



# Release Notes for Cisco 3810 for Cisco IOS Release 12.2 XG

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June 12, 2002

Cisco IOS Release 12.2(2) XG1

78-13504-01 Rev. C0



**Note**

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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).

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These release notes for the Cisco 3810 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 Cisco IOS Release 12.2(2) XG, see the [“Caveats for Cisco IOS Release 12.2\(2\) XG” section on page 9](#) 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.

## Contents

These release notes describe the following topics:

- [Introduction, page 2](#)
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**Corporate Headquarters:**

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

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## Introduction

The Cisco MC3810 multiservice access concentrator is fully supported by Cisco IOS software for multiprotocol routing, bridging, and Systems Network Architecture (SNA). As part of an enterprise backbone or as a CPE device to serve provider-managed network services, the Cisco MC3810 reduces operating costs and complexity, and increases network throughput and performance.

The Cisco MC3810 provides a complete file system for software images, message files, and reports. The standard Flash memory size is 8 MB. A 16-MB upgrade option is available. The 16-MB version can hold two code images simultaneously for fail-safe upgrades.

Management and configuration of the Cisco MC3810 should be familiar to the Cisco IOS user and compatible with existing management systems. As such, it provides a superset of the Cisco command-line interface (CLI). The Cisco MC3810 can be managed by standard Cisco management platforms and facilities such as CiscoView and the native remote login facilities provided by Telnet and rlogin. Three types of configuration interfaces are provided as follows:

- Cisco CLI
- HTTP-based configuration server
- SNMP-based MIB

The HTTP-based interface allows configuration from any web browser such as Netscape Navigator or Microsoft Explorer. The Simple Network Management Protocol (SNMP) MIB allows management of the Cisco MC3810 from SNMP managers (for example, HP OpenView).

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 7](#) and the [“Related Documentation” section on page 10](#).

## System Requirements

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

- [Memory Recommendations, page 3](#)
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- [Determining the Software Version, page 5](#)
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## Memory Recommendations

**Table 1** Memory Recommendations for the Cisco MC3810 Multiservice Access Concentrator

Image Name	Software Image	Flash Memory Recommended	DRAM Memory Recommended	Runs From
IP Plus VoIP/VoATM	mc3810-a2isv5-mz	16 MB	64 MB	RAM
Enterprise Plus VoIP/VoATM	mc3810-a2jsv5-mz	16 MB	64 MB	RAM
Enterprise Plus/H.323 MCM	mc3810-a2jsv5x-mz	16 MB	64 MB	RAM

## Supported Hardware

Cisco IOS Release 12.2(2) XG1 supports the Cisco MC3810 multiservice access concentrator. The Cisco MC3810 base chassis is a semifixed configuration router that can be customized for a specific application at the factory or in the field by a qualified technician. The base chassis includes the following components:

- One fixed Ethernet LAN port
- A console port and an auxiliary port
- Two synchronous serial ports
- Five mounting areas for functional modules that support additional capabilities
- AC, DC, or redundant power supply option

Cisco MC3810 series concentrators are supplied in various standard hardware configurations. These concentrators are equipped with different sets of functional modules to provide specific functional capability. Many configurations are possible, but they are all variations of the basic categories described in [Table 2](#). Supported hardware is shown in [Table 3](#). The chassis opening for any mounting area that is not equipped with a functional module is closed off with a removable cover plate.

For detailed descriptions of the new hardware features, see the “[New and Changed Information](#)” section on [page 7](#).

**Table 2** Cisco MC3810 Series Standard Hardware Categories

Category	Service Types Supported	Required Modules	Optional Modules
<b>Base Chassis</b>	Base chassis services <sup>1</sup>	None	Optional modules can be added to create other chassis variations
<b>Analog Voice Chassis</b>	Base chassis services <sup>1</sup> plus compressed analog voice connections to telephone, fax, central office, analog PBX	AVM (analog voice module) with 1 to 6 APMs (analog personality modules) VCM3 or VCM6 or HCM2 or HCM6 (only one voice compression module)	MFT <sup>2</sup> to support a channelized T1 or E1 trunk MFT <sup>2</sup> and VDM <sup>3</sup> to support video codec dialing

**Table 2 Cisco MC3810 Series Standard Hardware Categories (continued)**

Category	Service Types Supported	Required Modules	Optional Modules
<b>Digital Voice Chassis</b>	Base chassis services <sup>1</sup> plus compressed digital voice through digital PBX	DVM VCM3 or VCM6 or HCM2 or HCM6 (one or two voice compression modules)	MFT <sup>2</sup> to support a channelized T1 or E1 trunk MFT <sup>2</sup> and VDM <sup>3</sup> to support video codec dialing
<b>BRI Voice Chassis</b>	Base chassis services <sup>1</sup> plus compressed digital voice through PINX	BVM and MFT <sup>1</sup> VCM3 or VCM6 or HCM2 or HCM6 (only one voice compression module)	MFT <sup>2</sup> to support a channelized T1 or E1 trunk MFT <sup>2</sup> and VDM <sup>3</sup> to support video codec dialing
<b>T1/E1 Trunk Chassis</b>	Base chassis services <sup>1</sup> plus channelized T1 or E1	MFT <sup>2</sup>	DVM to support digital cross-connect voice (channel bank functionality/drop and insert) through digital PBX or channel bank VDM <sup>3</sup> to support video codec dialing VCM3 or VCM6, or HCM2 or HCM6, to support voice compression

1. Base chassis services include administrative access, Ethernet, data transport, and video transport.

2. The MFT is available with or without BRI backup.

3. If a VDM is installed, an MFT is required to support ATM for the video dialing network connection.

**Table 3 Hardware Supported on the Cisco MC3810 Multiservice Access Concentrator**

Module or Other Hardware Option	Product Description	Product Number
<b>Voice Interface Modules</b>	6-port AVM <sup>1</sup>	MC3810-AVM6=
	1-port E1 DVM, connects to PBX/channel bank/key system <sup>2</sup>	MC3810-DVM-E1=
	1-port T1 DVM, connects to PBX/channel bank/key system <sup>2</sup>	MC3810-DVM-T1=
	1-port unbalanced E1 DVM, connects to PBX/channel bank/key system <sup>2</sup>	MC3810-DVM-BNC=
	4-port BRI voice module <sup>3</sup>	MC3810-BVM4=
<b>Video Dialing Module</b>	Supports an EIA/TIA-366 Automatic Calling Equipment (ACE) interface to the DTE port of the videoconferencing equipment <sup>4</sup>	MC3810-VDM=

**Table 3** Hardware Supported on the Cisco MC3810 Multiservice Access Concentrator (continued)

Module or Other Hardware Option	Product Description	Product Number
<b>Analog Personality Modules<sup>5</sup></b>	1-port E&M analog module	MC3810-APM-EM=
	1-port FXS analog module	MC3810-APM-FXS=
	1-port FXO analog module	MC3810-APM-FXO=
	1-port FXO analog module, approved for United Kingdom	MC3810-FXO-UK=
	1-port FXO analog module, approved for Germany	MC3810-FXO-GER=
	1-port FXO analog module, approved for PR2 <sup>6</sup> countries	MC3810-FXO-PR2=
	1-port FXO analog module, approved for PR3 <sup>7</sup> countries	MC3810-FXO-PR3=
<b>Voice Compression Modules<sup>8</sup></b>	2-DSP HCM, supports up to 8 channels of compressed voice	MC3810-HCM2=
	6-DSP HCM, supports up to 24 channels of compressed voice	MC3810-HCM6=
	3-DSP VCM, supports up to 6 channels <sup>9</sup> of compressed voice	MC3810-VCM3=
	6-DSP VCM, supports up to 12 channels <sup>9</sup> of compressed voice	MC3810-VCM6=
<b>Multiflex Trunk Modules with Optional BRI</b>	1-port MFT with RJ-48 channelized T1 interface	MC3810-MFT-T1=
	1-port MFT with RJ-48 channelized E1 interface	MC3810-MFT-E1=
	1-port MFT with unbalanced E1-BNC interface	MC3810-MFT-BNC=
	1-port MFT with RJ-48 channelized T1 and BRI S/T interfaces	MC3810-MFT-TBS=
	1-port MFT with unbalanced E1-BNC and BRI S/T interfaces	MC3810-MFT-EUS=

- Requires one to six APMs and one voice compression module (VCM3 or VCM6).
- Requires one or two voice compression modules (VCM6) for processed voice.
- Requires one voice compression module (VCM3 or VCM6) and Cisco IOS Release 12.0(4)T or a later release.
- Requires MFT for ATM connectivity and Cisco serial V.35 DCE cable (product order number 72-1721-01) that includes a Ringing Indicator (RI) conductor, and a Cisco EIA/TIA-366 ACE cable (product order number 72-1722-01) to connect the VDM to the videoconferencing equipment RS-366 dialup DTE port.
- For use with analog voice modules; one AVM requires at least one APM and supports up to six APMs.
- PR2 countries currently include Australia and New Zealand.
- PR3 countries currently include Japan and Singapore.
- VCMs and Cisco IOS Plus feature sets are required for voice processing (for example, switching, compression, echo cancellation, and silence suppression) but not for drop-and-insert applications.
- Cisco MC3810 maximum voice channel support by compression algorithm: G.711 at 64 kbps = 6 channels; G.726 at 32 kbps = 12 channels; G.729 at 8 kbps = 12 channels; G.729a at 8 kbps = 24 channels.

## Determining the Software Version

To determine the version of Cisco IOS software running on your Cisco 3810, log in to the Cisco 3810 and enter the **show version EXEC** command:

```
Router> show version
Cisco Internetwork Operating System Software
IOS (tm) 12.2 XG Software mc3810-a2isv5-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 *Upgrading the Cisco IOS Software Release in Cisco Routers and Modems* located at:

[http://www.cisco.com/warp/public/130/upgrade\\_index.shtml](http://www.cisco.com/warp/public/130/upgrade_index.shtml)

## Feature Set Tables

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 T, but Cisco IOS Release 12.2(2) XG1 can include new features supported by the Cisco 3810.



### 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](mailto:export@cisco.com).

Table 4 lists the features and feature sets supported by the Cisco 3810 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) XG1.



### 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 4 Feature List by Feature Set for the Cisco MC3810 Router**

Features	In	Software Images by Feature Sets		
		IP Plus VoIP/ VoATM	Enterprise Plus VoIP/VoATM	Enterprise Plus/H323 MCM
Voice Services				
Survivable Remote Site Telephony	(2)XG	Yes	Yes	Yes

# New and Changed Information

The following sections list the new hardware and software features supported by the Cisco 3810 for Cisco IOS 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 by the Cisco 3810 for Cisco IOS Release 12.2(2) XG.

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

There are no new hardware feature supported in Cisco IOS Release 12.2(2) XG.

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

The following new software feature is supported by the Cisco 3810 for Cisco IOS Release 12.2(2) XG:

### Survivable Remote Site Telephony

The SRS Telephony feature enables the router to provide call handling support for the Cisco IP phones when the Cisco IP phones lose connection to the remote primary, secondary, or tertiary Cisco CallManager or when the WAN connection is down.

The Cisco CallManager 3.0 supports Cisco IP phones at remote sites attached to Cisco branch office multiservice routers across the WAN. Prior to the SRS Telephony feature, when the WAN connection between the remote branch office router and the Cisco CallManager failed or connectivity with the Cisco CallManager was lost for some reason, the Cisco IP phones at the branch office became unusable for the duration of the failure. The SRS Telephony feature overcomes this problem and enables the basic features of the Cisco IP phones by providing call-handling support on the branch office router for its attached Cisco IP phones. The system automatically detects the failure and uses the Simple Network Auto Provisioning (SNAP) technology to autoconfigure the branch office router to provide call processing for the local Cisco IP phones. The business at the remote site can continue to make and receive calls during the failure. When the WAN link or connection to the primary Cisco CallManager is restored, call-handling capabilities for the Cisco IP phones switch back to the primary Cisco CallManager. During a failure when SRS Telephony feature is enabled, the Cisco IP phone displays a message to inform you that the Cisco IP phones are in the Cisco CallManager fallback mode and are able to perform limited functions.

Refer to the following document for more information:

[http://www.cisco.com/univercd/cc/td/doc/product/access/ip\\_ph/srs/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/access/ip_ph/srs/index.htm)

# 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 5](#).

**Table 5**     *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-VINES-MIB	CISCO-VINES-MIB
OLD-CISCO-XNS-MIB	To be determined



# Limitations and Restrictions

## 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*.

in important notes about Cisco IOS Release 12.2 XG that can apply to the Cisco 3810.

## 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 7](#). For details about a particular caveat, go to Bug Toolkit at <http://www.cisco.com/kobayashi/bugs/bugs.html>.

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 12](#).



### 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 6](#) 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 6**     *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: <a href="http://www.cisco.com/cgi-bin/bugtool/onebug.pl?bugid=CSCdw65903">http://www.cisco.com/cgi-bin/bugtool/onebug.pl?bugid=CSCdw65903</a>

## 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 7](#) 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 7**     *Resolved Caveats for Release 12.2(2) XG*

Caveat ID Number	Description
CSCdu12354	12.1T ONLY: Integration commit for EIGRP
CSCdt05084	bus error at bgp_decay_penalty
CSCdt92814	Redistribution from ISIS to ISO-IGRP
CSCdu31931	Inconsistency in NTFY ANS Generated from GW

## Related Documentation

The following sections describe the documentation available for the Cisco 3810. 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 11](#)
- [Platform-Specific Documents, page 11](#)
- [Feature Modules, page 12](#)
- [Feature Modules, page 12](#)
- [Feature Navigator, page 12](#)
- [Cisco IOS Software Documentation Set, page 12](#)

## 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 9

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/support/bugtools/bugtool.shtml>.

## Platform-Specific Documents

These documents are available for the Cisco 3810 on Cisco.com and the Documentation CD-ROM:

- *Quick Start Guide Cisco 3600 Series Routers*
- Hardware Installation Documents for Cisco 3600 Series
- Software Configuration Documents for Cisco 3600 Series
- Regulatory Compliance and Safety Documents for Cisco 3600 Series

On Cisco.com at:

**Technical Documents: Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 3600 Series Routers**

On the Documentation CD-ROM at:

## **Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 3600 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](mailto: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 Contents

[Table 8](#) lists the contents of the Cisco IOS Release 12.2 software documentation set, which is available in both electronic and printed form.



### Note

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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.

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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 8 Cisco IOS Release 12.2 Documentation Set**

<b>Books</b>	<b>Major Topics</b>
<ul style="list-style-type: none"> <li><i>Cisco IOS Configuration Fundamentals Configuration Guide</i></li> <li><i>Cisco IOS Configuration Fundamentals Command Reference</i></li> </ul>	Cisco IOS User Interfaces File Management System Management
<ul style="list-style-type: none"> <li><i>Cisco IOS Bridging and IBM Networking Configuration Guide</i></li> <li><i>Cisco IOS Bridging and IBM Networking Command Reference, Volume 1 of 2</i></li> <li><i>Cisco IOS Bridging and IBM Networking Command Reference, Volume 2 of 2</i></li> </ul>	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
<ul style="list-style-type: none"> <li><i>Cisco IOS Dial Technologies Configuration Guide: Dial Access</i></li> <li><i>Cisco IOS Dial Technologies Configuration Guide: Large-Scale Dial Applications</i></li> <li><i>Cisco IOS Dial Technologies Command Reference, Volume 1 of 2</i></li> <li><i>Cisco IOS Dial Technologies Command Reference, Volume 2 of 2</i></li> </ul>	Dial Access Modem and Dial Shelf Configuration and Management ISDN Configuration Signaling Configuration Point-to-Point Protocols Dial-on-Demand Routing Dial Backup Dial Related Addressing Service Network Access Solutions Large-Scale Dial Solutions Cost-Control Solutions Internetworking Dial Access Scenarios
<ul style="list-style-type: none"> <li><i>Cisco IOS Interface Configuration Guide</i></li> <li><i>Cisco IOS Interface Command Reference</i></li> </ul>	LAN Interfaces Serial Interfaces Logical Interfaces
<ul style="list-style-type: none"> <li><i>Cisco IOS IP Configuration Guide</i></li> <li><i>Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services</i></li> <li><i>Cisco IOS IP Command Reference, Volume 2 of 3: Routing Protocols</i></li> <li><i>Cisco IOS IP Command Reference, Volume 3 of 3: Multicast</i></li> </ul>	IP Addressing IP Services IP Routing Protocols IP Multicast
<ul style="list-style-type: none"> <li><i>Cisco IOS AppleTalk and Novell IPX Configuration Guide</i></li> <li><i>Cisco IOS AppleTalk and Novell IPX Command Reference</i></li> </ul>	AppleTalk Novell IPX

**Table 8 Cisco IOS Release 12.2 Documentation Set (continued)**

<b>Books</b>	<b>Major Topics</b>
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Apollo Domain, Banyan VINES, DECnet, ISO CLNS, and XNS Configuration Guide</i></li> <li>• <i>Cisco IOS Apollo Domain, Banyan VINES, DECnet, ISO CLNS, and XNS Command Reference</i></li> </ul>	Apollo Domain Banyan VINES DECnet ISO CLNS XNS
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Voice, Video, and Fax Configuration Guide</i></li> <li>• <i>Cisco IOS Voice, Video, and Fax Command Reference</i></li> </ul>	Voice over IP Call Control Signaling Voice over Frame Relay Voice over ATM Telephony Applications Trunk Management Fax, Video, and Modem Support
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Quality of Service Solutions Configuration Guide</i></li> <li>• <i>Cisco IOS Quality of Service Solutions Command Reference</i></li> </ul>	Packet Classification Congestion Management Congestion Avoidance Policing and Shaping Signaling Link Efficiency Mechanisms
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Security Configuration Guide</i></li> <li>• <i>Cisco IOS Security Command Reference</i></li> </ul>	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
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Switching Services Configuration Guide</i></li> <li>• <i>Cisco IOS Switching Services Command Reference</i></li> </ul>	Cisco IOS Switching Paths NetFlow Switching Multiprotocol Label Switching Multilayer Switching Multicast Distributed Switching Virtual LANs LAN Emulation
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Wide-Area Networking Configuration Guide</i></li> <li>• <i>Cisco IOS Wide-Area Networking Command Reference</i></li> </ul>	ATM Frame Relay SMDS X.25 and LAPB
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Mobile Wireless Configuration Guide</i></li> <li>• <i>Cisco IOS Mobile Wireless Command Reference</i></li> </ul>	General Packet Radio Service

**Table 8** Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Terminal Services Configuration Guide</i></li> <li>• <i>Cisco IOS Terminal Services Command Reference</i></li> </ul>	ARA LAT NASI Telnet TN3270 XRemote X.28 PAD Protocol Translation
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Configuration Guide Master Index</i></li> <li>• <i>Cisco IOS Command Reference Master Index</i></li> <li>• <i>Cisco IOS Debug Command Reference</i></li> <li>• <i>Cisco IOS Software System Error Messages</i></li> <li>• <i>New Features in 12.2-Based Limited Lifetime Releases</i></li> <li>• <i>New Features in Release 12.2 T</i></li> <li>• <i>Release Notes</i> (Release note and caveat documentation for 12.2-based releases and various platforms)</li> </ul>	

## 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>

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- 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).

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### Contacting TAC by Using the Cisco TAC Website

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- 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.

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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:

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- 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.



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This document is to be used in conjunction with the documents listed in the [“Related Documentation” section on page 10](#).

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