Release Notes for Cisco 7000 Family for Cisco IOS Release 12.2 BW

January 27, 2003

Cisco IOS Release 12.2(4)BW2

OL-3166-03

These release notes for the Cisco 7000 Family describe the enhancements provided in Cisco IOS Release 12.2(4)BW2. These release notes are updated as needed.

For a list of the software caveats that apply to Cisco IOS Release 12.2(4)BW2, see the "Caveats for Cisco IOS Release 12.2 BW" section on page 7 and *Caveats for Cisco IOS Release 12.2*. The caveats document is updated for every maintenance release and is located on Cisco.com and the Documentation CD-ROM.

Use these release notes with *Cross-Platform Release Notes for Cisco IOS Release 12.2* located on Cisco.com and the Documentation CD-ROM.

Contents

These release notes describe the following topics:

Corporate Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

System Requirements

This section describes the system requirements for Cisco IOS Release 12.2 BW and includes the following sections:

Memory Recommendations

Table 1 describes the memory recommendations and the images supported by Cisco IOS Release 12.2(4)BW2 for the Cisco 7000 family of routers.

Table 2 describes the memory recommendations and the images supported by Cisco IOS Release 12.2(4)BW1 for the Cisco 7000 family of routers.

Table 3 describes the memory recommendations and the images supported by Cisco IOS Release 12.2(4)BW for the Cisco 7000 family of routers.

Table 1 Memory Recommendations for Cisco IOS Release 12.2 BW2

Platforms	Feature Sets	Image Name	Software Image	Flash Memory Recommended	DRAM Memory Recommended	Runs From
Cisco 7200 Series	IP Standard Feature Set	IP	c7200-is-mz	16 MB	128 MB	RAM
	Enterprise Standard Feature Set	Enterprise	c7200-js-mz	16 MB	128 MB	RAM
	Enterprise Firewall Standard Feature Set	Enterprise/FW/IDS	c7200-jo3s-mz	16 MB	128 MB	RAM
		Enterprise/FW/IDS IPSec 56	c7200-jk8o3s-mz	16 MB	128 MB	RAM
		Enterprise/FW/IDS IPSec 3DES	c7200-jk9o3s-mz	16 MB	128 MB	RAM
	SSG Standard Feature Set	Enterprise SSG	c7200-g4js-mz	16 MB	128 MB	RAM

Table 1 Memory Recommendations for Cisco IOS Release 12.2 BW2

Platforms	Feature Sets	Image Name	Software Image	Flash Memory Recommended	DRAM Memory Recommended	Runs From
Cisco 7400 Series	IP Standard Feature Set	IP	c7400-is-mz	16 MB	128 MB	RAM
	Enterprise Standard Feature Set	Enterprise	c7400-js-mz	16 MB	128 MB	RAM
	Enterprise Firewall Standard Feature Set	Enterprise/FW/IDS	c7400-jo3s-mz	16 MB	128 MB	RAM
		Enterprise/FW/IDS IPSec 56	c7400-jk8o3s-mz	16 MB	128 MB	RAM
		Enterprise/FW/IDS IPSec 3DES	c7400-jk9o3s-mz	16 MB	128 MB	RAM
	SSG Standard Feature Set	Enterprise SSG	c7400-g4js-mz	16 MB	128 MB	RAM

Table 2 Memory Recommendations for Cisco IOS Release 12.2 BW1

Platforms	Feature Sets	Image Name	Software Image	Flash Memory Recommended	DRAM Memory Recommended	Runs From
Cisco 7200 Series	IP Standard Feature Set	IP	c7200-is-mz	16 MB	128 MB	RAM
	Enterprise Standard Feature Set	Enterprise	c7200-js-mz	16 MB	128 MB	RAM
	Enterprise Firewall Standard Feature Set	Enterprise/FW/IDS	c7200-jo3s-mz	16 MB	128 MB	RAM
		Enterprise/FW/IDS IPSec 56	c7200-jk8o3s-mz	16 MB	128 MB	RAM
		Enterprise/FW/IDS IPSec 3DES	c7200-jk9o3s-mz	16 MB	128 MB	RAM
	SSG Standard Feature Set	Enterprise SSG	c7200-g4js-mz	16 MB	128 MB	RAM

Table 2 Memory Recommendations for Cisco IOS Release 12.2 BW1

Platforms	Feature Sets	Image Name	Software Image	Flash Memory Recommended	DRAM Memory Recommended	Runs From
Cisco 7400 Series	IP Standard Feature Set	IP	c7400-is-mz	16 MB	128 MB	RAM
	Enterprise Standard Feature Set	Enterprise	c7400-js-mz	16 MB	128 MB	RAM
	Enterprise Firewall Standard Feature Set	Enterprise/FW/IDS	c7400-jo3s-mz	16 MB	128 MB	RAM
		Enterprise/FW/IDS IPSec 56	c7400-jk8o3s-mz	16 MB	128 MB	RAM
		Enterprise/FW/IDS IPSec 3DES	c7400-jk9o3s-mz	16 MB	128 MB	RAM
	SSG Standard Feature Set	Enterprise SSG	c7400-g4js-mz	16 MB	128 MB	RAM

Table 3 Memory Recommendations for Cisco IOS Release 12.2 BW

Platforms	Feature Sets	Image Name	Software Image	Flash Memory Recommended	DRAM Memory Recommended	Runs From
Cisco 7200 Series	IP Standard Feature Set	IP	c7200-is-mz	16 MB	128 MB	RAM
	Enterprise Standard Feature Set	Enterprise	c7200-js-mz	16 MB	128 MB	RAM
	Enterprise Firewall Standard Feature Set	Enterprise/FW/IDS	c7200-jo3s-mz	16 MB	128 MB	RAM
		Enterprise/FW/IDS IPSec 56	c7200-jk8o3s-mz	16 MB	128 MB	RAM
		Enterprise/FW/IDS IPSec 3DES	c7200-jk9o3s-mz	16 MB	128 MB	RAM
	SSG Standard Feature Set	Enterprise SSG	c7200-g4js-mz	16 MB	128 MB	RAM

Supported Hardware

Cisco IOS Release 12.2(4)BW2 supports the following Cisco 7000 family platforms:

- Cisco 7200 series routers (including the Cisco 7202, Cisco 7204, Cisco 7206, Cisco 7204VXR, and Cisco 7206VXR)

For detailed descriptions of the new hardware features, see the "New and Changed Information" section on page 5.

Determining the Software Version

To determine the version of Cisco IOS software running on your Cisco 7000 family router, log in to the Cisco 7000 family router and enter the **show version** EXEC command:

```
Router> show version
Cisco Internetwork Operating System Software
IOS (tm) 12.2 BW Software (c7200-is-mz), Version 12.2(4)BW2, RELEASE SOFTWARE
```

Upgrading to a New Software Release

For general information about upgrading to a new software release, refer to S*oftware Installation and Upgrade Procedures* located at the following URL:

http://www.cisco.com/warp/public/130/upgrade_index.shtml

New and Changed Information

The following sections list the new hardware and software features supported by the Cisco 7000 family for Cisco IOS Release 12.2 BW.

New Hardware Features in Cisco IOS Release 12.2(4)BW2

There are no new hardware features supported by the Cisco 7000 family for Cisco IOS Release 12.2(4)BW2.

New Software Features in Cisco IOS Release 12.2(4)BW2

There are no new software features supported by the Cisco 7000 family for Cisco IOS Release 12.2(4)BW2.

New Hardware Features in Cisco IOS Release 12.2(4)BW1

There are no new hardware features supported by the Cisco 7000 family for Cisco IOS Release 12.2(4)BW1.

New Software Features in Cisco IOS Release 12.2(4)BW1

There are no new software features supported by the Cisco 7000 family for Cisco IOS Release 12.2(4)BW1.

New Hardware Features in Cisco IOS Release 12.2(4)BW

The following new hardware features are supported by the Cisco 7000 for Cisco IOS Release 12.2(4)BW:

NPE-G1

Platform: Cisco 7200 VXR routers

The NPE-G1 is the first network processing engine for the Cisco 7200 VXR routers to provide the functionality of both a network processing engine and I/O controller. If used without an I/O controller, an I/O blank panel must be in place.

While its design provides I/O controller functionality, it can also work with any I/O controller supported in the Cisco 7200 VXR routers. The NPE-G1, when installed with an I/O controller, provides the primary input/out functionality; that is, the NPE-G1 input/out functionality enhances that of the existing I/O controller. However, when both the I/O controller and NPE-G1 are present, the functionality of the auxiliary port and console port are on the I/O controller.

The NPE-G1 maintains and executes the system management functions for the Cisco 7200 VXR routers and also holds the system memory and environmental monitoring functions.

The NPE-G1 consists of one board with multiple interfaces. It is keyed so that it can be used only in the Cisco 7200 VXR routers.

New Software Features in Cisco IOS Release 12.2(4)BW

There are no new software features supported by the Cisco 7000 family for Cisco IOS Release 12.2(4)BW.

MIBs

Current MIBs

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml.

Deprecated and Replacement MIBs

Old Cisco MIBs will be replaced in a future release. Currently, OLD-CISCO-* MIBs are being converted into more scalable MIBs without affecting existing Cisco IOS products or network management system (NMS) applications. You can update from deprecated MIBs to the replacement MIBs as shown in Table 4.

Table 4 Deprecated and Replacement MIBs

Deprecated MIB	Replacement
OLD-CISCO-APPLETALK-MIB	RFC1243-MIB
OLD-CISCO-CHASSIS-MIB	ENTITY-MIB
OLD-CISCO-CPUK-MIB	To be determined
OLD-CISCO-DECNET-MIB	To be determined
OLD-CISCO-ENV-MIB	CISCO-ENVMON-MIB
OLD-CISCO-FLASH-MIB	CISCO-FLASH-MIB
OLD-CISCO-INTERFACES-MIB	IF-MIB CISCO-QUEUE-MIB
OLD-CISCO-IP-MIB	To be determined
OLD-CISCO-MEMORY-MIB	CISCO-MEMORY-POOL-MIB
OLD-CISCO-NOVELL-MIB	NOVELL-IPX-MIB
OLD-CISCO-SYS-MIB	(Compilation of other OLD* MIBs)
OLD-CISCO-SYSTEM-MIB	CISCO-CONFIG-COPY-MIB
OLD-CISCO-TCP-MIB	CISCO-TCP-MIB
OLD-CISCO-TS-MIB	To be determined
OLD-CISCO-XNS-MIB	To be determined

Caveats for Cisco IOS Release 12.2 BW

Caveats describe unexpected behavior in Cisco IOS software releases. Severity 1 caveats are the most serious caveats; severity 2 caveats are less serious. Severity 3 caveats are moderate caveats, and only select severity 3 caveats are included in the caveats document.

This section contains only open and resolved caveats for the current Cisco IOS maintenance release.

All caveats in Cisco IOS Release 12.2 and Cisco IOS Release 12.2 T are also in Cisco IOS Release 12.2(4)BW2.

For information on caveats in Cisco IOS Release 12.2, see *Caveats for Cisco IOS Release 12.2*.

For information on caveats in Cisco IOS Release 12.2 T, see *Caveats for Cisco IOS Release 12.2 T*, which lists severity 1 and 2 caveats and select severity 3 caveats and is located on Cisco.com and the Documentation CD-ROM.

Note If you have an account with Cisco.com, you can use Bug Navigator II to find caveats of any severity for any release. To reach Bug Navigator II, l**og in** to Cisco.com and click **Software Center: Cisco IOS Software: Bug Toolkit: Bug Navigator II**. Another option is to go to http://www.cisco.com/support/bugtools/.

Because Cisco IOS Release 12.2(4)BW is the initial base release, there are no resolved caveats. For a list of the resolved caveats, refer to the next set of release notes for this release version.

Table 5 Caveats Reference for Cisco IOS Release 12.2 BW

DDTS Number	Open in Release	Resolved in Release
CSCdu55250		12.2(4)BW2
CSCdu57873		12.2(4)BW1
CSCdv04806		12.2(4)BW1
CSCdw30994		12.2(4)BW2
CSCdw51692		12.2(4)BW2
CSCdx61867		12.2(4)BW1
CSCdy05118		12.2(4)BW1
CSCdy17135		12.2(4)BW1
CSCdy21133		12.2(4)BW1
CSCdy36426		12.2(4)BW1
CSCdy58344		12.2(4)BW2
CSCdy84285		12.2(4)BW1
CSCdz03063		12.2(4)BW2
CSCdz14149		12.2(4)BW1
CSCdz15209		12.2(4)BW2
CSCdz38587		12.2(4)BW2
CSCdz45581		12.2(4)BW2
CSCdz47039		12.2(4)BW2
CSCdz63050		12.2(4)BW2
CSCdz71437		12.2(4)BW2
CSCdz81416		12.2(4)BW2
CSCdz81658		12.2(4)BW2
CSCin11256		12.2(4)BW2

Open Caveats—Cisco IOS Release 12.2(4)BW2

This section documents possible unexpected behavior by Cisco IOS Release 12.2(4)BW2 and describes only severity 1 and 2 caveats and select severity 3 caveats.

There are no known open caveats for Cisco IOS Release 12.2(4)BW2.

Resolved Caveats—Cisco IOS Release 12.2(4)BW2

All the caveats listed in this section are resolved in Cisco IOS Release 12.2(4)BW2. This section describes only severity 1 and 2 caveats and select severity 3 caveats.

- CSCdu55250

  Platforms with faster CPUs may fail to boot if the IOS image is being loaded from a 48 MB or a 128 MB ata-disk PCMCIA card. When this happens this error message will be displayed, where "x" is a digit, and the platform will return to the ROMMON prompt:

  ```
  ATA_Status time out waiting for x
  ```

  This occurrence of this problem is usually random and intermittent.

  This problem has only been seen when booting from 48 MB and 128 MB ata-disk PCMCIA cards. Cards of other capacities have not shown this problem. Linear flash PCMCIA cards do not show this problem.

  This problem is caused by random and intermittent internal noise on the ata-disk card which causes it to occasionally respond slowly to a read request when loading an IOS image. The problem occurs on platforms with fast CPUs because the amount of time which the system waits for the ata-disk card to return the data is less than on slower platforms.

  Workaround: This problem can be avoided by booting the IOS image from another device. Alternatively, a different ata-disk card can be tried, or a linear flash PCMCIA card could be used.

- CSCdw30994

  When downloading IP pools from a AAA server, there is no way to define a non-contiguous range of addresses using multiple statements like this:

  ```
  "ip:pool-def#1=aol-pool 192.168.232.0 192.168.237.255",
  "ip:pool-def#2=aol-pool 192.168.238.1 192.168.238.160"
  ```

  When those statements are applied, the second pool-def overwrites the first one. Defining the pools on the command line yields the expected result.

  There are no known workarounds.

- CSCdw51692

  When the Flash disk is used, disk timeout errors such as "ATA_Status time out waiting for 1" may occur.

  Workaround: Remove and reinsert the disk to restore the disk function.

- CSCdy58344

  Problem: Traffic shaping and fancy queuing do not work on a NPE-G1 native GigabitEthernet interface.

  Workaround: Use a PA-GE or PA-2FE-TX port adaptor instead.

- CSCdz03063

  OIR (removal) of a compact flash card from a NPE-G1 can cause the console to hang for upto 2 minutes. The NPE-G1 will not pass traffic during this hang.

  This is caused by a timing issue in the PCMCIA management interrupt handler.

  Workaround: Power off the router and then perform the OIR.

- CSCdz15209

  7206VXR running the following boot and main image may crash and end up in ROMMON mode after installing an NPE-G1 with the I/O controller, or other modules, still in the router:

  ```
  c7200-kboot-mz.122-4.BW
  c7200-is-mz.122-4.BW.bin
  ```

  The router crashes with the following:

  ```
  %ERR-1-FATAL: Fatal error interrupt, No reloading
   err_stat=0x0, err_enable=0xFF, mgmt_event=0x10
  (Bridge dump follows)
  Unexpected exception, CPU signal 10, PC = 0x60768B00
  Unexpected exception, CPU signal 10, PC = 0x0
  Unexpected exception, CPU signal 10, PC = 0x0
  ```

  If the router is powered on with only NPE-G1 inserted, it loads up fine.

  There are no known workarounds.

- CSCdz38587

  The acct-session-id (attribute 44) sent to the Radius server by the LNS has incorrect prepend, if nas-port format d is used:

  ```
  From Radius Server:
  5 : NAS-Port: 16187630 : i @ 050600F700EE
    Decode: Interface=0 VPI=247 VCI=238   Interface: Slot=0 Module=0 Port=0

  44 : Acct-Session-Id   : 65527/238/0/0/0/0_0000AEEC
     : s @ 2C1C36353532372F3233382F302F302F302F305F3030303041454543

  The format of attribute 44 should be:
       Acct-Session-Id ="0/0/0/247.238_0000AEEC"
  ```

  This condition occurs in a l2tp vpdn environment when “nas-port format d” is used.

  There are no known workarounds.

- CSCdz45581

  The hardware watchdog on NPE-G1 in a C7200VXR chassis is not correctly enabled and so the board may not reboot in the event of software or hardware failure.

  This problem affects ONLY NPE-G1. All other C7200 NPEs operate correctly.

  There are no known workarounds.

- CSCdz47039

  An NPE-G1 starts dropping packets on path from Gig0/1 to Gig0/2 as soon as a CBWF Q is configured on the outgoing interface. Most of packets going out of the class-default will be dropped even though the interface is not congested. The same result happens for LLQ and CBWFQ.

  Traffic leaving the strict priority queue or the fifo queue with a defined class will not be dropped. It happens regardless to the packet length and start from very low traffic rate.

  This issue only affects interfaces Gig0/1, Gig0/2 and Gig0/3 on NPE-G1 on C7200. It does not affect any other C7200 NPE.

  There are no known workarounds.

- CSCdz63050

  NPE-G1 gigaethernet may encounter output drop and bad length counters increasing.

  There are no known workarounds.

- CSCdz71437

  Session-timeout value configured higher than the max limit (which is 35790 min) is causing the user to disconnect immediately.

  Work-around: Lower the session-timeout value to 35790 min or below for the affected users.

- CSCdz81416

  Disk0/disk1/slot0/slot1 filesystems are intiialised even if an I/O controller is not present in a NPE-G1 router.

  There are no known workarounds.

- CSCdz81658

  This issue only affects gig0/1, gig0/2, and gig0/3 on NPE-G1 for C7200.

  If the IOS MTU size is increased above 2006 and the interface is subjected to stress traffic, the interface's receive ring may lock up (an IOS MTU of 2006 is ok, 2007 is not).

  There are no known workarounds.

- CSCin11256

  A Layer 2 Tunneling Protocol (L2TP) access concentrator (LAC) may reload when PPP over ATM (PPPoA) sessions are initiated.

  This symptom is observed when the **shutdown** interface configuration command and the **no shutdown** interface configuration command are entered in quick succession.

  There are no known workarounds.

Open Caveats—Cisco IOS Release 12.2(4)BW1

This section documents possible unexpected behavior by Cisco IOS Release 12.2(4)BW1 and describes only severity 1 and 2 caveats and select severity 3 caveats.

There are no known open caveats for Cisco IOS Release 12.2(4)BW1.

Resolved Caveats—Cisco IOS Release 12.2(4)BW1

All the caveats listed in this section are resolved in Cisco IOS Release 12.2(4)BW1. This section describes only severity 1 and 2 caveats and select severity 3 caveats.

- CSCdu57873

  This problem is observed when faulty servers respond to RADIUS requests using a different port than the one on which they received a request. It can also be observed in NAT environments if the source port of a response is something other than the port for the request.

  There are no known workarounds.

- CSCdv04806

  When a PPPoE client connects to a non-cisco LAC and negotiates an MRU of 1492 and then makes a call to a Cisco LNS, the PPP negotiation does not succeed as we can not negotiate the MRU below 1500.

  There are no known workarounds.

- CSCdx61867

  A router may stop reusing virtual interfaces after the virtual interfaces have been used for a few times.

  This symptom is observed on a Cisco router that is handling a high volume of short-duration calls.

  There are no known workarounds.

- CSCdy05118

  A per-user interface configuration that is loaded from an authentication, authorization, and accounting (AAA) server can have a maximum length of 600 bytes. If if the maximum length is exceeded and the AAA profile is in the "old-style" format "lcp:interface-config=....," the router will reload.

  If the maximum length is exceeded and the AAA profile is in the "new-style" format "lcp:interface-config#<n>=..." (in which <n> is the is the sequence number of the lines sent), the router will not reload, but the user will be rejected.

  This symptom is observed on a router that is running Cisco IOS Release 12.2(4)B or Cisco IOS Release 12.2(10.7)T.

  There are no known workarounds.

- CSCdy17135

  A router may reload if a per-user interface configuration line is greater than 80 characters.

  Workaround: Ensure that each per-user interface configuration line is less than 80 characters.

- CSCdy21133

  This is further support for CSCdy05118 and allows for per-user interface-config (sent by the aaa server) to be longer than 600 bytes.

  There are no known workarounds.

- CSCdy36426

  Feature Request—Allow MTU to adapt on MRU value of rcvd CONFACK.

  There are no known workarounds.

- CSCdy84285

  Router fails to forward the DHCPACK to the client when a installed static route exist for that IP address instead issues an ARP searching for the IP address that the customer was OFFERED and REQUESTED. Since the customer never receives the DHCPACK the IP address is never accepted by the client. The client is therefore never obtains an ip address.

  There are no known workarounds.

- CSCdz14149

  A crash due to an Error Interrupt occurs on a LNS, when an logged in user generates traffic. All crashes have in common that the crashinfo file consist of a uncorrectable ECC from L2 cache or memory entry. Though we get a stack for decoding, the traceback in the crashinfo file contains just zeros.

  This problem occurs under the following conditions:

  ```
  System image: c7200-is-mz.122-4.BW.bin"
  platform: cisco 7206VXR (NPE-G1) processor (revision A) with 950272K/32768K bytes
  of memory.
  ```

Note The crash does not occur with the same IOS and config using a NPE300 instead of a NPE-G1.We exclude any HW related issue here, because we have replaced the NPE-G1, chassis and power supply. Furthermore we have neither inserted any PA nor the I/O board, but the crashes still occur when a user generates traffic.

There are no known workarounds.

Open Caveats—Cisco IOS Release 12.2(4)BW

This section documents possible unexpected behavior by Cisco IOS Release 12.2(4)BW and describes only severity 1 and 2 caveats and select severity 3 caveats.

There are no known open caveats for Cisco IOS Release 12.2(4)BW.

Resolved Caveats—Cisco IOS Release 12.2(4)BW

All the caveats listed in this section are resolved in Cisco IOS Release 12.2(4)BW. This section describes only severity 1 and 2 caveats and select severity 3 caveats.

There are no known open caveats for Cisco IOS Release 12.2(4)BW.

Related Documentation

The following sections describe the documentation available for the Cisco 7000 family. These documents consist of hardware and software installation guides, Cisco IOS configuration guides and command references, system error messages, feature modules, and other documents.

Documentation is available as printed manuals or electronic documents, except for feature modules, which are available online on Cisco.com and the Documentation CD-ROM.

Use these release notes with these documents:

- Release-Specific Documents, page 14
- Platform-Specific Documents, page 15
- Feature Modules, page 15
- Cisco IOS Software Documentation Set, page 16

Release-Specific Documents

The following documents are specific to Cisco IOS Release 12.2 and are located on Cisco.com and the Documentation CD-ROM:

- *Cross-Platform Release Notes for CiscoIOS Release 12.2*

  On Cisco.com at:

  Technical Documents: **Cisco IOS Software Configuration**: **Cisco IOS Release 12.2: Release Notes: Cross-Platform Release Notes**

  On the Documentation CD-ROM at:

  Cisco Product Documentation: **Cisco IOS Software Configuration**: **Cisco IOS Release 12.2**: **Release Notes**: **Cross-Platform Release Notes**

- Product bulletins, field notices, and other release-specific documents on Cisco.com at:

  Technical Documents

- *Caveats for Cisco IOS Release 12.2*

  As a supplement to the caveats listed in "Caveats for Cisco IOS Release 12.2 BW" in these release notes, see *Caveats for Cisco IOS Release 12.2* which contains caveats applicable to all platforms for all maintenance releases of Cisco IOS Release 12.2.

  On Cisco.com at:

  Technical Documents: **Cisco IOS Software Configuration**: **Cisco IOS Release 12.2**: **Release Notes**: **Caveats**

  On the Documentation CD-ROM at:

  Cisco Product Documentation: Cisco IOS Software Configuration: **Cisco IOS Release 12.2**: **Caveats**

- *Caveats for Cisco IOS Release 12.2 T*

  As a supplement to the caveats listed in "Caveats for Cisco IOS Release 12.2 BW" in these release notes, see *Caveats for Cisco IOS Release 12.2 T* which contains caveats applicable to all platforms for all maintenance releases of Cisco IOS Release 12.2 T.

On Cisco.com at:

Technical Documents: **Cisco IOS Software Configuration**: **Cisco IOS Release 12.2**: **Release Notes**: **Caveats**

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: **Cisco IOS Release 12.2**: **Caveats**

Note If you have an account with Cisco.com, you can use Bug Navigator II to find caveats of any severity for any release. To reach Bug Navigator II, log in to Cisco.com and click **Software Center: Cisco IOS Software: Bug Toolkit: Bug Navigator II**. Another option is to go to http://www.cisco.com/support/bugtools/bugtool.shtml.

Platform-Specific Documents

These documents are available for the Cisco 7000 family of routers on Cisco.com and the Documentation CD-ROM:

- *Cisco 7000 User Guide*
- *Cisco 7000 Hardware Installation and Maintenance*

  On Cisco.com at:

  Technical Documents: **Documentation Home Page**: **Core/High-End Routers**

  On the Documentation CD-ROM at:

  Cisco Product Documentation: **Core/High-End Routers**

Feature Modules

Feature modules describe new features supported by Cisco IOS Release 12.2(4)BW2 and are updates to the Cisco IOS documentation set. A feature module consists of a brief overview of the feature, benefits, configuration tasks, and a command reference. As updates, the feature modules are available online only. Feature module information is incorporated in the next printing of the Cisco IOS documentation set.

On Cisco.com at:

Technical Documents: Cisco IOS Software Configuration: **Cisco IOS Release 12.2**: **New Feature Documentation**

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: **Cisco IOS Release 12.2**: **New Feature Documentation**

Cisco IOS Software Documentation Set

The Cisco IOS software documentation set consists of the Cisco IOS configuration guides, Cisco IOS command references, and several other supporting documents. The Cisco IOS software documentation set is shipped with your order in electronic form on the Documentation CD-ROM—unless you specifically ordered the printed versions.

Documentation Modules

Each module in the Cisco IOS documentation set consists of one or more configuration guides and one or more corresponding command references. Chapters in a configuration guide describe protocols, configuration tasks, and Cisco IOS software functionality, and contain comprehensive configuration examples. Chapters in a command reference provide complete command syntax information. Use each configuration guide with its corresponding command reference.

On Cisco.com at:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.2: Configuration Guides and Command References

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.2: Configuration Guides and Command References

Cisco IOS Release 12.2 Documentation Set Contents

Table 6 lists the contents of the Cisco IOS Release 12.2 software documentation set, which is available in electronic form and in printed form if ordered.

Note You can find the most current Cisco IOS documentation on Cisco.com and the Documentation CD-ROM. These electronic documents may contain updates and modifications made after the hard-copy documents were printed.

On Cisco.com at:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.2

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.2

Table 6 Cisco IOS Release 12.2 Documentation Set

Books	Major Topics
• Cisco IOS Configuration Fundamentals Configuration Guide • Cisco IOS Configuration Fundamentals Command Reference	Cisco IOS User Interfaces File Management System Management
• *Cisco IOS Interface Configuration Guide* • *Cisco IOS Interface Command Reference*	LAN Interfaces Serial Interfaces Logical Interfaces

Table 6 Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
• Cisco IOS IP Configuration Guide • Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services • Cisco IOS IP Command Reference, Volume 2 of 3: Routing Protocols • Cisco IOS IP Command Reference, Volume 3 of 3: Multicast	IP Addressing IP Services IP Routing Protocols IP Multicast
• Cisco IOS Voice, Video, and Fax Configuration Guide • *Cisco IOS Voice, Video, and Fax Command Reference*	Voice over IP Call Control Signaling Voice over Frame Relay Voice over ATM Telephony Applications Trunk Management Fax, Video, and Modem Support
• Cisco IOS Quality of Service Solutions Configuration Guide • *Cisco IOS Quality of Service Solutions Command Reference*	Packet Classification Congestion Management Congestion Avoidance Policing and Shaping Signaling Link Efficiency Mechanisms
• Cisco IOS Security Configuration Guide • *Cisco IOS Security Command Reference*	AAA Security Services Security Server Protocols Traffic Filtering and Firewalls IP Security and Encryption Passwords and Privileges Neighbor Router Authentication IP Security Options Supported AV Pairs
• Cisco IOS Switching Services Configuration Guide • Cisco IOS Switching Services Command Reference	Cisco IOS Switching Paths NetFlow Switching Multiprotocol Label Switching Multilayer Switching Multicast Distributed Switching Virtual LANs LAN Emulation

Table 6 Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
• Cisco IOS Wide-Area Networking Configuration Guide • Cisco IOS Wide-Area Networking Command *Reference*	ATM Frame Relay SMDS X.25 and LAPB
• *Cisco IOS Configuration Guide Master Index* • *Cisco IOS Command Reference Master Index* • Cisco IOS Debug Command Reference • Cisco IOS Software System Error Messages • *New Features in 12.2-Based Limited Lifetime Releases* • New Features in Release 12.2 T • Release Notes (Release note and caveat documentation for 12.2-based releases and various platforms)	

Obtaining Documentation

The following sections provide sources for obtaining documentation from Cisco Systems.

World Wide Web

The most current Cisco documentation is available on the World Wide Web at http://www.cisco.com. Translated documentation can be accessed at http://www.cisco.com/public/countries_languages.shtml.

Documentation CD-ROM

Cisco documentation and additional literature are available in a CD-ROM package, which ships with your product. The Documentation CD-ROM is updated monthly and may be more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco product documentation from the Networking Products MarketPlace:

  http://www.cisco.com/cgi-bin/order/order_root.pl

- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:

  http://www.cisco.com/go/subscription

- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco corporate headquarters (California, USA) at 408 526-7208 or, in North America, by calling 800 553-NETS(6387).

Documentation Feedback

If you are reading Cisco products documentation on the World Wide Web, you can submit technical comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco.

You can e-mail your comments to bug-doc@cisco.com.

For your convenience, many documents contain a response card behind the front cover for submitting your comments by mail. Otherwise, you can mail your comments to the following address:

Cisco Systems, Inc.
Document Resource Connection
170 West Tasman Drive
San Jose, CA 95134-9883

We appreciate your comments.

Obtaining Technical Assistance

The following sections provide sources for obtaining technical assistance from Cisco Systems.

Cisco.com

Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at anytime, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

Cisco.com provides a broad range of features and services to help customers and partners streamline business processes and improve productivity. Through Cisco.com, you can find information about Cisco and our networking solutions, services, and programs. In addition, you can resolve technical issues with online technical support, download and test software packages, and order Cisco learning materials and merchandise. Valuable online skill assessment, training, and certification programs are also available.

Customers and partners can self-register on Cisco.com to obtain additional personalized information and services. Registered users can order products, check on the status of an order, access technical support, and view benefits specific to their relationships with Cisco.

To access Cisco.com, go to the following website:

http://www.cisco.com

Technical Assistance Center

The Cisco TAC website is available to all customers who need technical assistance with a Cisco product or technology that is under warranty or covered by a maintenance contract.

Contacting TAC by Using the Cisco TAC Website

If you have a priority level 3 (P3) or priority level 4 (P4) problem, contact TAC by going to the TAC website:

http://www.cisco.com/tac

P3 and P4 level problems are defined as follows:

- P3—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- P4—You need information or assistance on Cisco product capabilities, product installation, or basic product configuration.

In each of the above cases, use the Cisco TAC website to quickly find answers to your questions.

To register for Cisco.com, go to the following website:

http://www.cisco.com/register/

Cisco.com registered users who cannot resolve a technical issue by using the TAC online resource can open a case online by using the TAC Case Open tool at the following website:

http://www.cisco.com/tac/caseopen

Contacting TAC by Telephone

If you have a priority level 1(P1) or priority level 2 (P2) problem, contact TAC by telephone and immediately open a case. To obtain a directory of toll-free numbers for your country, go to the following website:

http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml

P1 and P2 level problems are defined as follows:

- P1—Your production network is down, causing a critical impact to business operations if service is not restored quickly. No workaround is available.
- P2—Your production network is severely degraded, affecting significant aspects of your business operations. No workaround is available.

This document is to be used in conjunction with the documents listed in the "Related Documentation" section on page 14.