# Warm Upgrade

The Warm Upgrade feature provides the capability for a Cisco IOS image to read and decompress another Cisco IOS image and then transfer control to this new image. This functionality reduces the downtime of a device during planned Cisco IOS software upgrades or downgrades. The Warm Upgrade feature is complementary with the Warm Reload feature introduced in Cisco IOS Release 12.3(2)T.

**Feature History for the Warm Upgrade Feature**

| Release | Modification |
|---|---|
| 12.3(11)T | This feature was introduced. |

**Finding Support Information for Platforms and Cisco IOS Software Images**

Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at http://www.cisco.com/go/fn . You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

# 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.

# Information About Warm Upgrade

## Warm Upgrade Functionality

The Warm Upgrade feature provides the capability for a Cisco IOS image to read and decompress another Cisco IOS image and then transfer control to this new image. This functionality reduces the downtime of a device during planned Cisco IOS software upgrades or downgrades. To perform a warm upgrade, use the **reload warm file** *url* command. The Warm Upgrade feature is complementary with the Warm Reload feature introduced in Cisco IOS Release 12.3(2)T.

Prior to the Warm Upgrade feature, a Cisco IOS image transferred control to ROM monitor mode (ROMMON) to perform a Cisco IOS software upgrade or downgrade. ROMMON, along with the help of the boot loader image, carried out the required upgrade or downgrade procedures. While this process is in progress, the networking device is down. With the introduction of the Warm Upgrade feature, packet forwarding is able to continue while the new Cisco IOS image is read and decompressed. The device is down only when the current image is overwritten with the new image, and the new image loads and reconfigures the operating system.

If a warm upgrade operation fails, the current Cisco IOS image should continue to run unless it has been partly or fully overwritten. In this case, ROMMON is allowed to load any image that is configured.

**Note**    For cases where a Cisco IOS image is to be downgraded to an image that does not support the image verification functionality of the **reload** command, a warning message will be displayed before the warm upgrade operation is performed telling the user that the image does not have a digital signature.

# How to Reload a Cisco IOS Image Using the Warm Upgrade Functionality

## Reloading a Cisco IOS Image Using the Warm Upgrade Functionality

Perform this task to reload a Cisco IOS image using the warm upgrade functionality.

**Before You Begin**

- The Warm Reload feature introduced in Cisco IOS Release 12.3(2)T must be enabled.

- The ability to upgrade or downgrade a Cisco IOS image using the Warm Upgrade feature assumes that the current Cisco IOS image supports the warm upgrade functionality. However, the new image to which the current image is being upgraded or downgraded does not need to support the warm upgrade functionality.

| | |
|---|---|
| **Note** | A software upgrade or downgrade using the warm upgrade functionality can only be performed if there is enough free memory in the system to accommodate a decompressed Cisco IOS image. |

### SUMMARY STEPS

1. **enable**
2. **reload**  [**/verify** | **/noverify**] [**warm** [**file***url*]] [**in** [*hh***:**]*mm* | **at***hh***:***mm* [*monthday* | *daymonth*]] [**cancel**] [*text*]

### DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br><br>**Example:**<br><br>`Router> enable` | Enables privileged EXEC mode.<br><br>• Enter your password if prompted. |
| **Step 2** | **reload**  [**/verify** | **/noverify**] [**warm** [**file***url*]] [**in** [*hh***:**]*mm* | **at***hh***:***mm* [*monthday* | *daymonth*]] [**cancel**] [*text*]<br><br>**Example:**<br><br>`Router> reload warm file`<br>`flash:c3745-ipvoice-mz.12.3.11.T.bin` | Reloads the operating system.<br><br>• Use the **reloadwarmfile***url* command to reload the operating system with a new image whose location and name is specified by the *url* argument. The reload will be performed using the warm upgrade functionality.<br><br>• You must issue the **warm** keyword if you do not want to override the warm reboot functionality when you reload the router. |

# Monitoring and Troubleshooting the Warm Upgrade Functionality

Perform this task to monitor and troubleshoot the warm upgrade functionality.

### SUMMARY STEPS

1. **show warm-reboot**
2. **debug warm-reboot**

**DETAILED STEPS**

|        | Command or Action | Purpose |
|--------|-------------------|---------|
| Step 1 | **show warm-reboot**<br><br>**Example:**<br><br>Router> show warm-reboot | Displays the statistics for attempted warm reboots. |
| Step 2 | **debug warm-reboot**<br><br>**Example:**<br><br>Router> debug warm-reboot | Displays warm reboot debug information. |

# Configuration Examples for the Warm Upgrade Feature

## Reloading a Cisco IOS Image Using the Warm Upgrade Functionality Example

The following example shows how to reload the operating system with a new image whose location and name is tftp://9.1.0.1/c7200-p-mz.port. The reload is performed using the warm upgrade functionality.

```
Router> reload warm file tftp://9.1.0.1/c7200-p-mz.port
Proceed with reload? [confirm]
Loading c7200-p-mz.port from 9.1.0.1 (via Ethernet5/0):!!!
[OK - 15323964 bytes]
Decompressing the image :### [OK]
02:37:42:%SYS-5-RELOAD:Reload requested by console. Reload Reason:Reload Command.
           Restricted Rights Legend
.
.
.
Press RETURN to get started!
00:00:12:%LINK-3-UPDOWN:Interface Ethernet5/0, changed state to up
00:00:12:%LINK-3-UPDOWN:Interface Ethernet5/1, changed state to up
00:00:12:%LINK-3-UPDOWN:Interface Ethernet5/2, changed state to up
00:00:12:%LINK-3-UPDOWN:Interface Ethernet5/3, changed state to up
00:00:12:%LINK-3-UPDOWN:Interface FastEthernet6/0, changed state to up
00:00:12:%LINK-3-UPDOWN:Interface FastEthernet6/1, changed state to up
00:00:12:%SYS-5-CONFIG_I:Configured from memory by console
00:00:13:%SYS-5-RESTART:System restarted --
00:00:13:%SYS-6-BOOTTIME:Time taken to reboot after reload =   25 seconds
00:00:14:%LINEPROTO-5-UPDOWN:Line protocol on Interface Ethernet5/0, changed state to up
00:00:14:%LINEPROTO-5-UPDOWN:Line protocol on Interface Ethernet5/1, changed state to down
00:00:14:%LINEPROTO-5-UPDOWN:Line protocol on Interface Ethernet5/2, changed state to down
00:00:14:%LINEPROTO-5-UPDOWN:Line protocol on Interface Ethernet5/3, changed state to down
00:00:14:%LINEPROTO-5-UPDOWN:Line protocol on Interface FastEthernet6/0, changed state to
down
00:00:14:%LINEPROTO-5-UPDOWN:Line protocol on Interface FastEthernet6/1, changed state to
down
00:00:14:%LINEPROTO-5-UPDOWN:Line protocol on Interface Fddi4/0, changed state to down
00:00:14:%LINK-5-CHANGED:Interface Fddi4/0, changed state to administratively down
00:00:14:%LINK-5-CHANGED:Interface Ethernet5/1, changed state to administratively down
00:00:14:%LINK-5-CHANGED:Interface Ethernet5/2, changed state to administratively down
```

```
00:00:14:%LINK-5-CHANGED:Interface Ethernet5/3, changed state to administratively down
00:00:14:%LINK-5-CHANGED:Interface FastEthernet6/0, changed state to administratively down
00:00:14:%LINK-5-CHANGED:Interface FastEthernet6/1, changed state to administratively down
```

# Additional References

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

**Related Documents**

| Related Topic | Document Title |
|---|---|
| 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 |