Creating a Backup Disk for the Cisco IOS XR Software and Configurations

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

Note The backup feature is also known as “Golden Disk.”

Feature History Creating Backup Disks

Release	Modification
Release 3.4.1	This feature was introduced on the Cisco CRS-1 and Cisco XR 12000 Series Router.
Release 3.5.0	No modification.

Contents

Prerequisites

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

- This feature is supported on the Cisco CRS-1 and Cisco XR 12000 Series Routers running the Cisco IOS XR software, Release 3.4.0 or higher.
- The local storage device specified for the backup must be installed in the specified node.
- 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).

- You must be in a user group associated with a task group that includes the proper task IDs.
  - For information on the task IDs required for each command, see the *Boot Commands on Cisco IOS XR Software* module of *Cisco IOS XR System Management Command Reference*.
  - 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*.

Information About the Backup Disk

A system backup disk is created when you backup 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.

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

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

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

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.

SUMMARY STEPS

1. (Optional) **admin**
2. (Optional) **show system 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`	(Optional) Enters administration EXEC mode. • Use the following commands in administration EXEC mode to display information and back up files for the administration plane and all SDRs in the system. • Use the following commands in the EXEC mode of an SDR to display information and back up files for the current SDR.
Step 2	**show system backup** [*target-dev*] [**details** | **diff**] [**verify**] [**location** {**all** | *node-id*}] **Example:** `RP/0/RP0/CPU0:router# show system backup disk1:`	(Optional) Displays information about the current backup files to determine if a backup is required. • Enter the **show system backup** command to display information on the backup performed for the active RP where you are logged in, including the date, time, and status of the last backup. • Enter the **show system backup** *target-dev* command to display backup information for a specified RP node. • Enter the **show system backup details** command to list information about the software packages and configuration files stored on the backup device. • Enter the **show system backup diff** command to display the differences between the software and configurations on the backup device and the software and configurations on the currently active boot disk. • Enter the **show system backup location** command with 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. If no backup exists, an error message is displayed.

	Command or Action	Purpose
Step 3	**system boot-sequence** {*primary-device* [*secondary-device*]} [**location** {**all** | *node-id*}] **Example:** `RP/0/RP0/CPU0:router(admin)# system boot-sequence disk0: disk1:`	(Optional) 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 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 will be rejected. • 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 *secondary-device* argument defines the device used by the **system backup** command to back up system software and configurations. This field is optional. • Use the **location** *node-id* keyword and argument to define the boot sequence for a specific 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. The *node-id* argument is expressed in *rack*/*slot*/*module* notation.

	Command or Action	Purpose
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 system controller (DSDRSC) where you are logged in. • By default, the backup disk is the secondary device defined with the **system boot-sequence** command in Step 3. • 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. **Note** The *target-dev* can be any local storage device except the current boot device, and must be large enough to store the current software set and configuration. • 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 RPs installed in a specific 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. • Default is **synchronous**.

	Command or Action	Purpose
Step 5	**show system backup** [*target-dev*] [**details** | **diff**] [**verify**] [**location** {**all** | *node-id*}] **Example:** `RP/0/RP0/CPU0:router# show system backup disk1:`	(Optional) Displays information about the current backup files to determine is a backup is required. • Enter the **show system backup** command to display information on the backup performed for the active RP where you are logged in, including the date, time, and status of the last backup. • Enter the **show system backup** *target-dev* command to display backup information for a specified RP node. • Enter the **show system backup details** command to list information about the software packages and configuration files stored on the backup device. • Enter the **show system backup diff** command to display the differences between the software and configurations on the backup device and the software and configurations on the currently active boot disk. • Enter the **show system backup location** command with 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. 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 (Cisco CRS-1)
   or
   Locate the **c12k-os-mbi-***X.Y.Z* directory (Cisco XR 12000 Series Router)
4. **dir disk1:hfr-os-mbi-***X.Y.Z*
   or
   dir disk1:c12k-os-mbi-*X.Y.Z*
5. Locate **mbihfr-***xx***.vm**
   or
   Locate **mbic12k-***xx***.vm**

   Note *xx*=rp on RP, *xx*=drp on DRP
6. **unset BOOT**
7. **sync**

8. **confreg 0x102**
9. **boot disk1:hfr-os-mbi-***X.Y.Z***/mbihfr-***xx***.vm**
   or
   boot disk1:c12k-os-mbi-*X.Y.Z***/mbic12k-***xx***.vm**

DETAILED STEPS

	Command or Action	Purpose
Step 1	Enter ROM Monitor mode.	See *Cisco IOS XR ROM Monitor Guide* 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 (Cisco CRS-1) or Locate the **c12k-os-mbi-X.Y.Z** directory (Cisco XR 12000 Series Router)	Locate the directory on the disk1: storage device.
Step 4	**dir disk1:hfr-os-mbi-***X.Y.Z* or **dir disk1:c12k-os-mbi-***X.Y.Z* **Example:** `rommon2> dir disk1:hfr-os-nbi-3.4.0`	Displays the files in the **hfr-os-mbi-***X.Y.Z* or **c12k-os-mbi-***X.Y.Z* directory.
Step 5	Locate **mbihfr-***xx***.vm** or Locate **mbic12k-***xx***.vm**	Locate the directory in the **hfr-os-mbi-***X.Y.Z* or **c12k-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.

	Command or Action	Purpose
Step 8	**confreg 0x102** **Example:** `rommon5> confreg 0x102`	Set the configuration register to 0x102.
Step 9	**boot disk1:hfr-os-mbi-*X.Y.Z*/mbihfr-*xx*.vm** or **boot disk1:c12k-os-mbi-*X.Y.Z*/mbic12k-*xx*.vm** **Example:** `rommon6> boot disk1:hfr-os-mbi-3.4.0/mbihfr-rp.vm`	Retrieves the file and installs it on the boot device. **Note** On the RP, *xx*=**rp**; on the DRP, *xx*=**drp**.

Configuration Examples for Creating a Backup Disk

This section includes the following examples:

Defining the Boot Disk Sequence: Example

The following example show how to define the primary and secondary boot device for the active RP (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.

```
RP/0/0/CPU0:router# admin
RP/0/0/CPU0:router(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 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 by the value entered with the **system boot-sequence** command, as shown in Defining the Boot Disk Sequence: Example, page 66:
- Because this is the first backup on the device, the disk is formatted.

```
RP/0/0/CPU0:router(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.

```
RP/0/3/CPU0:router_sdr1# 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/0/0/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 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/0/0/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:
```

Additional References

The following sections provide references related to SDR configuration.

Related Documents

Related Topic	Document Title
SDR command reference	*Secure Domain Router Commands on Cisco IOS XR Software* module of *Cisco IOS XR System Management Command Reference*, Release 3.5
DRP pairing command reference	*Distributed Route Processor Commands on Cisco IOS XR Software* module of *Cisco IOS XR System Management Command Reference*, Release 3.5
Initial system bootup and configuration information for a router using the Cisco IOS XR software	*Cisco IOS XR Getting Started Guide*, Release 3.5
DRP description and requirements	*Cisco CRS-1 Carrier Routing System 16-Slot Line Card Chassis System Description*
Instructions to install DRP and DRP PLIM cards	*Installing the Cisco CRS-1 Carrier Routing System 16-Slot Line Card Chassis*
Information about user groups and task IDs	*Cisco IOS XR Task ID Reference Guide*, Release 3.5
Cisco IOS XR master command reference	*Cisco IOS XR Master Commands List*, Release 3.5
Cisco IOS XR interface configuration commands	*Cisco IOS XR Interface and Hardware Component Command Reference*, Release 3.5
Information about configuring interfaces and other components on the Cisco CRS-1 from a remote Craft Works Interface (CWI) client management application	*Cisco Craft Works Interface User Guide*, Release 3.5
Information about AAA policies, including instructions to create and modify users and username access privileges	*Configuring AAA Services on Cisco IOS XR Software* module of *Cisco IOS XR System Security Configuration Guide*, Release 3.5

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/techsupport