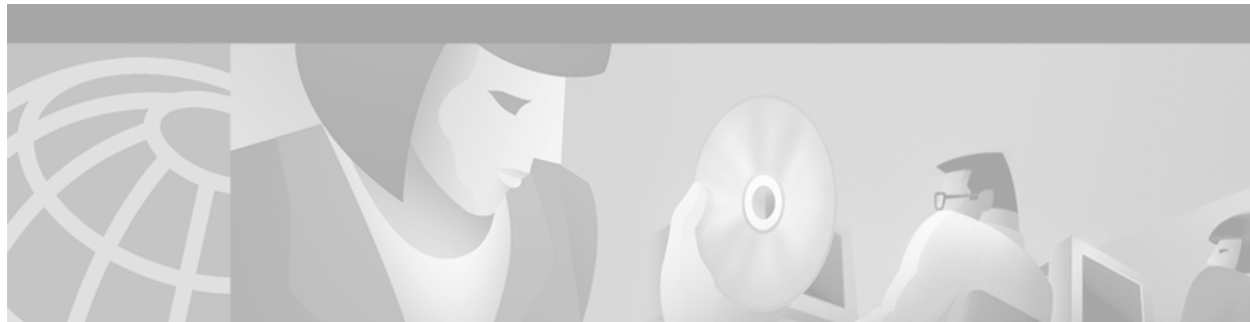




Release Notes for Cisco 2600 Series for Cisco IOS Release 12.2 XG

August 16, 2002

Cisco IOS Release 12.2(2) XG1

78-13328-01 Rev. C1



Note

The last release of Cisco IOS Release 12.2 XG is Cisco IOS Release 12.2(2) XG1. The migration path for customers who need bug fixes for Cisco IOS Release 12.2(2) XG1 features is Cisco IOS Release 12.2(8) T. Cisco IOS Release 12.2(8) T release has the complete feature content of Cisco IOS Release 12.2(2) XG1 and will eventually reach general deployment (GD).

These release notes for the Cisco 2600 series support Cisco IOS Release 12.2(2) XG1. These release notes are updated as needed.

For a list of the software caveats that apply to Release 12.2(2) XG1, see the [“Caveats for Cisco IOS Release 12.2\(2\) XG” section on page 10](#) and *Caveats for Cisco IOS Release 12.2 T*. This caveats document is updated for every maintenance release and is also located on Cisco.com and the Documentation CD-ROM.

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

Cisco recommends that you view the Field Notices for this release to see if your software or hardware platforms are affected.

http://www.cisco.com/en/US/products/hw/routers/ps259/products_field_notice09186a0080094c13.shtml

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Introduction

With the Cisco 2600 series modular access router family, Cisco Systems extends enterprise-class and managed services CPE versatility, integration, and power to branch offices. The widely deployed Cisco 2600 series modular access routers are designed to enable customers to easily adopt future technologies and scale to accommodate network expansion. The Cisco 2600 series shares modular interfaces with the Cisco 1600, Cisco 1700, and Cisco 3600 series, providing a solution to meet current branch office needs for applications such as the following:

- Internet/intranet access with firewall security
- Multiservice voice/data integration
- Analog and digital dial access services
- Virtual Private Network (VPN) access
- Inter-VLAN routing
- Routing with bandwidth management

The Cisco 2600 series modular architecture provides the versatility needed to adapt to changes in network technology as new services and applications become available. Driven by a powerful RISC processor, the Cisco 2600 series supports the advanced quality of service (QoS), security, and network integration features required in evolving enterprise networks.

For information on new features and Cisco IOS commands supported by Cisco IOS Release 12.2(2) XG1, see the [“New and Changed Information” section on page 8](#) and the [“Related Documentation” section on page 12](#).

System Requirements

This section describes the system requirements for Cisco IOS Release 12.2(2)XG and includes the following sections.

- [Memory Recommendations, page 3](#)
- [Supported Hardware, page 3](#)
- [Determining the Software Version, page 6](#)
- [Upgrading to a New Software Release, page 6](#)
- [Feature Set Table, page 7](#)

Memory Recommendations

Table 1 *Memory Recommendations for the Cisco 2600 Series Routers*

Image Name	Software Image	Flash Memory Recommended	DRAM Memory Recommended	Runs From
IP	c2600-i-mz	8 MB	32 MB	RAM
IP Plus	c2600-is-mz	16 MB	64 MB	RAM
Enterprise Plus	c2600-js-mz	32 MB	96 MB	RAM
Telco Feature Set	c2600-telco-mz	16 MB	32 MB	RAM

Supported Hardware

Cisco IOS Release 12.2(2) XG1 supports the following Cisco 2600 series routers:

- Cisco 2610
- Cisco 2611
- Cisco 2612
- Cisco 2613
- Cisco 2620 and 2621
- Cisco 2650 and 2651

For detailed descriptions of the new hardware features, see the [“New and Changed Information”](#) section on page 8.

[Table 2](#) lists the supported interfaces for the Cisco 2600 series routers for Cisco IOS Release 12.2(2) XG1.

Table 2 *Supported Interfaces for the Cisco 2600 Series Routers*

Interface, Network Module, or Data Rate ¹	Product Description	Platforms Supported
LAN Interfaces ²	1- or 2-port Ethernet (10BASE-T)	All Cisco 2600 series platforms
	1-port Token Ring (RJ-45)	Cisco 2612, Cisco 2613
	1- or 2-port 10/100-Mbps Ethernet	Cisco 2620, Cisco 2621, Cisco 2650, Cisco 2651 ³
LAN Network Modules	1-port Ethernet	All Cisco 2600 series platforms
	4-port Ethernet	All Cisco 2600 series platforms
Serial Network Modules	16- or 32-port asynchronous/synchronous serial low speed (128 kbps max)	All Cisco 2600 series platforms
	4- or 8-port asynchronous/synchronous serial low speed (128 kbps max)	All Cisco 2600 series platforms

Table 2 *Supported Interfaces for the Cisco 2600 Series Routers (continued)*

Interface, Network Module, or Data Rate¹	Product Description	Platforms Supported
ATM Network Modules¹	4-port T1 ATM network module with IMA (NM-4T1-IMA)	All Cisco 2600 series platforms
	4-port E1 ATM network module with IMA (NM-4E1-IMA)	All Cisco 2600 series platforms
	8-port T1 ATM network module with IMA (NM-8T1-IMA)	All Cisco 2600 series platforms
	8-port E1 ATM network module with IMA (NM-8E1-IMA)	All Cisco 2600 series platforms
	1-port ATM T3 network module (NM-1A-T3)	All Cisco 2600 series platforms
	1-port ATM E3 network module (NM-1A-E3)	All Cisco 2600 series platforms
	1-port ATM-25 RJ-45 interface	All Cisco 2600 series platforms
Digital T1 Packet Voice Trunk Network Modules and Spare Components	1-port, 24-channel T1 voice/fax module supports 24 channels of medium-complexity codecs: G.729a/b, G.726, G.711, and fax; or 12 channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711, and fax. Consists of one NM-HDV, two PVDM-12s, and one VWIC-1MFT-T1. ⁴ Part number: NM-HDV-1T1-24.	All Cisco 2600 series platforms
	1-port, enhanced 24-channel T1 voice/fax module, supports 24 channels of high- and medium-complexity codecs: G.729a/b, G.726, G.729, G.728, G.723.1, G.711, and fax. Consists of one NM-HDV, four PVDM-12s, and one VWIC-1MFT-T1. ⁴ Part number: NM-HDV-1T1-24E.	All Cisco 2600 series platforms
	2-port, 48-channel T1 voice/fax module supports add/drop multiplexing (drop and insert); 48 channels of medium-complexity codecs: G.729a/b, G.726, G.711, and fax; or 24 channels of G.726, G.729, G.723.1, G.728, G.729a/b, G.711, and fax. Consists of one NM-HDV, four PVDM-12, and one VWIC-2MFT-T1-DI. ⁴ Part number: NM-HDV-2T1-48.	All Cisco 2600 series platforms
	High-density voice/fax network module spare (NM-HDV)	Digital T1/E1 packet voice trunk network modules spare component
	12-channel packet voice DSP module upgrade spare (PVDM-12)	Digital T1/E1 packet voice trunk network modules spare component
	1-port RJ-48 multiflex trunk—T1 (VWIC-1MFT-T1) ⁴	Digital T1/E1 packet voice trunk network modules spare component
	2-port RJ-48 multiflex trunk—T1 (VWIC-2MFT-T1) ⁴	Digital T1/E1 packet voice trunk network modules spare component
	2-port RJ-48 multiflex trunk with drop and insert—T1 (VWIC-2MFT-T1-DI) ⁴	Digital T1/E1 packet voice trunk network modules spare component

Table 2 *Supported Interfaces for the Cisco 2600 Series Routers (continued)*

Interface, Network Module, or Data Rate¹	Product Description	Platforms Supported
Digital E1 Packet Voice Network Modules	1-port 30-channel E1 high-density voice network module (NM-HDV-1E1-30)	All Cisco 2600 series platforms
	1-port enhanced 30-channel E1 high-density voice network module (NM-HDV-1E130E)	All Cisco 2600 series platforms
	2-port 60-channel high-density voice network module (NM-HDV-2E1-60)	All Cisco 2600 series platforms
Dial, ISDN, and Channelized Serial Network Modules	1- or 2-port channelized T1/ISDN PRI	All Cisco 2600 series platforms
	1- or 2-port channelized T1/ISDN PRI with CSU	All Cisco 2600 series platforms
	1- or 2-port channelized E1/ISDN PRI balanced	All Cisco 2600 series platforms
	1- or 2-port channelized E1/ISDN PRI unbalanced	All Cisco 2600 series platforms
	4-or 8-port ISDN BRI S/T interface	All Cisco 2600 series platforms
	4- or 8-port ISDN BRI U (NT-1) interface	All Cisco 2600 series platforms
	8- or 16-port analog modems	All Cisco 2600 series platforms
T1/E1 Multiflex Voice/WAN Interface Cards⁵	1-port T1 multiflex trunk interface (VWIC-1MFT-T1)	All Cisco 2600 series platforms
	1-port E1 multiflex trunk interface (VWIC-1MFT-E1)	All Cisco 2600 series platforms
	2-port T1 multiflex trunk interface (VWIC-2MFT-T1)	All Cisco 2600 series platforms
	2-port E1 multiflex trunk interface (VWIC-2MFT-E1)	All Cisco 2600 series platforms
	2-port T1 multiflex trunk interface with drop and insert (VWIC-2MFT-T1-DI)	All Cisco 2600 series platforms
	2-port E1 multiflex trunk interface with drop and insert (VWIC-2MFT-E1-DI)	All Cisco 2600 series platforms
Voice/Fax Interface Cards	1- or 2-voice/fax network module (NM-1V and NM-2V)	All Cisco 2600 series platforms
	1-slot high-density T1/E1 voice interface card slots ⁶	All Cisco 2600 series platforms
	2-port FXS voice/fax interface card ⁷	All Cisco 2600 series platforms with voice/fax network modules
	2-port E&M voice/fax interface card ³ (VIC-2E/M)	All Cisco 2600 series platforms with voice/fax network modules
	2-port FXO voice/fax interface card ³ (VIC-2FXO, VIC-2FXO-M3, and VIC-2FXO-EU)	All Cisco 2600 series platforms with voice/fax network modules

Table 2 Supported Interfaces for the Cisco 2600 Series Routers (continued)

Interface, Network Module, or Data Rate ¹	Product Description	Platforms Supported
WAN Interface Cards	1-port ISDN BRI S/T interface (requires external NT-1)	All Cisco 2600 series platforms
	1-port ISDN BRI (NT-1) U	All Cisco 2600 series platforms
	1-port 56/64-kbps DSU/CSU	All Cisco 2600 series platforms
	1-port T1/fractional T1 with DSU/CSU WAN Interface Card (WIC-1DSU-T1)	All Cisco 2600 series platforms
	1-port high-speed serial (up to 2.048 Mbps)	All Cisco 2600 series platforms
	2-port dual high-speed serial (up to 2.048 Mbps; asynchronous/synchronous support)	All Cisco 2600 series platforms
	2-port asynchronous/synchronous (up to 128 kbps) (WIC-2A/S[=])	All Cisco 2600 series platforms
Other Network Module	Data compression AIM (up to 8.192 Mbps)	All Cisco 2600 series platforms
	Hardware encryption AIM	All Cisco 2600 series platforms
	NM-AIC-64, Contact Closure Network Module	All Cisco 2600 series platforms

1. The voice/fax and ATM-25 network modules require Cisco IOS Plus feature sets.
2. The 1- or 2-port 10/100 Ethernet LAN interface for the Cisco 2620 and Cisco 2621 series routers is only available in Cisco IOS Release 12.0 XC and later releases.
3. Cisco 2650 and 2651 routers require Cisco IOS Release 12.1(3a)T1 or later releases.
4. See T1/E1 multiflex voice/WAN interface cards in this table.
5. T1 multiflex voice/WAN interface cards can be used in a chassis slot or installed in a digital T1 packet voice trunk module. E1 multiflex voice/WAN interface cards can be installed in a chassis slot.
6. Uses the VWIC-MFT T1/E1 interface cards.
7. Requires the NM-1V or NM-2V network module.

Determining the Software Version

To determine the version of Cisco IOS software running on a Cisco 2600 series router, log in to the router and enter the **show version EXEC** command:

```
router> show version
Cisco Internetwork Operating System Software
IOS (tm) 2600 Software (c2600-i-mz), Version 12.2(2) XG1, RELEASE SOFTWARE
```

Upgrading to a New Software Release

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

http://www.cisco.com/en/US/products/hw/routers/tsd_products_support_category_home.html

Other Firmware Code

The latest version of analog modem firmware for the Cisco 2600 series supports the internal analog modems (both NM-16AM and NM-8AM) in a wide range of countries, starting with Cisco IOS Release 11.3(5)T and later releases. The latest firmware (version 1.2.0) also supports dial-out and fax-out.

Additional information can be found on Cisco.com, beginning under the **Service & Support** heading:

Technical Documents: Access Servers and Access Routers: Modular Access Routers: Cisco 2600 Series Routers: Software Configuration Documents for Cisco 2600 Series: Analog Modem Firmware

This information is also available on the Documentation CD-ROM at:

Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 2600 Series Routers: Software Configuration Documents for Cisco 2600 Series: Analog Modem Firmware

Feature Set Table

The Cisco IOS software is packaged in feature sets consisting of software images—depending on the platform. Each feature set contains a specific set of Cisco IOS features.

Cisco IOS Release 12.2(2) XG1 supports the same feature sets as Cisco IOS Release 12.2(2) T, but Cisco IOS Release 12.2(2) XG1 can include new features supported by the Cisco 2600 series.

For feature set table information regarding Cisco IOS Release 12.2(2) T, refer to the *Cross-Platform Release Notes for Cisco IOS Release 12.2 T* located on Cisco.com and the Documentation CD-ROM.



Caution

Cisco IOS images with strong encryption (including, but not limited to 168-bit (3DES) data encryption feature sets) are subject to U.S. government export controls and have limited distribution. Strong encryption images to be installed outside the United States are likely to require an export license. Customer orders may be denied or subject to delay because of U.S. government regulations. When applicable, the purchaser/user must obtain local import and use authorizations for all encryption strengths. Please contact your sales representative or distributor for more information, or send an e-mail to export@cisco.com.

Table 3 lists the new features and feature sets supported by the Cisco 2600 series routers in Cisco IOS Release 12.2(2) XG1 and uses the following conventions:

- Yes—The feature is supported in the software image.
- No—The feature is not supported in the software image.
- In—The number in the “In” column indicates the Cisco IOS release in which the feature was introduced. For example, (2) XG means a feature was introduced in 12.2(2) XG.



Note

You can find the most current Cisco IOS documentation on Cisco.com. If you have a Cisco.com login account, you can find image and release information regarding features prior to Cisco IOS Release 12.2(2) T by using the Feature Navigator tool at <http://www.cisco.com/go/fn>.

Table 3 Feature List by Feature Set for the Cisco 2600 Series Routers

Features	In	Software Images by Feature Sets			
		IP	IP Plus	Enterprise Plus	Telco Feature Set
Other					
NM-AIC-64, Contact Closure Network Module	(2)XG	Yes	Yes	Yes	Yes

New and Changed Information

The following sections list the new hardware and software features supported by the Cisco 2600 series for Release 12.2(2) XG1.

New Hardware and Software Features in Cisco IOS Release 12.2(2) XG1

There are no new hardware and software features supported in Cisco IOS Release 12.2(2) XG1

New Hardware Features in Cisco IOS Release 12.2(2) XG

The following new hardware feature is supported by the Cisco 2600 series for Cisco IOS Release 12.2(2) XG:

NM-AIC-64, Contact Closure Network Module

The AIC NM is an optional card that expands network management capabilities for customer-defined alarms. The AIC has its own CPU that communicates with the router and external media through serial communication channels. The AIC reduces service provider and enterprise operating costs by providing a flexible, low-cost network solution for migrating existing data communications networks (DCNs) to IP-based DCNs. The AIC provides its users with a single “box” solution because it can be configured in the same router along with other Operation, Alarm, Maintenance, and Provisioning (OAM&P) interfaces.

More than one AIC can be installed per router. The AIC provides a total of 64 alarm inputs. Eight of the 64 points are software configurable for measuring either analog inputs or discrete inputs. The remaining 56 points are fixed to measure discrete points only. The AIC also provides 16 control relay outputs.

The discrete alarm input can be activated through ground or negative battery input. The negative battery range is -36V to -72V. The analog alarm is software configurable for either DC voltage or current. It can measure voltage from -60 to 60V or current from 0 to 20mA, but the configurable range is 4 mA to 20mA. The standard 16 control relays can be configured to turn on or turn off an external device.

The AIC's 64 input contact points can control and monitor network elements and other non-intelligent interfaces, permitting the detection and report of alarms such as the following:

- Network element alarm states
- Building security (door and window open and close)
- Fire and smoke indication

- Building environmentals (temperature and humidity)
- Utility power readings

When an event occurs, such as a door alarm or an open gate, the AIC maps the simple discrete and analog alarms to pre programmed intelligent messages and transports the messages to destinations in the IP network, typically to a Network Operations Center (NOC). These messages are generated either in Transaction Language 1 (TL1) or in Simple Network Management Protocol (SNMP), which are used by a NOC's Operations Support System (OSS).

For additional information, refer to the *Cisco Network Modules Hardware Installation Guide* at http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/cis2600/hw_inst/nm_inst/nm-doc/conntaim.htm.

Also, refer to the *NM-AIC-64, Contact Closure Network Module* feature module document at http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122limit/122x/122xg/122xg_2/ft_aicnm.htm.

New Software Features in Cisco IOS Release 12.2(2) XG

The following new software feature is supported by the Cisco 2600 series for Cisco IOS Release 12.2(2) XG:

NM-AIC-64, Contact Closure Network Module

This feature consists of software support for the NM-AIC-64. For more information, refer to the [“New Hardware and Software Features in Cisco IOS Release 12.2\(2\) XG1” section on page 8](#) and the feature module documentation at http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122newft/122limit/122x/122xg/122xg_2/ft_aicnm.htm.

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

Table 4 *Deprecated and Replacement MIBs (continued)*

Deprecated MIB	Replacement
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-VINES-MIB	CISCO-VINES-MIB
OLD-CISCO-XNS-MIB	To be determined

Important Notes

The following information applies to Cisco IOS Release 12.2(2) XG1.

Addition of squeeze Command for Cisco 2600 and Cisco 3600 Series Routers

The **squeeze** command, which is used to erase all files marked for deletion on a Flash file system, is now available on Cisco 2600 and Cisco 3600 series routers.

Changes to output attenuation Command

In Cisco IOS Release 12.2(2), the range of the **output attenuation** command for voice ports has changed from 0–14 to –6–14.

Caveats for Cisco IOS Release 12.2(2) XG

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.

All caveats in Cisco IOS Release 12.2 and Cisco IOS Release 12.2 T are also in Cisco IOS Release 12.2(2) XG1.

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.

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

Caveat numbers and brief descriptions for Cisco IOS Release 12.2(2) XG1 are listed in [Table 5](#). For details about a particular caveat, go to Bug Toolkit at

<http://www.cisco.com/cgi-bin/Support/Bugtool/onebug.pl?bugid=CSCdw67458>

To access this location, you must have an account on Cisco.com. For information about how to obtain an account, go to the “[Feature Navigator](#)” section on page 14.



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 **Service and Support: Technical Assistance Center: Select & Download Software: Jump to a software resource: Software Bug Toolkit/Bug Watcher**. Another option is to go to <http://www.cisco.com/support/bugtools/>.

Open Caveats—Cisco IOS Release 12.2(2) XG1

There are no open caveats specific to Cisco IOS Release 12.2(2) XG1 that require documentation in the release notes.

Resolved Caveats—Cisco IOS Release 12.2(2) XG1

All the caveats listed in [Table 5](#) are resolved in Cisco IOS Release 12.2(2) XG1. This table lists only severity 1 and 2 caveats and select severity 3 caveats.

Table 5 *Resolved Caveats for Release 12.2(2) XG1*

Caveat ID Number	Description
CSCdw65903	An error can occur with management protocol processing. Please use the following URL for further information: http://www.cisco.com/cgi-bin/Support/Bugtool/onebug.pl?bugid=CSCdw67458

Open Caveats—Cisco IOS Release 12.2(2) XG

There are no open caveats specific to Cisco IOS Release 12.2(2) XG that require documentation in the release notes.

Resolved Caveats—Cisco IOS Release 12.2(2) XG

All the caveats listed in [Table 6](#) are resolved in Cisco IOS Release 12.2(2) XG. This table lists only severity 1 and 2 caveats and select severity 3 caveats.

Table 6 *Resolved Caveats for Release 12.2(2) XG*

Caveat ID Number	Description
CSCdu12354	Integration commit for EIGRP
CSCdt05084	bus error at bgp_decay_penalty
CSCdt92814	Redistribution from ISIS to ISO-IGRP
CSCdu37772	Hookflash disconnects call immediately in v122_1_xa_throttle
CSCdt94533	Image sending RES and ATM package to CCM
CSCdu44639	Need to limit max lines during fallback to 6
CSCdu31091	ISDN BRI not working...req curcuit/channel not av.
CSCdu55993	TDM voice channel connection fails

Related Documentation

The following sections describe the documentation available for Cisco IOS Release 12.2 T. These documents consist of software installation guides, Cisco IOS configuration 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 12](#)
- [Platform-Specific Documents, page 13](#)
- [Feature Modules, page 13](#)
- [Feature Navigator, page 14](#)
- [Cisco IOS Software Documentation Set, page 14](#)

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 Cisco IOS Release 12.2* and *Cross-Platform Release Notes for Cisco IOS Release 12.2 T*

On Cisco.com at:

Technical Documents: Cisco IOS Software: 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

- The “[Caveats for Cisco IOS Release 12.2\(2\) XG](#)” section on page 10

As a supplement to the caveats listed in [Caveats for Cisco IOS Release 12.2\(2\) XG](#) in these release notes, see *Caveats for Cisco IOS Release 12.2* and *Caveats for Cisco IOS Release 12.2 T*, which contain caveats applicable to all platforms for all maintenance releases of Cisco IOS Release 12.2 and Cisco IOS Release 12.2 T.

On Cisco.com at:

Technical Documents: Cisco IOS Software: 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 **Service & Support: Technical Assistance Center: Select & Download Software: Jump to a software resource: Software Bug Toolkit/Bug Watcher**. Another option is to go to:

<http://www.cisco.com/pcgi-bin/Support/Bugtool/onebug.pl?bugid=CSCdw67458>

Platform-Specific Documents

These documents are available for the Cisco 2600 series on Cisco.com and the Documentation CD-ROM:

- *Cisco 2600 Series Modular Routers Quick Start Guide*
- Hardware Installation Documents for Cisco 2600 Series
- Software Configuration Documents for Cisco 2600 Series
- Regulatory Compliance and Safety Documents for Cisco 2600 Series

On Cisco.com at:

Technical Documents: Access Servers and Access Routers: Modular Access Routers: Cisco 2600 Series Routers

On the Documentation CD-ROM at:

Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 2600 Series Routers

Feature Modules

Feature modules describe new features that are supported in Cisco IOS Release 12.2 T 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 into the next printing of the Cisco IOS documentation set.

On Cisco.com at:

Technical Documents: Cisco IOS Software: 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

Feature Navigator

Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a particular set of features and which features are supported in a particular Cisco IOS image.

Feature Navigator is available 24 hours a day, 7 days a week. To access Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, e-mail the Contact Database Administration group at cdbadmin@cisco.com. If you do not have an account on Cisco.com, go to <http://www.cisco.com/register> and follow the directions to establish an account.

To use Feature Navigator, you must have a JavaScript-enabled web browser such as Netscape 3.0 or later, or Internet Explorer 4.0 or later. Internet Explorer 4.0 always has JavaScript enabled. To enable JavaScript for Netscape 3.x or Netscape 4.x, follow the instructions provided with the web browser. For JavaScript support and enabling instructions for other browsers, check with the browser vendor.

Feature Navigator is updated when major Cisco IOS software releases and technology releases occur. You can access Feature Navigator at the following URL:

<http://www.cisco.com/go/fn>

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.

The Cisco IOS software documentation set is available on Cisco.com and on the Documentation CD-ROM.

On Cisco.com at:

Technical Documents: Cisco IOS Software: 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

Table 7 lists the contents of the Cisco IOS Release 12.2 software documentation set, which is available in both electronic and printed form.



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: Cisco IOS Software: Cisco IOS Release 12.2

On the Documentation CD-ROM at:

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

Table 7 Cisco IOS Release 12.2 Documentation Set

Books	Major Topics
• <i>Cisco IOS Configuration Fundamentals Configuration Guide</i> • <i>Cisco IOS Configuration Fundamentals Command Reference</i>	Cisco IOS User Interfaces File Management System Management
• <i>Cisco IOS Bridging and IBM Networking Configuration Guide</i> • <i>Cisco IOS Bridging and IBM Networking Command Reference, Volume 1 of 2</i> • <i>Cisco IOS Bridging and IBM Networking Command Reference, Volume 2 of 2</i>	Transparent Bridging SRB Token Ring Inter-Switch Link Token Ring Route Switch Module RSRB DLSw+ Serial Tunnel and Block Serial Tunnel LLC2 and SDLC IBM Network Media Translation SNA Frame Relay Access NCIA Client/Server Airline Product Set DSPU and SNA Service Point SNA Switching Services Cisco Transaction Connection Cisco Mainframe Channel Connection CLAW and TCP/IP Offload CSNA, CMPC, and CMPC+ TN3270 Server

Table 7 Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
• <i>Cisco IOS Dial Technologies Configuration Guide</i> • <i>Cisco IOS Dial Technologies Command Reference</i>	Preparing for Dial Access Modem and Dial Shelf Configuration and Management ISDN Configuration Signaling Configuration Dial-on-Demand Routing Configuration Dial Backup Configuration Dial Related Addressing Service Virtual Templates, Profiles, and Networks PPP Configuration Callback and Bandwidth Allocation Configuration Dial Access Specialized Features Dial Access Scenarios
• <i>Cisco IOS Interface Configuration Guide</i> • <i>Cisco IOS Interface Command Reference</i>	LAN Interfaces Serial Interfaces Logical Interfaces
• <i>Cisco IOS IP Configuration Guide</i> • <i>Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services</i> • <i>Cisco IOS IP Command Reference, Volume 2 of 3: Routing Protocols</i> • <i>Cisco IOS IP Command Reference, Volume 3 of 3: Multicast</i>	IP Addressing and Services IP Routing Protocols IP Multicast
• <i>Cisco IOS AppleTalk and Novell IPX Configuration Guide</i> • <i>Cisco IOS AppleTalk and Novell IPX Command Reference</i>	AppleTalk Novell IPX
• <i>Cisco IOS Apollo Domain, Banyan VINES, DECnet, ISO CLNS, and XNS Configuration Guide</i> • <i>Cisco IOS Apollo Domain, Banyan VINES, DECnet, ISO CLNS, and XNS Command Reference</i>	Apollo Domain Banyan VINES DECnet ISO CLNS XNS
• <i>Cisco IOS Voice, Video, and Fax Configuration Guide</i> • <i>Cisco IOS Voice, Video, and Fax Command Reference</i>	Voice over IP Call Control Signaling Voice over Frame Relay Voice over ATM Telephony Applications Trunk Management Fax, Video, and Modem Support
• <i>Cisco IOS Quality of Service Solutions Configuration Guide</i> • <i>Cisco IOS Quality of Service Solutions Command Reference</i>	Packet Classification Congestion Management Congestion Avoidance Policing and Shaping Signaling Link Efficiency Mechanisms

Table 7 Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
• <i>Cisco IOS Security Configuration Guide</i> • <i>Cisco IOS Security Command Reference</i>	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
• <i>Cisco IOS Switching Services Configuration Guide</i> • <i>Cisco IOS Switching Services Command Reference</i>	Cisco IOS Switching Paths NetFlow Switching Multiprotocol Label Switching Multilayer Switching Multicast Distributed Switching Virtual LANs LAN Emulation
• <i>Cisco IOS Wide-Area Networking Configuration Guide</i> • <i>Cisco IOS Wide-Area Networking Command Reference</i>	ATM Broadband Access Frame Relay SMDS X.25 and LAPB
• <i>Cisco IOS Mobile Wireless Configuration Guide</i> • <i>Cisco IOS Mobile Wireless Command Reference</i>	General Packet Radio Service
• <i>Cisco IOS Terminal Services Configuration Guide</i> • <i>Cisco IOS Terminal Services Command Reference</i>	ARA LAT NASi Telnet TN3270 XRemote X.28 PAD Protocol Translation
• <i>Cisco IOS Configuration Guide Master Index</i> • <i>Cisco IOS Command Reference Master Index</i> • <i>Cisco IOS Debug Command Reference</i> • <i>Cisco IOS Software System Error Messages</i> • <i>New Features in 12.2 T-Based Limited Lifetime Releases</i> • <i>New Features in Release 12.2 T T</i> • <i>Release Notes</i> (Release note and caveat documentation for 12.2 T-based releases and various platforms)	

Obtaining Documentation

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

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at the following sites:

- <http://www.cisco.com>
- <http://www-china.cisco.com>
- <http://www-europe.cisco.com>

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/marketplace/welcome.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 product 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.

To submit your comments by mail, use the response card behind the front cover of your document, or write to the following address:

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

We appreciate your comments.

Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain documentation, troubleshooting tips, and sample configurations from online tools. For Cisco.com registered users, additional troubleshooting tools are available from the TAC website.

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/>

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users 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 12.

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