Warm Reload

The Warm Reload feature allows users to reload their routers without reading images from storage. That is, the Cisco IOS image reboots without ROM monitor mode (ROMMON) intervention by restoring the read-write data from a previously saved copy in the RAM and by starting execution without either copying the image from flash to RAM or self-decompression of the image. Thus, the overall availability of your system improves because the time to reboot your router is significantly reduced.

Finding Feature Information in This Module

Your Cisco IOS software release may not support all of the features documented in this module. To reach links to specific feature documentation in this module and to see a list of the releases in which each feature is supported, use the Feature Information for Warm Reload.

Finding Support Information for Platforms and Cisco IOS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS and Catalyst OS software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn . An account on Cisco.com is not required..

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see Bug Search Tool and the release notes for your platform and software release. To

find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table at the end of this module.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Restrictions for Warm Reload

Additional Memory Consumption

Additional memory is consumed because a copy of the initialized variables must be stored for a warm reboot to function. However, to consume as little memory as possible, a copy of the initialized variables is kept in a compressed form, which is marked as “read-only” to prevent corruption.

Software Support Only

A warm reboot should be used only for forced software crashes. Hardware failure of any kind will result in a cold reboot.

Information About Warm Reload

Benefits of Warm Reload

Quicker Router Reload

By eliminating the need to copy an image from flash to RAM and decompress it, the reload time of a router is reduced by 2 to four minutes. The time savings is greater on platforms that use the BOOTLDR images because tha additional step of loading a BOOTLDR image and parsing the configuration file by the BOOTLDR image can be avoided.

Flash Card Removal

The router is not useless if a flash card is removed because it can still reboot as long as it is not forced into a cold reboot (such as a power failure).

Warm Reload Functionality

When encountering a crash, a Cisco IOS image transfers control to ROMMON, which copies the system image from the storage device (which is typically flash) to main memory, decompresses the system image, and transfers control back to Cisco IOS. Warm rebooting allows the image to return to the start of the text segment in memory and restart execution from that point, thereby, eliminating ROMMON intervention. A copy of the initialized variables is kept in memory and is used to overwrite the existing memory location where the initialized variables are stored. Thus, when the CPU returns to the start of the text segment and begins operating, the information is the same as if execution had begun after the binary had been read from flash and decompressed.

How to Use Warm Reload

Configuring a Warm Reload

Use this task to configure your router for a warm reload in global configuration mode.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **warm-reboot** [**count***number*] [**uptime***minutes*
4. **exit**
5. **show warm-reboot**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**warm-reboot** [**count***number*] [**uptime***minutes* **Example:** `Router(config)# warm-reboot count 10 uptime 10`	Enables a router to warm-reboot. • **count** *number* --Maximum number of warm reboots allowed between any intervening cold reboot. Valid values range from 1 to 50. The default value is 5 times. • **uptime** *minutes* --Minimum number of minutes that must elapse between initial system configuration and an exception before a warm reboot is attempted. If the system crashes before the specified time elapses, a warm reboot is not attempted. Valid values range from 0 to 120. The default value is 5 minutes. **Note** After a warm reboot is enabled, it will not become active until after the next cold reboot because a warm reboot requires a copy of the initialized memory.
Step 4	**exit**	Exits global configuration mode and return to EXEC mode.

	Command or Action	Purpose
Step 5	**show warm-reboot** **Example:** `Router# show warm-reboot`	(Optional) Displays statistics for attempted warm reboots.

Reloading Your System Without Overriding the Warm-Reload Functionality

If you issue the **reload** command after you have configured the **warm-reboot** global command, a cold reboot will occur. Thus, if you wish to reload your system, but do not want to override the warm-reboot functionality, you should specify the **warm** keyword with the **reload** command. Use this task to configure your router for a warm reboot while you reload your system.

SUMMARY STEPS

1. **enable**
2. **reload** [[**warm**] *text* | [**warm**] **in** [*hh*:*mm* [*text*] | [**warm**] **at***hh*:*mm* [*monthday* | *daymonth*] [*text*] | [**warm**] **cancel**
3. **show reload**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**reload** [[**warm**] *text* | [**warm**] **in** [*hh*:*mm* [*text*] | [**warm**] **at***hh*:*mm* [*monthday* | *daymonth*] [*text*] | [**warm**] **cancel** **Example:** `Router# reload warm at 10:30`	Reloads the operating system. You must issue the **warm** keyword if you do not want to override the warm reboot functionality when you reload the router.
Step 3	**show reload** **Example:** `Router# show reload`	Displays the reload status on the router.

Configuration Examples for Cisco IOS Warm Reload

Warm Reload Configuration Example

The following example shows how to enable and verify a warm reboot:

```
Router#(config) warm-reboot count 10 uptime 10
Router#(config) exit
!
Router# show warm-reboot
Warm Reboot is enabled
Statistics:
10 warm reboots have taken place since the last cold reboot
XXX KB taken up by warm reboot storage
```

Additional References

The following sections provide references related to the Warm Reload feature.

Related Documents

Related Topic	Document Title
Additional information on rebooting your router	Rebooting and Reloading - Configuring Image Loading Characteristics
Additional booting commands	Cisco IOS Configuration Fundamentals Command Reference

Standards

Standards	Title
None	--

MIBs

MIBs	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFCs	Title
None	--

Technical Assistance

Description	Link
Technical Assistance Center (TAC) home page, containing 30,000 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/public/support/tac/home.shtml

Glossary

cold reboot --Process of reloading a Cisco IOS image in which the ROMMON copies the configured image from a storage device, such as flash, into main memory. Thereafter, the image is decompressed and execution is started.

warm reboot --Process of reloading a Cisco IOS image without ROMMON intervention in which the image restores read-write data from a previously saved copy in the RAM and starts execution. Unlike a cold reboot, this process does not involve a flash to RAM copy or self-decompression of the image.

Note Refer to Internetworking Terms and Acronyms for terms not included in this glossary.

Feature Information for Warm Reload

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to . An account on Cisco.com is not required.

Table 1: Feature Information for Warm Reload

Feature Name	Releases	Feature Information
Warm Reload	12.3(2)T 12.2(18)S 12.2(27)SBC	The Warm Reload feature allows users to reload their routers without reading images from storage. The following sections provide information about this feature: • Information About Warm Reload • How to Use Warm Reload