,
timoeut: 5               Process: wd-critical-mon
Traceback: fc1941a0 fc194290 48200738 482013cc 48201c04 fc1d4fb0 Timezone UTC0

Exception at 0xfc1944c8 signal 5 c=1 f=3

Active process(s):
        pkg/bin/wd-critical-mon Thread ID 1 on cpu 0
        pkg/bin/l3test Thread ID 0 on cpu 1

       REGISTER INFO
        r0        r1        r2        r3
  R0   01000000  4817e8c0  4820e208  000000de
```

```
      r4        r5        r6        r7
R4   fc1b4856  7fffffff  4817e738  fc1b4856
      r8        r9        r10       r11
R8   00000000  602cf522  00000000  00000000
     r12       r13       r14       r15
R12  602cf51c  4820e1a0  00000000  00000000
     r16       r17       r18       r19
R16  00000000  00000000  00000000  00000000
     r20       r21       r22       r23
R20  00000000  00000000  48200000  48200000
     r24       r25       r26       r27
R24  48200000  48200000  48200000  48200000
     r28       r29       r30       r31
R28  00000028  00000001  21000010  6029b000
     cnt        lr       msr        pc
R32  00000000  fc194290  0002d932  fc1944c8
     cnd       xer
R36  44000094  20000006

            SUPERVISOR REGISTERS

          Memory Management Registers

          Instruction BAT Registers
           Index #                Value
          IBAT0U #              0x1ffe
          IBAT0L #                0x12
          IBAT1U #                   0
          IBAT1L #                   0
          IBAT2U #           0x30000ffe
          IBAT2L #           0xf0000032
          IBAT3U #           0xfffc0003
          IBAT3L #              0x40011

          Data BAT Registers
           Index #                Value
          DBAT0U #              0x1ffe
          DBAT0L #                0x12
          DBAT1U #                   0
          DBAT1L #           0x10000012
          DBAT2U #           0x30000ffe
          DBAT2L #           0xf000006a
          DBAT3U #           0xfffc0003
          DBAT3L #              0x40011

          Segment Registers
           Index #             SR-Value
               0 #                    0
               1 #                    0
               2 #                    0
               3 #                    0
               4 #                    0
               5 #                    0
               6 #                    0
               7 #                    0
               8 #                    0
               9 #                    0
              10 #                    0
              11 #                    0
              12 #                    0
              13 #                    0
              14 #                    0
              15 #                    0
```

```
                Exception Handling Registers
         Data Addr Reg #                DSISR
           0x602cf440 #          0x42000000
       SPRG0 #       SPRG1 #       SPRG2 #       SPRG3
       0x1 # 0x21000010 # 0x6029b000 #         0
     SaveNRestore SRR0 #    SaveNRestore SRR1
          0xfc1944c4 #             0x2d932

Miscellaneous Registers
     Processor Id Reg #                  0
                 HID0 #          0x8410c0bc
                 HID1 #          0x9001ac80

               MSSCR0 #             0x88000
               MSSSR0 #                   0

 STACK TRACE
#0 0xfc194290
#1 0x48200738
#2 0x482013cc
#3 0x48201c04
#4 0xfc1d4fb0
```

Related Commands

Command	Description
reload	Performs a reload of the route processor.

show system backup

To display the system backup details and history, use the **show system backup** command in EXEC or administration EXEC mode.

show system backup [*target-device*] [**details** | **diff**] [**verify**] [**location** {**all** | *node-id*}]

Syntax Description

target-device	(Optional) Displays the backup details and history for the specified device. • On the Cisco XR 12000 Series Router, the supported devices are **disk0:**, **disk1:**, and **compactflash:** (if installed). • On the Cisco CRS-1, the supported devices are **disk0:** and **disk1:** (if installed).
details	(Optional) Lists the software packages and configurations stored on the specified backup device.
diff	(Optional) Displays the differences between the software packages and configuration files on the backup device, with the packages and configuration files on the current boot device.
verify	(Optional) Verifies the software packages and configuration files stored on the specified backup device.
location *node-id*	(Optional) Displays information for a designated RP node.
location all	(Optional) Displays information for all RP nodes.

Defaults

Enter the **show system backup** command without keywords or arguments to display the date, time and status of the last backup for the current designated secure domain router system controller (DSDRSC). This command also displays the configured primary and secondary boot devices.

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 3.4.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show system backup** command to display details of the current system backup on a local storage device.

- Use the **show system backup** command to display information about the backup performed for the active RP to which you are logged in, including the date, time, and status of the last backup.
- Use the *target-device* argument command to display backup information for a specified device on a RP node.
- Use the **details** keyword to list information about the software packages and configuration files stored on the backup device.
- Use the **diff** keyword to display the differences between the software and configurations on the backup device and the software and configurations on the currently active boot disk.
- Use the **location** *node-id* keyword and argument to display information for a backup on a specific node. Use the **location all** keywords to display information for backups on all nodes in the system.

Command Modes

- To display information for the current secure domain router (SDR), enter the **show system backup** command in the EXEC mode of that SDR.
- When the command is entered in administration EXEC mode, the backup information for the owner SDR is displayed.

Task ID

Task ID	Operations
root-lr	execute

Examples

In the following example, the **show system backup** command displays the status of the last system backup:

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# show system backup

System Backup information for node0_0_CPU0 on disk1:
=====================================================
Last Backup Successful
Backup started at Sat Jun 24 12:22:10 2006
 ended at Sat Jun 24 12:42:11 2006
Verify started at Sat Jun 24 12:42:12 2006
 ended at Sat Jun 24 12:48:47 2006
BOOT_DEV_SEQ_CONF=disk0:;disk1:
BOOT_DEV_SEQ_OPER=disk0:;disk1:
```

In the following example, the **show system backup** command is entered with the **details** keyword to display additional information about the configuration and software package files stored on the backup device. Because this command is entered in administration EXEC mode, the backup information for both the administration and SDR configurations is displayed.

```
RP/0/0/CPU0:router(admin)# show system backup details

System Backup information for node0_0_CPU0 on disk1:
=====================================================
Last Backup Successful
Backup started at Sat Jun 24 12:22:10 2006
 ended at Sat Jun 24 12:42:11 2006
Verify started at Sat Jun 24 12:42:12 2006
 ended at Sat Jun 24 12:48:47 2006
BOOT_DEV_SEQ_CONF=disk0:;disk1:
BOOT_DEV_SEQ_OPER=disk0:;disk1:
```

```
Admin configuration last commit record on disk1:
  Device          Commitid    Time Stamp
  disk1:          2000000010  23:07:59 UTC Fri Jun 09 2006

SDR configuration last commit record on disk1:
  Device          Commitid    Time Stamp
  disk1:          1000000030  11:56:43 UTC Thu Jun 22 2006

Active software packages on disk1:
c12k-os-mbi-3.4.0
c12k-base-3.4.0
c12k-admin-3.4.0
c12k-fwdg-3.4.0
c12k-lc-3.4.0
c12k-rout-3.4.0
c12k-diags-3.4.0
c12k-k9sec-3.4.0
c12k-mcast-3.4.0
c12k-mgbl-3.4.0
c12k-sbc-3.4.0
c12k-mpls-3.4.0
No Inactive software packages on disk1:
```

In the following example, backup information is displayed for backups located on disk1 in all RPs in the system. In this example, a separate backup was created on disk1 of node 0/3/CPU0 for a non-owner SDR.

```
RP/0/0/CPU0:router(admin)# show system backup disk1: location all

System Backup information for node0_0_CPU0 on disk1:
=====================================================
Last Backup Successful
Backup started at Sat Jun 24 12:22:10 2006
 ended at Sat Jun 24 12:42:11 2006
Verify started at Sat Jun 24 12:42:12 2006
 ended at Sat Jun 24 12:48:47 2006
BOOT_DEV_SEQ_CONF=disk0:;disk1:
BOOT_DEV_SEQ_OPER=disk0:;disk1:

System Backup information for node0_3_CPU0 on disk1:
=====================================================
Last Backup Successful
Backup started at Sat Jun 24 13:02:23 2006
 ended at Sat Jun 24 13:21:30 2006
Verify started at Sat Jun 24 13:21:30 2006
 ended at Sat Jun 24 13:27:55 2006
BOOT_DEV_SEQ_CONF=disk0:;disk1:
BOOT_DEV_SEQ_OPER=disk0:;disk1:
```

Table 7 describes the significant fields shown in the display.

Table 7 show system backup Field Descriptions

Field	Description
BOOT_DEV_SEQ_CONF=	ROM Monitor environmental variable for the boot disk sequence. This variable is defined by the **system boot-sequence** command. The first disk is the primary device; the second disk is the backup (secondary) device. The value listed in the secondary device is also used as the default backup target device for the **system backup** command.
BOOT_DEV_SEQ_OPER=	ROM Monitor environmental variable for the boot disks currently in use by the system.

Related Commands

Command	Description
system boot-sequence	Defines the order of boot devices used to bring up a router. The secondary device argument also defines the default backup target device used by the **system backup** command.
system backup	Performs a backup of software and configuration files.

show variables boot

To display the configuration register setting and boot file setting for the route processors (RPs) in the system, use the **show variables boot** command in administration EXEC mode.

show variables boot [**location** {**all** | *node-id*}]

Syntax Description

location *node-id*	Specifies the node to reload. The *node-id* argument is expressed in *rack*/*slot*/*module* notation.
all	Reloads all the nodes in the system.

Defaults

No default behavior or values

Command Modes

Administration EXEC

Command History

Release	Modification
Release 3.3.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.4.0	Support was added for the **location** keyword.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show variables boot** command to display system boot variables for the router. This command displays the configuration register setting and boot file setting for the RPs in the system. Use the **location** *node-id* keyword and argument to display the configuration register setting for a specific card.

The configuration register setting is set with the command **config-register**. The boot variable is set in ROM Monitor mode. For more information about ROM Monitor mode, see *Cisco IOS XR ROM Monitor Guide*.

Task ID

Task ID	Operations
root-lr	read

Examples

The following is sample output from the **show variables boot** command:

```
RP/0/RP0/CPU0:router# show variables boot
```

```
Node 0/RP0/CPU0:
    BOOT variable = disk0:hfr-os-mbi-3.3.30/mbihfr-rp.vm,1;
    CONFREG variable = 0x2

Node 0/RP1/CPU0:
    BOOT variable = disk0:hfr-os-mbi-3.3.30/mbihfr-rp.vm,1;
    CONFREG variable = 0x2
```

Related Commands

Command	Description
config-register	Defines the configuration register setting in administration EXEC mode.
show variables system	Displays internal system environmental variables set on the router.
show version	Displays information about the Cisco IOS XR software.

show variables system

To display internal system environmental variables set on the router, use the **show variables system** command in EXEC mode.

show variables system

Syntax Description

This command has no arguments or keywords.

Defaults

No defaults behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 2.0	This command was introduced on the Cisco CRS-1.
Release 3.0	No modification.
Release 3.2	This command was first supported on the Cisco XR 12000 Series Router. Removed the **boot** keyword.
Release 3.3.0	No modification.
Release 3.4.0	No modification.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **show variables system** command to display system environmental variables for the router.

The **boot** keyword was removed from the **show variables system** command in Cisco IOS XR Software Release 3.2. To display the configuration register setting, use the **show variables boot** command in administration EXEC mode.

Task ID

Task ID	Operations
basic-services	read

Examples

The following is sample output from the **show variables system** command. The output is meant to be interpreted by Cisco personnel.

```
RP/0/RP0/CPU0:router# show variables system
```

```
TERM=vt220
GDB_PDEBUG=-P1
TERM=vt100
DIR_PREFIX=.
LOADPATH=/pkg
LD_LIBRARY_PATH=/pkg/lib
PATH=/pkg/bin
BFM_CONFIG_PATH=/pkg/bfm/config
BGP_PATH=/pkg/bgp
CONFIGS_PATH=/pkg/configs
CRAFT_PATH=/pkg/cwi
CTF_PATH=/pkg/ctf
DM_RULES_PATH=/pkg/dm/rules
ETC_PATH=/pkg/etc
FPD_PATH=/pkg/fpd
IM_RULES_PATH=/pkg/rules
INIT_STARTUP_PATH=/pkg/init.d
INSTHELPER_PATH=/pkg/other
MAN_PATH=/pkg/man
MIB_LIBRARY_PATH=/pkg/lib/mib
MIB_PATH=/pkg/mib
NETIO_SCRIPT_PATH=/pkg/script
PARSER_PATH=/pkg/parser
PARTITIONS_PATH=/pkg/partitions
QOS_PATH=/pkg/qos
SCHEMA_PATH=/pkg/schema
STARTUP_PATH=/pkg/startup
TCL_LIBRARY=/pkg/lib/tcl
UCODE_PATH=/pkg/gsr/ucode
UCODE_ROOT_PATH=/pkg/ucode
VCM_RULES_PATH=/pkg/vcmrules
JOB_ID=0
INSTANCE_ID=1
SYSMGR_TUPLE=
SYSMGR_NODE=node0_RP0_CPU0
EXIT_STATUS=0
SYSMGR_RESTART_REASON=0
AAA_USER=egran
EXEC_PID=18280619
TASKID_MAP_SIZE=72
HOME=/disk0:/usr
TMPDIR=/disk0:/var/tmp
PWD=/disk0:/usr
```

Related Commands

Command	Description
config-register	Defines the configuration register setting in administration EXEC mode.
show variables boot	Displays the configuration register setting and boot file setting for the RPs in the system.
show version	Displays information about the Cisco IOS XR software.

system backup

To back up the system software and configurations to a backup disk, use the **system backup** command in EXEC or administration EXEC mode.

system backup [*target-device*] [**format**] [**synchronous** | **asynchronous**] [**location** {**all** | *node-id*}]

Syntax Description

target-device	(Optional) Specifies the storage device used for the system backup. If a target device is not specified, then the secondary device defined with the **system boot-sequence** command is used. If a target device is not specified with either command, then the **system backup** command returns an error. • The target device cannot be the current boot device. • The target device must be large enough to store the current software set and configuration. • On the Cisco XR 12000 Series Router, the supported storage devices are **disk0:**, **disk1:**, and **compactflash:** (if installed). • On the Cisco CRS-1, the supported storage devices are **disk0:** and **disk1:** (if installed).
format	(Optional) Formats a target disk that already contains a system backup. By default, the **system backup** command formats the target disk if that target disk does not contain a previous system backup. If the target disk already contains a backup, then the disk is not formatted again. The **format** keyword forces a format of the target device even if it contains a previous system backup.
location *node-id*	(Optional) Specifies an alternative node location for the backup target disk, such as the standby DSDRSC. By default, the backup files are copied to the target device in the current DSDRSC. Use the **location** *node-id* keyword and argument to specify an alternative node for the backup files, such as the standby DSDRSC. The *node-id* argument is expressed in *rack*/*slot*/*module* notation.
location all	(Optional) Backs up the software and configuration files to all RPs in the system or SDR. Each RP must contain a disk in the specified target device location, such as disk1.
asynchronous	(Optional) Performs the command in asynchronous mode. In asynchronous mode, the command runs in the background, and the EXEC prompt is returned as soon as possible.
synchronous	(Optional) Performs the command in synchronous mode. This mode allows the installation process to finish before the prompt is returned. This is the default mode.

Defaults

The operation is performed in synchronous mode.
The backup files are copied to the secondary device defined with the **system boot-sequence** command.
The backup files are copied to the target device on the current secure domain router system controller (DSDRSC).

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 3.4.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Target Device for the Backup

Use the **system backup** command with the *target-device* argument to specify the local storage device for backup software and configuration files. The *target-device* argument is optional and applies only to the current backup operation.

- If a target storage device is not specified, then the files are backed up to the secondary storage device defined with the **system boot-sequence** command.
- If a target device is not specified with either the **system backup** command or the **system boot-sequence** command, then the backup operation is not allowed.

The *target-device* can be any local storage device except the current boot device, and must be large enough to store the current software set and configuration. On the Cisco XR 12000 Series Router, the supported storage devices are **disk0:**, **disk1:**, and **compactflash:** (if installed). On the Cisco CRS-1 router, the supported storage devices are **disk0:** and **disk1:** (if installed).

Location Node of the Target Device

By default, the backup is created on the specified target device of the active DSDRSC where the command is executed.

- To specify an alternate node for the system backup, such as the standby DSDRSC, use the **system backup** command with the **location** *node-id* keyword and argument.
- To perform the backup on all router processors (RPs) installed in a specified secure domain router (SDR), use the **system backup** command with the **location all** keywords in EXEC mode.
- To perform the backup on all RPs in all SDRs installed in the system, use the **system backup** command with the **location all** keywords in administration EXEC mode.

Note Each RP or distributed route processor (DRP) impacted by the **system backup** command must contain the specified target device. For example, if the **system backup** command is executed for disk1 on all RPs in the system, then a flash disk must be installed in disk1 of each RP.

Command Modes

- Use the **system backup** command in administration EXEC mode to back up the administration plane configuration, including software and configurations for all SDRs in the system.

- Use the **system backup** command in the EXEC mode of an SDR to back up the software and configurations for a specific SDR.

Commit and Installation Operations Not Allowed During Backup

- Configuration changes are not allowed during the backup process. Any attempts to commit configuration changes are rejected until the backup operation is complete.
- The backup process cannot be performed during an installation operation. If an installation operation is performed while a backup is in process, the backup operation terminates.

Displaying the Current Backup Information

Enter the **show system backup** command to display information about the current backup files. If no backup exists, an error message is displayed.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example shows how to back up the software and configuration files for a Cisco XR 12000 Series Router.

- The command is run in administration EXEC mode, which backs up both the administration and SDR configurations.
- The target device is defined as disk1.
- Because this is the first backup on the device, the disk is formatted.

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# system backup disk1:

Info:  node0_0_CPU0: formatting target device
Info:  node0_0_CPU0: copying admin configuration
Info:  node0_0_CPU0: copying SDR configuration
Info:  node0_0_CPU0: copying installed software
Info:  node0_0_CPU0: backup complete.
Info:  node0_0_CPU0: verifying admin configuration
Info:  node0_0_CPU0: verifying installed software
Info:  node0_0_CPU0: verify complete.
Info:  node0_0_CPU0: command succeeded.
```

Related Commands

Command	Description
show system backup	Displays the system backup settings and history.
system boot-sequence	Defines the order of boot devices used to bring up a router. The secondary device argument also defines the default backup target device used by the **system backup** command.
system backup	Performs a backup of software and configuration files.

system boot-sequence

To define the order of local storage devices used to boot a router, use the **system boot-sequence** command in EXEC or administration EXEC mode.

system boot-sequence {*primary-device* [*secondary-device*] | **disable**} [**location** {**all** | *node-id*}]

Syntax Description

primary-device	Default device where software packages are installed and run. This device is also the default location for router configurations. The value of the *primary-device* argument is normally **disk0:**.
secondary-device	Secondary (backup) boot device, used by the **system backup** command to back up system software and configurations. • On the Cisco XR 12000 Series Router, the supported storage devices are **disk0:**, **disk1:**, and **compactflash:** (if installed). • On the Cisco CRS-1, the supported storage devices are **disk0:** and **disk1:** (if installed). **Note** The value of the *secondary-device* argument must be different from the value of the *primary-device* argument.
disable	Temporarily disables the automatic recovery mechanism.
location *node-id*	Defines the boot sequence on any RP in the current SDR. The *node-id* argument is expressed in *rack*/*slot*/*module* notation.
location all	Defines the boot sequence on all RPs in all SDRs.

Defaults

The primary device is **disk0:**. The (optional) secondary boot device is not defined.

Command Modes

EXEC
Administration EXEC

Command History

Release	Modification
Release 3.4.0	This command was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.4.1	The **disable** keyword and *secondary-device* argument were introduced.
Release 3.5.0	No modification.
Release 3.6.0	No modification.
Release 3.7.0	No modification.

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes the proper task IDs. For detailed information about user groups and task IDs, see the *Configuring AAA Services on Cisco IOS XR Software* module of the *Cisco IOS XR System Security Configuration Guide*.

Use the **system boot-sequence** command to define the local storage devices used to boot a router. You can define two devices with this command:

- The value of the *primary-device* argument defines the default device where software packages are installed and run. This device is also the default location for router configurations.
- The value of the *secondary-device* argument defines the device used by the **system backup** command To back up system software and configurations. This field is optional.
- The secondary device can also be temporarily defined when the **system backup** command is executed with the *target-device* argument. Use the **system boot-sequence** command with the *secondary-device* argument to permanently define the secondary (backup) device.

Note The primary and secondary device definitions remain in effect until the **system boot-sequence** command is entered again.

General Usage Guidelines

- The value of the *secondary-device* argument must be different from the value of the *primary-device* argument.
- We recommend disk0 as the primary boot device in the boot sequence, and disk1 as the secondary boot device.
- The boot device specified with the **system boot-sequence** command must be installed in the card, or the command is rejected.

Command Modes

- Use the **system boot-sequence** command in administration EXEC mode to define the boot sequence for all secure domain routers (SDRs) in the system.
- Use the **system boot-sequence** command in EXEC mode to define the boot sequence for a specific SDR.

Location Node

- Use the **location** *node-id* keyword and argument to define the boot sequence for a specific route processor (RP).
- Use the **location all** keywords to define the boot sequence for all RPs in the SDR. Use this command in administration EXEC mode to define the boot sequence for all RPs in all SDRs.

Disabling Automatic Recovery

Use the **system boot-sequence** command with the **disable** keyword to disable the automatic recovery.

Note Automatic recovery is supported from Cisco IOS XR Software Release 3.4.1.

Displaying the Current Boot Sequence Settings

Enter the **show system backup** command to display the currently configured boot sequence devices.

Task ID

Task ID	Operations
root-lr	read, write

Examples

The following example shows how to define the primary and secondary boot device for the active RP (DSC). In this example, the default location for software and configurations is disk0. The location for backups of software and configurations is disk1.

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(admin)# system boot-sequence disk0: disk1:

Info:  node0_0_CPU0: command succeeded.
```

Related Commands

Command	Description
system backup	Performs a backup of software and configuration files.
show system backup	Displays the system backup settings and history.