



Release Notes for Cisco IAD2420 Series for Cisco IOS Release 12.1 XR

June 13, 2002

Cisco IOS Release 12.1(5) XR2

78-12264-01 Rev. D1



Note

The last release of Cisco IOS Release 12.1 XR is Cisco IOS Release 12.1(5) XR2. The migration path for customers who need bug fixes for Cisco IOS Release 12.1(5) XR2 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 12.1(5) XR2 and will eventually reach general deployment (GD).

These release notes for the Cisco IAD2420 series describe the enhancements provided in Cisco IOS Release 12.1(5)XR2. These release notes are updated as needed.

For a list of the software caveats that apply to Release 12.1(5)XR2, see the [“Caveats” section on page 7](#) and [Caveats for Cisco IOS Release 12.1 T](#) that accompanies these release notes. 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 12.1](#) located on Cisco.com and the Documentation CD-ROM.

Contents

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Introduction

The Cisco IAD2400 Series Integrated Access Devices are fixed configuration multi-service customer premise equipment (CPE) platforms, targeted at emerging competitive local exchange carriers (CLECs), incumbent local exchange carriers (ILECs), and inter-exchange carriers (IXCs). The IAD2420 series enables service providers to cost effectively deploy next generation managed services for the growing needs of small and medium businesses (SMB) over a single high speed access link. The IAD2400 series products support both voice over IP (VoIP) and voice over ATM (VoAAL2), with high-density analog or digital voice interfaces.

The IAD2420 is an IP ONLY platform. It does not support other local area network (LAN) protocols like IPX, Appletalk, or SNA. Additionally, the IAD2400 series only supports simple gateway control protocol (SGCP) and media gateway control protocol 0.1 (MGCP). It does not support H.323 or session initiation protocol (SIP) for voice signaling.

The IAD series is a fixed configuration platform and comes with the required flash memory and random access memory (RAM) for the operation of the platform. Customers do not need to acquire memory separately. Table 1 lists Cisco IAD2400 series product numbers with the corresponding WAN and telephony interfaces.

Table 1 IAD2400 Series Product Numbers

Product Number	WAN Interface	Telephony Interface
IAD2421-8FXS	T1	8 Analog FXS Ports
IAD2421-16FXS	T1	16 Analog FXS Ports
IAD2421-1T1	T1	1 T1 PBX Port
IAD2423-8FXS	ADSL	8 Analog FXS Ports
IAD2423-16FXS	ADSL	16 Analog FXS Ports
IAD2423-1T1	ADSL	1 T1 PBX Port

System Requirements

This section describes the system requirements for Release 12.1(5)XR2:

- [Memory Recommendations, page 3](#)
- [Hardware Supported, page 3](#)
- [Determining the Software Version, page 3](#)
- [Upgrading to a New Software Release, page 4](#)
- [Feature Set Tables, page 4](#)

Memory Recommendations

The IAD2420 is a fixed configuration platform and comes with the required flash memory and random access memory (RAM) for the operation of the platform. End users do not need to acquire memory separately.

Hardware Supported

Table 2 lists the supported interfaces for the Cisco IAD2420 series for Cisco IOS Release 12.1(5)XR2.

Each Cisco IAD2420 series router is preconfigured for one wide-area network (WAN) port. The WAN port is either a T1 port or an asymmetric digital subscriber line (ADSL) port. Each Cisco IAD2420 is also preconfigured with either 8 or 16 foreign exchange station (FXS) analog voice ports or one T1 digital voice port for connection to a private branch exchange (PBX).

Table 2 Supported Interfaces on the Cisco IAD2420 Series

Interface, Network Module, or Data Rate	Platforms	
Wan Interfaces	One T1 port (balanced, per ANSI T1.403) for connection to a WAN or carrier network	IAD2421
	One ADSL port for connection to a WAN or carrier network (DSLAM)	IAD2423
PBX Interfaces	One 8-line or 16-line analog FXS interface (loop-start or ground-start) for connection to analog phones, key systems, or PBXs.	IAD2421 and IAD2423
	One T1 port with channel-associated signaling (CAS) for connection to a digital PBX	IAD2421 and IAD2423
Ethernet Interface	One 10BaseT LAN connection	IAD2421 and IAD2423
Serial Data Interface	One serial data interface for connections to WAN, or to user network. This interface supports HDLC, FR, or PPP encapsulations.	IAD2421 and IAD2423
Administrative Interfaces	One EIA/TIA-32 asynchronous serial port for connection to a console	IAD2421 and IAD2423
	One EIA/TIA-32 asynchronous serial port for connection to a modem	IAD2421 and IAD2423

Determining the Software Version

To determine the version of Cisco IOS software running on a Cisco IAD2420, log in to the router and enter the **show version EXEC** command:

```
router>show version
Cisco Internetwork Operating System Software
IOS (tm) IAD2420 Software (C2420-A2I8SV5-MZ), Version 12.1(5)XR2, RELEASE SOFTWARE
```

Upgrading to a New Software Release

For general information about upgrading to a new software release, see the product bulletin *Cisco IOS Upgrade Ordering Instructions* on Cisco.com under:

Service & Support: Software Center: Cisco IOS Software: Product Bulletins: Software

Under General System Software Bulletins, click *Cisco IOS Upgrade Ordering Instructions, No. 957*

Feature Set Tables

Cisco IOS software is packaged in feature sets consisting of software images—depending on the platform. [Table 3](#) lists the Cisco IOS Release 12.1(5)XR2 feature set image for the Cisco IAD2420 series platforms.

Table 3 Feature Sets Supported by the Cisco IAD2420 Series

Feature Sets		Software Image	Platforms
IP Standard Feature Set	IP/ATM/VOIP/VOATM	c2420-a2i8sv5-mz	All Cisco IAD2420 series platforms



Caution

Cisco IOS images with strong encryption (including, but not limited to 168-bit [3DES] data encryption feature sets) are subject to United States 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 due to United States government regulations. When applicable, you 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 4](#) lists the features and feature set supported by the Cisco IAD2420 series in Cisco IOS Release 12.1(5)XR2 and use the following conventions:

- Yes—The feature is supported in the software image.
- No—The feature is not supported in the software image.



Note

This table might not be cumulative or list all the features in each image. You can find the most current Cisco IOS documentation on Cisco.com. These electronic documents may contain updates and modifications made after the hardcopy documents were printed. If you have a Cisco.com login account, you can find image and release information regarding features prior to Cisco IOS Release 12.2(1)T by using the Feature Navigator tool at: <http://www.cisco.com/go/fn>.

Table 4 Feature List by Feature Set for the Cisco IAD2420 Series

Features	Feature Set
	IP/ATM/VOIP/VOATM
IP Routing (RIP, OSPF, BGP, Static)	Yes
Network Address Translation (NAT)	Yes

Table 4 Feature List by Feature Set for the Cisco IAD2420 Series (continued)

Features	Feature Set
	IP/ATM/VOIP/VOATM
Robust Quality of Service (QoS) Features	Yes
Application Recognition and Routing Firewall	Yes
Voice over IP (VoIP) including MGCP and SGCP ¹	Yes
Voice over ATM Adaption Layer 2 (VoAAL2)	Yes

1. There is NO support for SIP or H.323

New and Changed Information

The following is a list of the new hardware and software features supported by the Cisco IAD2420 for Cisco IOS 12.1(5)XR2.

New Hardware and Software Features in Release 12.1(5)XR2

No new hardware and software features are supported in Cisco IOS Release 12.1(5)XR2.

New Hardware and Software Features in Release 12.1(5)XR1

No new hardware and software features are supported in Cisco IOS Release 12.1(5)XR1.

New Hardware Features in Release 12.1(5)XR

The Cisco IAD2423 is now supported. The IAD2423 provides an ADSL WAN interface. This interface provides both voice and data traffic between the customer premises equipment (CPE) and the central office (CO) over the local loop.

New Software Features in Release 12.1(5)XR

The IAD2420 series now supports connectivity to a WAN or service provider network via ADSL in IOS Release 12.1(5)XR1.



Note

For current MGCP and SGCP implementation details, please refer to documentation about Cisco IOS Release 12.1(5)XM, available on Cisco.com.

Important Notes

Caveat CSCdr91706 and IOS HTTP Vulnerability

A defect in multiple releases of Cisco IOS software will cause a Cisco router or switch to halt and reload if the IOS HTTP service is enabled, browsing to `http://router-ip/anytext?/` is attempted, and the enable password is supplied when requested. This defect can be exploited to produce a denial of service (DoS) attack.

The vulnerability, identified as Cisco bug ID CSCdr91706, affects virtually all mainstream Cisco routers and switches running Cisco IOS software releases 12.0 through 12.1, inclusive. This is not the same defect as CSCdr36952.

The vulnerability has been corrected and Cisco is making fixed releases available for free to replace all affected IOS releases. Customers are urged to upgrade to releases that are not vulnerable to this defect, as shown in detail below.

This vulnerability can only be exploited if the enable password is known or not set.

You are strongly encouraged to read the complete advisory, which is available at <http://www.cisco.com/warp/public/707/ioshttpserverquery-pub.shtml>.

Product Number Change

Beginning with Cisco IOS Release 12.0(7)XK, Cisco changed the product numbers used to order a specific Cisco IOS software image. In short, Cisco will remove the periods separating the release train, maintenance release, and build number. The following table provides some examples.

Old Product Number	New Product Number	Release	Image Description
S364AR1K2-12.1.5=	S364AR1K2-1215=	Cisco IOS Release 12.1(5)	Cisco 3640 Series IOS Enterprise/SNA SW PLUS IPSEC 3DES
S26CP-12.1.5=	S26CP-1215=	Cisco IOS Release 12.1(5)	Cisco 2600 Series IOS IP Plus

Deprecated MIBs

Older Cisco Management Information Bases (MIBs) will be replaced in a future release. OLD-CISCO-* MIBs are currently migrated into more scalable MIBs—without affecting existing Cisco IOS products or NMS applications. You can update from deprecated MIBs to the replacement MIBs as shown in [Table 5](#).

Table 5 *Deprecated MIBS*

Deprecated MIB	Replacement
OLD-CISCO-CHASSIS-MIB	ENTITY-MIB
OLD-CISCO-CPUK-MIB	In Development
OLD-CISCO-ENV-MIB	CISCO-ENVMON-MIB

Table 5 *Deprecated MIBS (continued)*

Deprecated MIB	Replacement
OLD-CISCO-FLASH-MIB	CISCO-FLASH-MIB
OLD-CISCO-INTERFACES-MIB	IF-MIB CISCO-QUEUE-MIB
OLD-CISCO-IP-MIB	In Development
OLD-CISCO-MEMORY-MIB	CISCO-MEMORY-POOL-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	In Development

Caveats

Caveats describe unexpected behavior or defects 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.

For information on caveats in Cisco IOS Release 12.1(5), see *Caveats for Cisco IOS Release 12.1* that accompanies these release notes. This document lists severity 1 and 2 caveats and select severity 3 documents for Cisco IOS Release 12.1.



Note

If you have an account with Cisco.com, you can use Bug Navigator II to find caveats of any severity for any release. Click on this path: **Software Center: Cisco IOS Software: Cisco IOS Bug Toolkit: Cisco Bug Navigator II**. You can also find Bug Navigator II at <http://www.cisco.com/support/bugtools>

Open Caveats—Cisco IOS Release 12.1(5)XR2

There are no open caveats specific to Cisco IOS Release 12.1(5)XR2 that require documentation in the release notes.

Resolved Caveats—Cisco IOS Release 12.1(5)XR2

All the caveats listed in this section are resolved in Cisco IOS Release 12.1(5)XR2. This section describes only severity 1 and 2 caveats and select severity 3 caveats.

- CSCdw65903

An error can occur with management protocol processing. Please use the following URL for further information:

<http://www.cisco.com/cgi-bin/bugtool/onebug.pl?bugid=CSCdw65903>

Open and Resolved Caveats—Cisco IOS Release 12.1(5)XR1

There are no open and resolved caveats specific to Cisco IOS Release 12.1(5)XR1 that require documentation in the release notes.

Open Caveats for Release 12.1(5)XR

The caveats listed in this section are open in Cisco IOS Release 12.1(5)XR.

- CSCds13360

In a configuration with two Cisco IAD2420's with digital voice ports connected via IP, Channel Associated Signaling (CAS)-to-CAS calls fail in a “race condition” in which the terminating gateway receives an answer from the switch before it has forwarded all digits to the switch. This causes the receiving gateway to generate an error message, stating that it is unable to process the event error. There is no workaround.

- CSCds42320

Issuing the Helper CLI `?` command (that is, the question mark is the command) after an `ip` subcommand under the global configuration mode, the “% Ambiguous command:” is returned. For example:

uut2(config)#ip audit ? returns the % Ambiguous command: **ip audit**

The commands themselves work properly as long as the correct syntax is invoked. There is no workaround.

- CSCds53207

When making 24 fax-session calls between two Cisco IAD2420's with digital voice ports connected over T1 in a configuration that includes VoIP, MGCP, E&M immediate, Named Signal Event (NSE), and codec G.726 32K, many fax-session calls might fail due to the following error code “400 Endpts in transient state.” The failure rate is about 33% (112 failures out of 336 calls). There is no workaround.

- CSCds64525

Under heavy traffic, a call might cause a port to move into a transient state. Even after sending a “delete connection” (DLCX) message, the port remains in a transient state. There is no workaround.

- CSCds68259

Under heavy traffic for a long period of time (about six hours), analog calls will cause the following error message (the date and time will be different):

```
Nov 10 12:02:20.874: rtpspi_offhook_event: cannot find control block based on
callID -1
```

There is no workaround.

- CSCds77162

When the transparent CCS frame-forwarding mode is enabled on controller “T1 1”, after configuring the CLI commands `ccs encaps atm` and `ccs connect ATM0 <pvc>` on interface “Serial 1:23”, these two commands also show up on interface “ATM0.” These commands can not be removed by issuing the CLI command `no ccs encaps atm` or `no ccs connect ATM0`, but when they are unconfigured on interface “Serial 1:23”, they also disappear on interface “ATM0.” There is no workaround.

Resolved Caveats for Release 12.1(5)XR

All the caveats listed in this section are resolved in Cisco IOS Release 12.1(5)XR. This section describes only severity 1 and 2 caveats and select severity 3 caveats.

- CSCds04747
Connection setup improvements.

This caveat has been resolved in Cisco IOS Release 12.1(5)XR1.

Related Documentation

The following sections describe the documentation available for the Cisco IAD2420 series. These documents consist of hardware and 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 9](#)
- [Platform-Specific Documents, page 10](#)
- [Cisco IOS Software Documentation Set, page 10](#)

Release-Specific Documents

The following documents are specific to or support Cisco IOS Release 12.1(5) and 12.1(5)T and are located on Cisco.com and the Documentation CD-ROM:

- *Cross-Platform Release Notes for Cisco IOS Release 12.1*

On Cisco.com, beginning under the **Service & Support** heading:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Release Notes: Cross-Platform Release Notes for Cisco IOS Release 12.1

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Release Notes: Cross-Platform Release Notes for Cisco IOS Release 12.1

- Product bulletins, field notices, and other release-specific documents

To reach these documents, refer to the **Service & Support** section at this path on Cisco.com:

Technical Documents

- *Caveats for Cisco IOS Release 12.1T*

On Cisco.com, beginning under the **Service & Support** heading:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1T: Caveats: Caveats for Cisco IOS Release 12.1T

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS 12.1T: Caveats: Caveats for Cisco IOS Release 12.1T

**Note**

If you have an account with Cisco.com, you can use Bug Navigator II to find caveats of any severity for any release. Click on this path: **Software Center: Cisco IOS Software: Cisco IOS Bug Toolkit: Cisco Bug Navigator II**. You can also find Bug Navigator II at <http://www.cisco.com/support/bugtools>

Platform-Specific Documents

These documents are available for the Cisco IAD2420 on Cisco.com and the Documentation CD-ROM:

- *Cisco IAD2420 Series Integrated Access Devices Quick Start Guide*
- *Cisco IAD2420 Series Software Configuration Guide*
- *Cisco IAD2420 Series Hardware Installation Guide*

On Cisco.com, beginning under the **Service & Support** heading:

Technical Documents: Documentation Home Page: Access Servers and Access Routers: Fixed Configuration Access Routers: Cisco IAD2420 Series Routers

On the Documentation CD-ROM at:

Cisco Product Documentation: Access Servers and Access Routers: Fixed Configuration Access Routers: Cisco IAD2420 Series Routers

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 which are 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 two books: a configuration guide and a corresponding command reference. Chapters in a configuration guide describe protocols, configuration tasks, 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 and the Documentation CD-ROM, two master hot-linked documents provide information for the Cisco IOS software documentation set.

On Cisco.com, beginning under the **Service & Support** heading:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Configuration Guides and Command References: Cisco IOS Interface Configuration Guide or Cisco IOS Interface Command Reference

On the Documentation CD-ROM at:

Cisco IOS Software Configuration: Cisco IOS Release 12.1: Configuration Guides and Command References: Cisco IOS Interface Configuration Guide or Cisco IOS Interface Command Reference

Release 12.1 Documentation Set

Table 6 describes the contents of the Cisco IOS Release 12.1 software documentation set, which is available in electronic form and in printed form upon request.



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.

You can reach the Cisco IOS documentation set on Cisco.com, beginning under the **Service & Support** heading:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Configuration Guides and Command References

You can reach the Cisco IOS documentation set on the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Configuration Guides and Command References

Table 6 Cisco IOS Software Release 12.1 Documentation Set

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Cisco IOS Configuration Fundamentals Configuration Guide</i> • <i>Cisco IOS Configuration Fundamentals Command Reference</i> 	Configuration Fundamentals Overview Cisco IOS User Interfaces File Management System Management
<ul style="list-style-type: none"> • <i>Cisco IOS Bridging and IBM Networking Configuration Guide</i> • <i>Cisco IOS Bridging and IBM Networking Command Reference, Volume I</i> • <i>Cisco IOS Bridging and IBM Networking Command Reference, Volume II</i> 	Transparent Bridging Source-Route Bridging Token Ring Inter-Switch Link Remote Source-Route Bridging DLSw+ STUN and BSTUN LLC2 and SDLC IBM Network Media Translation DSPU and SNA Service Point SNA Frame Relay Access Support APPN Cisco Database Connection NCIA Client/Server Topologies Cisco Mainframe Channel Connection Airline Product Set

Table 6 Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Cisco IOS Dial Services Configuration Guide: Terminal Services</i> • <i>Cisco IOS Dial Services Configuration Guide: Network Services</i> • <i>Cisco IOS Dial Services Command Reference</i> 	X.25 over ISDN Appletalk Remote Access Asynchronous Callback, DDR, PPP, SLIP Bandwidth Allocation Control Protocol ISDN Basic Rate Service ISDN Caller ID Callback PPP Callback for DDR Channelized E1 & T1 Dial Backup for Dialer Profiles Dial Backup Using Dialer Watch Dial Backup for Serial Lines Peer-to-Peer DDR with Dialer Profiles DialOut Dial-In Terminal Services Dial-on-Demand Routing (DDR) Dial Backup Dial-Out Modem Pooling Large-Scale Dial Solutions Cost-Control Solutions Virtual Private Dialup Networks Dial Business Solutions and Examples
<ul style="list-style-type: none"> • <i>Cisco IOS Interface Configuration Guide</i> • <i>Cisco IOS Interface Command Reference</i> 	Interface Configuration Overview LAN Interfaces Logical Interfaces Serial Interfaces
<ul style="list-style-type: none"> • <i>Cisco IOS IP and IP Routing Configuration Guide</i> • <i>Cisco IOS IP and IP Routing Command Reference</i> 	IP Overview IP Addressing and Services IP Routing Protocols
<ul style="list-style-type: none"> • <i>Cisco IOS Appletalk and Novell IPX Configuration Guide</i> • <i>Cisco IOS Appletalk and Novell IPX Command Reference</i> 	AppleTalk Novell IPX
<ul style="list-style-type: none"> • <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> 	Network Protocols Overview Apollo Domain Banyan VINES DECnet ISO CLNS XNS
<ul style="list-style-type: none"> • <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
<ul style="list-style-type: none"> • <i>Cisco IOS Switching Services Configuration Guide</i> • <i>Cisco IOS Switching Services Command Reference</i> 	Switching Services Switching Paths for IP Networks Virtual LAN (VLAN) Switching and Routing

Table 6 Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Cisco IOS Wide-Area Networking Configuration Guide</i> • <i>Cisco IOS Wide-Area Networking Command Reference</i> 	Wide-Area Network Overview ATM Frame Relay SMDS X.25 and LAPB
<ul style="list-style-type: none"> • <i>Cisco IOS Multiservice Applications Configuration Guide</i> • <i>Cisco IOS Multiservice Applications Command Reference</i> 	Voice over IP Voice over Frame Relay Voice over ATM Voice over HDLC Frame Relay-ATM Internetworking Synchronized Clocks Video Support Universal Broadband Features
<ul style="list-style-type: none"> • <i>Cisco IOS Quality of Service Solutions Configuration Guide</i> • <i>Cisco IOS Quality of Service Solutions Command Reference</i> 	Policy-Based Routing QoS Policy Propagation via BGP Committed Access Rate Weighted Fair Queueing Custom Queueing Priority Queueing Weighted Random Early Detection Scheduling Signaling RSVP Packet Drop Frame Relay Traffic Shaping Link Fragmentation RTP Header Compression
<ul style="list-style-type: none"> • <i>Cisco IOS Command Reference Master Index</i> • <i>Cisco IOS Configuration Guide Master Index</i> • <i>Cisco IOS Dial Services Quick Configuration Guide</i> • <i>Cisco IOS New Feature Index</i> • <i>Cisco IOS System Error Messages</i> • <i>Cisco IOS Debug Command Reference</i> 	

**Note**

Cisco Management Information Base (MIB) User Quick Reference is no longer published. For the latest list of MIBs supported by Cisco, see *Cisco Network Management Toolkit* on Cisco Connection Online. From Cisco.com, click on the following path: **Service & Support: Software Center: Network Mgmt Products: Cisco Network management Toolkit: Cisco MIB.**

Obtaining Documentation

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at <http://www.cisco.com>. Translated documentation can be accessed at http://www.cisco.com/public/countries_languages.shtm.

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. Therefore, it is probably 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 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, for your convenience many documents contain a response card behind the front cover. 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

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,” page 9.

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