Configuring Disk Backup and Disk Mirroring

This module describes the process to configure disk mirroring and create a backup disk of the packages and configurations in Cisco IOS XR software.

Note The disk backup feature is also known as *Golden Disk*.

For complete descriptions of the commands listed in this module, see Related Documents, on page 20. To locate documentation for other commands that might appear in the course of performing a configuration task, search online in *Cisco IOS XR Commands Master List for the Cisco CRS Router*.

Table 1: Feature History for Disk Backups and Disk Mirroring for Cisco IOS XR Software

Release	Modification
Release 3.4.0	Backup disk creation was introduced.
Release 3.6.0	Disk mirroring was introduced.

This module contains the following topics:

Disk Backup Prerequisites

Before performing a system backup, the following conditions must be met:

- You must be in a user group associated with a task group that includes the proper task IDs. The command reference guides include the task IDs required for each command. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- Local storage device specified for the backup must be installed. The supported storage devices are disk0: and disk1: (if installed).
- Disk mirroring must not be enabled.

Disk Mirroring Prerequisites

Before enabling disk mirroring, the following conditions must be met:

- You must be in a user group associated with a task group that includes the proper task IDs. The command reference guides include the task IDs required for each command. If you suspect user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

- The secondary storage device specified for the mirroring must be installed in the same node as the primary boot device. The supported storage devices are disk0: and disk1:.
- The secondary storage device must be the same size or larger than the designated primary storage device.
- The secondary storage device must be partitioned.
- After disk mirroring is enabled, you cannot configure the backup disk feature.

Note   The primary partition on the secondary storage device must be large enough to contain all data on the primary boot device. This can be an issue if the primary boot device has not yet been partitioned. For example, in the situation where both the primary boot device and the secondary storage device are 1 GB in size, the primary boot device contains 950 MB of data, and the secondary storage device is already partitioned to 800 MB in the primary partition and 200 MB in the secondary partition. In such a case, the 950 MB of data from the primary boot device does not fit on the secondary storage device because of the partition. Such a configuration is rejected and an error is displayed. You need to replace the secondary storage device with a higher capacity device. For information about disk partition sizes, see *Related Topics*.

Note   Although compactflash: can be used as the secondary device on a Performance Route Processor (PRP–2), there is an issue with the ROM Monitor not being able to boot the minimum boot image (MBI) from the secondary device if the device is not disk0: or disk1:. In such a situation, you would need to go into ROMMON mode and boot the PRP-2 manually using the MBI on the compactflash:.

Related Topics

Information About the Backup Disk

A system backup disk is created when you back up the system files to a local storage device for the first time. This process formats the selected device, and copies the software packages and system configurations to that device. If the backup operation is performed from EXEC mode, then the files from that specific secure domain

router (SDR) are backed up. If the backup operation is performed from administration EXEC mode, then the files from the administration plane and from all SDRs are backed up .

Before you create a backup disk of the Cisco IOS XR software packages and configurations, you need to determine which device is being used as the primary boot device. The boot device is displayed using the following commands:

- **show version**
- **show install active**
- **show install committed**

See *System Management Command Reference for Cisco CRS Routers* for information on using the commands to determine the boot device.

Information About Disk Mirroring

The route processor (RP) card has a primary storage device that is used to store installation packages and configuration files. This primary storage device is referred to as the *primary boot device* and is essential for booting the RP and its normal operation.

Disk mirroring replicates the critical data on the primary boot device onto another storage device on the same RP, henceforth referred to as the secondary device. If the primary boot device fails, applications continue to be serviced transparently by the secondary device, thereby avoiding a switchover to the standby RP. The failed primary storage device can be replaced or repaired without disruption of service.

Disk mirroring should only mirror critical data on the primary boot device onto a secondary storage device and not any noncritical data such as logging data. To separate critical data from noncritical data, the disk devices need to be partitioned. Disk0: is partitioned to disk0: and disk0a:; disk1: is partitioned to disk1: and disk1a:. Disk0: and disk1: are used for critical data, whereas disk0a: and disk1a: are used for logging data and other noncritical data. Before you can configure disk mirroring on the RP, you must have partitioned the secondary storage device. The sizes of disk partitions are related to the total disk size, and are provided in Table 2: Size of Disk Partitions in Relation to Size of Disk, on page 3.

Table 2: Size of Disk Partitions in Relation to Size of Disk

Size of Disk	Primary Partition Percentage	Secondary Partition Percentage
less than 900 MB	Partitioning not supported	Partitioning not supported
900 MB to 1.5 GB	80%	20%
1.5 GB to 3 GB	60%	40%
more than 3 GB	50%	50%

How to Create a Backup Disk

Creating a New or Revised Backup Disk

Complete the following instructions to create a new backup disk, or to back up the most recent software and configuration files onto an existing backup disk.

> **Note** If disk mirroring is enabled, you will not be able to configure a backup disk.

SUMMARY STEPS

1. **admin**
2. (Optional) **showsystem backup** [*target-dev*] [**details** | **diff**] [**verify**] [**location** {**all** | *node-id*}]
3. (Optional) **system boot-sequence** *primary-device* [*secondary-device*] [**location** {**all** | *node-id*}]
4. **system backup** [*target-dev*] [**format**] [**location** {**all** | *node-id*}] [**synchronous** | **asynchronous**]
5. (Optional) **show system backup** [*target-dev*] [**details** | **diff**] [**verify**] [**location** {**all** | *node-id*}]

DETAILED STEPS

	Command or Action	**Purpose**
Step 1	**admin** **Example:** `RP/0/RP0/CPU0:router# admin`	Enters administration EXEC mode.
Step 2	(Optional) **showsystem backup** [*target-dev*] [**details**	**diff**] [**verify**] [**location** {**all**	*node-id*}] **Example:** `RP/0/RP0/CPU0:router# show system backup disk1:`	Displays information for the backup performed on the active RP where you are logged in, including the date, time, and status of the last backup. Use this information to determine if a backup is required. The following options display specific information: • *target-dev*—Displays backup information for a specified RP node. • **details**—Lists information about the software packages and configuration files stored on the backup device. • **diff**—Displays the differences between the software and configurations on the backup device and the software and configurations on the currently active boot disk. • **location** *node-id*—Displays information for a backup on a specific node. Use the **location all** keywords to display information for backups on all nodes in the system. If no backup exists, an error message is displayed.

	Command or Action	**Purpose**
Step 3	(Optional) **system boot-sequence** *primary-device* [*secondary-device*] [**location** {**all** | *node-id*}] **Example:** `RP/0/RP0/CPU0:router(admin)# system boot-sequence disk0: disk1:`	Defines the order of local storage devices used to boot a router. Enter a value for the secondary device field to define the default location for system backups. If this field is left blank, the backup device can be defined with the **system backup** command, as shown in the next step. - The boot devices specified in this command must be installed in the card, or the command will fail. *primary-device*—Defines the default device where software packages are installed and run. This device is also the default location for router configurations. We recommend disk0: as the primary boot device in the boot sequence. *secondary-device*—Defines the device used by the **system backup** command to back up system software and configurations. The value of the *secondary-device* argument must be different from the value of the *primary-device* argument. We recommend disk1: as the secondary boot device in the boot sequence. This field is optional. **location** *node-id*—Defines the boot sequence for a specific RP. **location** **all**—Defines 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. The *node-id* argument is expressed in *rack*/*slot*/*module* notation.
Step 4	**system backup** [*target-dev*] [**format**] [**location** {**all** | *node-id*}] [**synchronous** | **asynchronous**] **Example:** `RP/0/RP0/CPU0:router(admin)# system backup disk0: disk1:`	Backs up the system software and configurations to a backup disk. Use the **system backup** command without keywords or arguments to back up the system software and configurations on the target device for the designated secure domain router shelf controller (DSDRSC) where you are logged in. - By default, the backup disk is the secondary device defined with the **system boot-sequence** command in . - To define a backup device for the current backup operation only, use the **system backup** command with the *target-dev* argument. - If a target device is not specified with either the **system backup** *target-dev* command or the **system boot-sequence** command, then the backup operation is not allowed.

	Command or Action	Purpose
		Note The *target-dev* argument can be any local storage device except the current boot device, and must be large enough to store the current software set and configuration. • **location** *node-id*—Specifies an alternate node for the system backup, such as the standby DSDRSC . • **location all**—Performs the backup on all RPs installed in a specific SDR, when used in EXEC mode; performs the backup on all RPs in all SDRs installed in the system, when used in administration EXEC mode. • Default is **synchronous**.
Step 5	(Optional) **show system backup** [*target-dev*] [**details** | **diff**] [**verify**] [**location** {**all** | *node-id*}] **Example:** RP/0/RP0/CPU0:router# show system backup disk1:	Displays information for the backup performed on the active RP where you are logged in, including the date, time, and status of the last backup. Use this information to determine if a backup is required. The following options display specific information: • *target-dev*—Displays backup information for a specified RP node. • **details**—Lists information about the software packages and configuration files stored on the backup device. • **diff**—Displays the differences between the software and configurations on the backup device and the software and configurations on the currently active boot disk. • **location** *node-id*—Displays information for a backup on a specific node. Use the **location all** keywords to display information for backups on all nodes in the system. If no backup exists, an error message is displayed.

Using the Backup Disk to Boot a Router

Complete the following instructions to use the backup disk to boot a router.

SUMMARY STEPS

1. Enter ROM Monitor mode.
2. **dir   disk1:**
3. Locate the hfr-os-mbi-X.Y.Z directory.
4. **dir   disk1: hfr -os-mbi-** $X.Y.Z$
5. Locate the mbihfr- *xx* .vm file.
6. **unset BOOT**
7. **sync**
8. **confreg   0x102**

       9. **boot**   **disk1:** **hfr** **-os-mbi-** *X* **.** *Y* **.** *Z* **/mbi** **hfr** **hfr**

DETAILED STEPS

	Command or Action	Purpose
Step 1	Enter ROM Monitor mode.	See *ROM Monitor Configuration Guide for Cisco CRS Routers* for information on entering ROM Monitor mode.
Step 2	**dir** **disk1:** **Example:** `rommon1> dir disk1:`	Displays the files on the disk1: storage device.
Step 3	Locate the hfr-os-mbi-X.Y.Z directory.	Identifies the directory on the disk1: storage device.

Step 4	**dir** **disk1:** **hfr** **-os-mbi-** *X* **.** *Y* **.** *Z*
	
	Example:
	
	`rommon2> dir disk1:hfr`
	`-os-mbi-3.8.0`
		Displays the files in the hfr-os-mbi-X.Y.Z directory.

Step 5	Locate the mbihfr- *xx* .vm file.	Identifies the file in the hfr-os-mbi-X.Y.Z directory. **Note** On the RP, *xx* = **rp** ; on the DRP, *xx* = **drp** .
Step 6	**unset BOOT** **Example:** `rommon3> unset BOOT`	Clears the setting for the BOOT variable.
Step 7	**sync** **Example:** `rommon4> sync`	Saves the new ROM Monitor variable settings.
Step 8	**confreg** **0x102** **Example:** `rommon5> confreg 0x102`	Sets the configuration register to 0x102.
Step 9	**boot** **disk1:** **hfr** **-os-mbi-** *X* **.** *Y* **.** *Z* **/mbi** **hfr** **hfr** **Example:** `rommon6> boot disk1:hfr-os-mbi-3.8.0/mbihfr-rp.vm`	Retrieves the file and installs it on the boot device. **Note** On the RP, *xx* = **rp** ; on the DRP, *xx* = **drp** .

How to Enable Disk Mirroring

The tasks in this section describe how to enable and manage disk mirroring.

Enabling Disk Mirroring

Complete the following instructions to enable disk mirroring. After disk mirroring is configured, if there is a fault on the primary boot drive or it cannot be accessed for any reason, control is automatically transferred to the secondary storage device.

Note   Disk mirroring overrides any existing disk backup configuration (Golden Disk), and subsequent disk backups fail.

SUMMARY STEPS

1. **format** *secondary-device* **partition** [**location** *node-id*]
2. Remove any noncritical data from the primary boot device.
3. **configure**
4. **mirror** **location** *node-id* *Primary-device Secondary-device*
5. Use the **commit** or **end** command.
6. **show** **mirror** [**location** *node-id*]
7. **mirror** **verify** **location** *node-id*

DETAILED STEPS

	Command or Action	**Purpose**
Step 1	**format** *secondary-device* **partition** [**location** *node-id*] **Example:** RP/0/RP0/CPU0:router# **format disk1: partition**	Partitions the secondary storage device into two partitions. • If the device is already partitioned, you do not need to perform this step. • On multishelf systems, specify the node of the primary boot device with the **location** keyword. **Note** When you partition a FAT16 disk, the file system changes to FAT32. If you might need to downgrade to Cisco IOS XR Software Release 3.7.0 or earlier, consider carefully before partitioning the disk. Software downgrades to Cisco IOS XR Software Release 3.7.0 or earlier are not supported for FAT32 disks. The procedure for converting a FAT32 disk to FAT16 is complex and requires the assistance of Cisco technical support.
Step 2	Remove any noncritical data from the primary boot device.	The primary boot device should contain installation packages and configuration files only. Log files can be copied to the "a" partition of the secondary device, for example disk1a: .
Step 3	**configure** **Example:**	Enters global configuration mode.

	Command or Action	**Purpose**
	`RP/0/RP0/CPU0:router# configure`	
Step 4	**mirror location** *node-id Primary-device Secondary-device* **Example:** `RP/0/RP0/CPU0:router(config)# mirror location 0/rp 0/cpu0 disk0:disk1:`	Enables disk mirroring of the *primary-device* to the *secondary-device* . On multishelf systems, specify the node of the primary boot device with the **location** keyword. If the primary boot device is not partitioned, the following occurs: • The contents of the primary device are replicated to the secondary device • Control of the mirroring server switches to the secondary storage device. • The primary device is partitioned. • Data is replicated back to the primary boot device.
Step 5	Use the **commit** or **end** command.	**commit** —Saves the configuration changes and remains within the configuration session. **end** —Prompts user to take one of these actions: • **Yes** — Saves configuration changes and exits the configuration session. • **No** —Exits the configuration session without committing the configuration changes. • **Cancel** —Remains in the configuration session, without committing the configuration changes.
Step 6	**show mirror** [**location** *node-id*] **Example:** `RP/0/RP0/CPU0:router# show mirror location 0/rp 0/cpu0`	Displays disk mirroring information for an RP node. It also provides the status of the synchronization between the primary and secondary devices. Use the **location** *node-id* keyword and argument to view the mirror status on other line card and fabric card chassis. The default display is the mirror status of the card to which the console is connected.
Step 7	**mirror verify location** *node-id* **Example:** `RP/0/RP0/CPU0:router# mirror verify location 0/rp 0/cpu0`	Verifies disk synchronization for disk mirroring on an RP node.

Replacing the Secondary Mirroring Device

Follow this procedure if you need to replace the secondary boot device used in the disk mirroring process.

SUMMARY STEPS

1. **show mirror** [**location** *node-id*]

2. **mirror pause** [**location** *node-id*]

3. **show mirror** [**location** *node-id*]

4. **unmount** *secondary-device* [**location** *node-id*]

5. Remove the device and insert a new device.

6. **format** *secondary-device* **partition** [**location** *node-id*]

7. **show media** [**location** *node-id*]

8. **mirror resume** [**location** *node-id*]

9. **show mirror** [**location** *node-id*]

DETAILED STEPS

	Command or Action	**Purpose**
Step 1	**show mirror** [**location** *node-id*] **Example:** RP/0/RP0/CPU0:router# **show mirror**	Verifies that mirroring is active. In the output, the *Current Mirroring State* should be redundant. Use the **location** *node-id* keyword and argument to view the mirror status on other line card and fabric card chassis. The default display is the mirror status of the card to which the console is connected.
Step 2	**mirror pause** [**location** *node-id*] **Example:** RP/0/RP0/CPU0:router# **mirror pause**	Temporarily pauses disk mirroring.
Step 3	**show mirror** [**location** *node-id*] **Example:** RP/0/RP0/CPU0:router# **show mirror**	Verifies that mirroring has paused. In the output, the *Current Mirroring State* should be paused.
Step 4	**unmount** *secondary-device* [**location** *node-id*] **Example:** RP/0/RP0/CPU0:router# unmount disk1:	Unmounts the secondary device.
Step 5	Remove the device and insert a new device.	
Step 6	**format** *secondary-device* **partition** [**location** *node-id*] **Example:** RP/0/RP0/CPU0:router# **format disk1: partition**	Formats the device.
Step 7	**show media** [**location** *node-id*] **Example:** RP/0/RP0/CPU0:router# **show media**	Verifies that the device is formatted. The output should display the device that you formatted.
Step 8	**mirror resume** [**location** *node-id*] **Example:**	Resumes mirroring.

	Command or Action	**Purpose**
	`RP/0/RP0/CPU0:router# ` **`mirror resume`**	
Step 9	**show mirror** [**location** *node-id*] **Example:** `RP/0/RP0/CPU0:router# ` **`show mirror`**	Verifies that mirroring has restarted. In the output, the *Current Mirroring State* should be Syncing. It can take 15 to 30 minutes for the mirroring process to complete. The exact time depends on the number of packages or files on the boot device. When the mirroring is complete, the *Current Mirroring State* should be Redundant.

Replacing the Primary Mirroring Device

In the event that your primary boot disk is defective and you need to replace it while disk mirroring is enabled, perform this task.

SUMMARY STEPS

1. **show mirror** [**location** *node-id*]
2. **configure**
3. **mirror location** *node-id Primary-device Secondary-device*
4. Use the **commit** or **end** command.
5. **show mirror** [**location** *node-id*]
6. **mirror pause** [**location** *node-id*]
7. **show mirror**
8. **unmount** *secondary-device* [**location** *node-id*]
9. Remove the device and insert a new device.
10. **show media** [**location** *node-id*]
11. (Optional) **format** *secondary-device* **partition** [**location** *node-id*]
12. **mirror resume** [**location** *node-id*]
13. **show mirror** [**location** *node-id*]
14. **configure**
15. **mirror location** *node-id Primary-device Secondary-device*
16. **show mirror** [**location** *node-id*]

DETAILED STEPS

	Command or Action	**Purpose**
Step 1	**show mirror** [**location** *node-id*] **Example:** `RP/0/RP0/CPU0:router# ` **`show mirror`**	Verifies that mirroring is in the redundant state. In the output, the *Current Mirroring State* should be redundant. If mirroring is not in the redundant state, you cannot proceed with the procedure. You must wait until mirroring is in the redundant state. Use the **location** *node-id* keyword and argument to view the mirror status on other line card and fabric card chassis.

	Command or Action	**Purpose**
		The default display is the mirror status of the card to which the console is connected.
Step 2	**configure** **Example:** RP/0/RP0/CPU0:router# configure	Enters global configuration mode.
Step 3	**mirror location** *node-id Primary-device Secondary-device* **Example:** RP/0/RP0/CPU0:router(config)# **mirror location 0/** **RP0** **/CPU0 disk1:disk0:**	Swaps the device roles such that the primary mirroring device now becomes the secondary device and the secondary mirroring device becomes the primary device.

Step 4	Use the **commit** or **end** command.	**commit** —Saves the configuration changes and remains within the configuration session.
		
		end —Prompts user to take one of these actions:
		
		   • **Yes** — Saves configuration changes and exits the configuration session.
		
		   • **No** —Exits the configuration session without committing the configuration changes.
		
		   • **Cancel** —Remains in the configuration session, without committing the configuration changes.

Step 5	**show mirror** [**location** *node-id*] **Example:** RP/0/RP0/CPU0:router# **show mirror**	Verifies that the primary device is now the secondary device and vice versa. In the output, if disk0: was the primary disk that you want to replace, it should now be listed as the secondary device.
Step 6	**mirror pause** [**location** *node-id*] **Example:** RP/0/RP0/CPU0:router# **mirror pause**	Temporarily pauses disk mirroring.
Step 7	**show mirror** **Example:** RP/0/RP0/CPU0:router# **show mirror**	Verifies that mirroring has paused. In the output, the *Current Mirroring State* should be paused.
Step 8	**unmount** *secondary-device* [**location** *node-id*] **Example:**	Unmounts the secondary device which is the device that you want to replace. Initially, this was the primary device.

	Command or Action	Purpose
	`RP/0/RP0/CPU0:router# unmount disk1:`	
Step 9	Remove the device and insert a new device.	
Step 10	**show media** [**location** *node-id*] **Example:** `RP/0/RP0/CPU0:router# ` **`show media`**	Verifies that the new disk is partitioned. You should see that the new device is mounted. If the new device is not partitioned, format the device as indicated in the next step.
Step 11	(Optional) **format** *secondary-device* **partition** [**location** *node-id*] **Example:** `RP/0/RP0/CPU0:router# ` **`format disk1: partition`**	Formats the device. You only need to perform this step if the new device is not partitioned.
Step 12	**mirror resume** [**location** *node-id*] **Example:** `RP/0/RP0/CPU0:router# ` **`mirror resume`**	Resumes mirroring.
Step 13	**show mirror** [**location** *node-id*] **Example:** `RP/0/RP0/CPU0:router# ` **`show mirror`**	Verifies that mirroring has restarted. In the output, the *Current Mirroring State* should be Syncing. It can take 15 to 30 minutes for the mirroring process to complete. The exact time depends on the number of packages or files on the boot device. When the mirroring is complete, the *Current Mirroring State* should be Redundant.
Step 14	**configure** **Example:** `RP/0/RP0/CPU0:router# configure`	Enters global configuration mode.
Step 15	**mirror location** *node-id Primary-device Secondary-device* **Example:** `RP/0/RP0/CPU0:router(config)# ` **`mirror location 0/`** **`RP0`** **`/CPU0 disk0:disk1:`**	Swaps the device roles back so that the newly inserted device becomes the primary device.
Step 16	**show mirror** [**location** *node-id*] **Example:** `RP/0/RP0/CPU0:router# ` **`show mirror`**	Verifies that the new device is now the primary device.

Configuration Examples for Creating a Backup Disk

Defining the Boot Disk Sequence: Example

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

```
admin
  system boot-sequence disk0: disk1:
  Info:  node0_0_CPU0: command succeeded.
```

Creating a Backup Disk for All SDRs : Example

The following example shows how to back up the software and configuration files:

- The command is run in administration EXEC mode, which backs up both the administration and SDR configurations.
- The target device is defined by the value entered with the **system boot-sequence** command, as shown in .
- Because this is the first backup on the device, the disk is formatted.

```
admin
  system backup location all

  Info: node0_0_CPU0: formatting target device
  Info: node0_1_CPU0: formatting target device
  Info: node0_3_CPU0: formatting target device
  Info: node0_0_CPU0: copying admin configuration
  Info: node0_1_CPU0: copying admin configuration
  Info: node0_3_CPU0: copying SDR configuration
  Info: node0_0_CPU0: copying SDR configuration
  Info: node0_3_CPU0: copying installed software
  Info: node0_1_CPU0: copying SDR configuration
  Info: node0_0_CPU0: copying installed software
  Info: node0_1_CPU0: copying installed software
  Info: node0_0_CPU0: backup complete.
  Info: node0_3_CPU0: backup complete.
  Info: node0_1_CPU0: backup complete.
  Info: node0_0_CPU0: verifying admin configuration
  Info: node0_1_CPU0: verifying admin configuration
  Info: node0_3_CPU0: verifying SDR configuration
  Info: node0_0_CPU0: verifying SDR configuration
  Info: node0_1_CPU0: verifying SDR configuration
  Info: node0_3_CPU0: verifying installed software
  Info: node0_0_CPU0: verifying installed software
  Info: node0_1_CPU0: verifying installed software
  Info: node0_3_CPU0: verify complete.
  Info: node0_3_CPU0: command succeeded.
  Info: node0_1_CPU0: verify complete.
  Info: node0_1_CPU0: command succeeded.
  Info: node0_0_CPU0: verify complete.
```

```
Info: node0_0_CPU0: command succeeded.
```

Creating a Backup Disk for a Single SDR: Example

In the following example, the backup disk is created for a non-owner SDR.

- The command is run in EXEC mode, which backs up only the current SDR files and configuration.
- The target device is defined as disk1:.
- Because this is the first backup on the device, the disk is formatted.

```
system backup disk1:

  Info:  node0_3_CPU0: formatting target device
  Info:  node0_3_CPU0: copying SDR configuration
  Info:  node0_3_CPU0: copying installed software
  Info:  node0_3_CPU0: backup complete.
  Info:  node0_3_CPU0: verifying SDR configuration
  Info:  node0_3_CPU0: verifying installed software
  Info:  node0_3_CPU0: verify complete.
  Info:  node0_3_CPU0: command succeeded.
```

Showing the Backup Information: Examples

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

```
RP/0/RP0/CPU0:router# admin
RP/0/RP0/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 2009
   ended at Sat Jun 24 12:42:11 2009
  Verify started at Sat Jun 24 12:42:12 2009
   ended at Sat Jun 24 12:48:47 2009
  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 on 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/RP0/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 2009
   ended at Sat Jun 24 12:42:11 2009
  Verify started at Sat Jun 24 12:42:12 2009
```

```
 ended at Sat Jun 24 12:48:47 2009
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 2009

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:
hfr-os-mbi-3.7.2
hfr-base-3.7.2
hfr-admin-3.7.2
hfr-fwdg-3.7.2
hfr-lc-3.7.2
hfr-rout-3.7.2
hfr-diags-3.7.2
hfr-k9sec-3.7.2
hfr-mcast-3.7.2
hfr-mgbl-3.7.2
hfr-mpls-3.7.2
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/RP0/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:
```

Configuration Examples for Enabling Disk Mirroring

Enabling Disk Mirroring: Example

In the following example, disk mirroring is enabled on a router:

```
format disk1: partition

This operation will destroy all data on "disk1:" and partition device.
Continue? [confirm] y

Device partition disk1: is now formated and is available for use.

configure
  mirror location 0/0/cpu0 disk0:disk1:
  commit
```

show mirror Command Output: Example

```
RP/0/RP0/CPU0:router# show mirror location all

Tue Dec  7 05:58:11.187 PST

Mirror Information for 0/4/CPU0.
========================================================
 Mirroring Enabled
   Configured Primary:        disk0:
   Configured Secondary:      disk1:

 Current Mirroring State:      Redundant
   Current Physical Primary:  disk0:
   Current Physical Secondary: disk1:

 Mirroring Logical Device:    disk0:
 Mirroring Logical Device2:   disk1:

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

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


Mirror Information for 0/4/CPU1.
========================================================
 Mirroring Enabled
   Configured Primary:        disk0:
   Configured Secondary:      disk1:

 Current Mirroring State:      Redundant
   Current Physical Primary:  disk0:
   Current Physical Secondary: disk1:

 Mirroring Logical Device:    disk0:
 Mirroring Logical Device2:   disk1:
```

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

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


Mirror Information for 0/RP0/CPU0.
=========================================================
 Mirroring Enabled
   Configured Primary:         disk0:
   Configured Secondary:       disk1:

 Current Mirroring State:       Redundant
 Current Physical Primary:   disk0:
   Current Physical Secondary: disk1:

 Mirroring Logical Device:     disk0:
 Mirroring Logical Device2:    disk1:

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

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


Mirror Information for 0/RP1/CPU0.
=========================================================
 Mirroring Enabled
   Configured Primary:         disk0:
   Configured Secondary:       disk1:

 Current Mirroring State:       Redundant
   Current Physical Primary:   disk0:
   Current Physical Secondary: disk1:

 Mirroring Logical Device:     disk0:
 Mirroring Logical Device2:    disk1:

 Physical Device      State        Flags
---------------------------------------------------------
 disk0:           Available     Enabled
```

```
    disk1:          Available      Enabled
    compactflash:   Not Present
    harddiska:      Not Present
    disk0a:         Available
    disk1a:         Available
    compactflasha:  Not Present
    harddisk:       Available

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

show mirror Command Output on a Multishelf System: Example

```
RP/0/RP0/CPU0:router(admin)# show mirror location F0/SC0/CPU0

Mirror Information for F0/SC0/CPU0.
========================================================
 Mirroring Disabled

 Current Mirroring State:      Not Configured
   Current Physical Primary:   disk0:
   Current Physical Secondary: Not Set

 Mirroring Logical Device:     disk0:

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

Mirroring Rommon Variable
 BOOT_DEV_SEQ_CONF =
 BOOT_DEV_SEQ_OPER =
 MIRROR_ENABLE =
```

mirror verify Command Output: Example

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

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

Additional References

The following sections provide references related to disk backup and disk mirroring configuration.

Related Documents

Related Topic	Document Title
Initial system bootup and configuration information for a router using the Cisco IOS XR software	*Cisco IOS XR Getting Started Guide for the Cisco CRS Router*
Information about user groups and task IDs	*Configuring AAA Services on the Cisco IOS XR Software* module of *System Security Configuration Guide for Cisco CRS Routers*
Cisco IOS XR command master list	*Cisco IOS XR Commands Master List for the Cisco CRS Router*
Cisco IOS XR boot commands	*Boot Commands on the Cisco IOS XR Software* module of *System Management Command Reference for Cisco CRS Routers*

Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

MIBs

MIBs	MIBs Link
—	To locate and download MIBs using Cisco IOS XR software, use the Cisco MIB Locator found at the following URL and choose a platform under the Cisco Access Products menu: http://cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

Technical Assistance

Description	Link
The Cisco Technical Support website contains thousands of pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/cisco/web/support/index.html