



# Release Notes for Cisco Catalyst 4224 Access Gateway Switch for Cisco IOS Release 12.2(2)YC3

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July 19, 2002



Note

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You can find the most current Cisco IOS documentation on Cisco.com. This set of electronic documents may contain updates and modifications made after the hard-copy documents were printed.

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These release notes for the Cisco Catalyst 4224 Access Gateway Switch describe the software features provided in Cisco IOS Release 12.2(2)YC3. These release notes are updated as needed.



Note

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MGCP is not supported even though it appears in the documentation and the CLI.

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# Introduction

The Cisco Catalyst 4224 Access Gateway Switch is an Ethernet switching router that provides Voice over IP (VoIP) gateway and IP telephony services. It is designed to be part of a centralized Cisco CallManager application.

## System Requirements

This section describes the system requirements for Cisco IOS Release 12.2(2)YC3 and includes the following sections:

- [Memory Requirements, page 2](#)
- [Hardware Supported, page 3](#)
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## Memory Requirements

**Table 1** Minimum Memory Recommendations for the Cisco Catalyst 4224 Access Gateway Switch

Platforms	Image Name	Software Image	Flash Memory Recommended	DRAM Memory Recommended	Runs From
Cisco c4224	IP/FW PLUS IPSEC 56	c4224-ik8o3sx3-mz	32 MB Flash	64 MB DRAM	RAM
	IP PLUS IPSEC 56	c4224-ik8sx3-mz	32 MB Flash	64 MB DRAM	RAM
	IP/FW PLUS IPSEC 3DES	c4224-ik9o3sx3-mz	32 MB Flash	64 MB DRAM	RAM
	IP PLUS/3DES	c4224-ik9sx3-mz	32 MB Flash	64 MB DRAM	RAM
	IP/FW/ PLUS	c4224-io3sx3-mz	32 MB Flash	64 MB DRAM	RAM
	IP PLUS	c4224-isx3-mz	32 MB Flash	64 MB DRAM	RAM
	BOOT	c4224-cboot-mz	32 MB Flash	64 MB DRAM	RAM
	IP Plus/IPX/SNA/FW	c4224-a3ino3rsx3-mz	32 MB Flash	64 MB DRAM	RAM
	IP Plus/IPX/SNA	c4224-a3inrsx3-mz	32 MB Flash	64 MB DRAM	RAM
	IP Plus/IPX/SNA/FW/IPSec 56	c4224-a3ik8no3rsx3-mz	32 MB Flash	64 MB DRAM	RAM
	IP Plus/IPX/SNA/FW/IPSec 3DES	c4224-a3ik9no3rsx3-mz	32 MB Flash	64 MB DRAM	RAM

## Hardware Supported

Cisco IOS Release 12.2(2)YC3 supports:

- Cisco Catalyst 4224 Access Gateway Switch

## Determining the Software Version

To determine the version of Cisco IOS software running on your Cisco Catalyst 4224 Access Gateway Switch, log in to the Cisco Catalyst 4224 Access Gateway Switch and enter the **show version EXEC** command:

```
Router> show version
Cisco Internetwork Operating System Software
IOS (tm) 12.1(5) Software (c4224-isx3-mz), Version 12.2(2)YC3, RELEASE SOFTWARE
```

## Limitations and Restrictions

The following MIBs are supported:

- SNMP MIB-II
- ENTITY-MIB
- IF-MIB
- BRIDGE-MIB

The following Cisco proprietary MIBs are supported:

- CISCO-PROCESS-MIB
- CISCO-MEMORY-POOL-MIB
- CISCO-CDP-MIB

The following features are not supported in Release 12.2(2)YC3:

- inline power for 802.11b Wireless Access Points

## Bug Fixes In Cisco IOS Release 12.2(2)YC3

The following reported bugs have been fixed or resolved in Cisco IOS Release 12.2(2)YC3:

- CSCdu22584  
VLAN Numbering is for ISL, not Dot 1Q.
- CSCdu45593  
TGW crashes at vtsp\_set\_call\_active\_on\_setup\_req.
- CSCdu87336  
Missing information with *show* commands.
- CSCdv44139  
BRI L1 not coming up after first call.

- CSCdv59345  
On-hook CO battery voltage is too low.
- CSCdv71215  
Bisync half-duplex(default mode) hangs connection.
- CSCdw11703  
Show Controller missing some options on E1/PRI.
- CSCdw11594  
PSTN users will not hear Music on Hold (MoH) when a call is placed on hold by an IP phone that is in a G.711 region and the requirement for media termination point (MTP) is selected on the AGM.
- CSCdw12727  
DNs remained as E-164 dial peers on standby gateway.
- CSCdw73507  
IP phones cannot perform a network-side ringback if a call originates from a Public Switched Telephone Network (PSTN).
- CSCdx36966  
Remove interface FastEther5/0.
- CSCdx44685  
BRI Layer 1 T3 timer never times out.
- CSCdx45435  
13T: Crash when shutting point-to-point FR serial interface.
- CSCdx46831  
Could not remove "interface Vlan xxx" that was previously configured.
- CSCdx47571  
Spanning Tree shows all ports in forwarding state.
- CSCdx48688  
VLAN configuration in two different modes shows up differently.
- CSCdx48698  
VLAN does not show up until a switchport is associated with VLAN.
- CSCdx53939  
Trunk port gets assigned to all the VLANs in the device.
- CSCdx55908  
13T:Traceback 802F7614 802DE6BC 80303324 ... received during boot
- CSCdx60714  
11T/Trom:3660 keeps crashing.
- CSCdx60768  
On a *dot1q* trunk, all multicast hellos are sent to native VLAN.
- CSCdx61143  
Unable to configure MGCP T1-CAS/Analog-FXS using command line interface.

- CSCdx67133  
The FXS ground start port gets stuck in S\_WAIT\_RELEASE state.
- CSCdx67897  
Catalyst 4224 disconnects the call with reason channel unacceptable.
- CSCdx67993  
Check the console signals on Catalyst 4224.
- CSCdx78227  
Fax relay is not working.
- CSCdx82987  
Catalyst 4224 does not provide power to some ports for IP phones.
- CSCdx95151  
Changing configuration from PRI to CAS fails.
- CSCdy11507  
Change IPX/SNA image names to conform to IOS convention.
- CSCin04209  
When the Catalyst 4224 is queried for *cardIfCardIndex* SNMP mib object, it does not return correct values.
- CSCin04412  
Description: SNMP support is not available for the following LEDs on the chassis of Catalyst 4224:
  - STATUS LED
  - Switch Utilization LEDs
  - PS LED
  - RPS LED
  - Link status LEDs
- CSCin13132  
Traceback seen when executing the following command on the Catalyst 4224 Access Gateway Switch:  

```
no switchport trunk allowed vlan x
```
- CSCin11793  
ccm dial-peer prefix does not work for subsequent downloads.

# Caveats



## Note

MGCP is not supported in this release even though it appears in the documentation and the CLI.

This section lists unresolved caveats that apply to this release of the Cisco Catalyst 4224 Access Gateway Switch. Caveats describe unexpected behavior or defects in the switch and its related software.

- CSCdt16110
 

Description: An analog voice port configured with *alaw* companding port may experience excessive noise. The port also may not recognize DTMF digits in this configuration. Calls can still be received but there will be noise.

Workaround: Use A-to-u law transcoding at the T1/E1 or VoIP port.
- CSCdv29907
 

Description: Memory corruption in *tplus\_encode\_ulong*. Under unknown conditions, a Cisco router running 12.2(3.4)T or later, and using TACACS+ accounting, may reload due to memory corruption.

Workaround: Disable TACACS+ accounting.
- CSCdv82735
 

Description: If IP phones and fast ethernet ports are hard coded for speed and/or duplex, phones will never power up.

Workaround: Set both IP phone and fast ethernet ports for AUTO negotiation.
- CSCdw56572
 

Description: Low latency queueing (LLQ) does not drop packets after configuration changes. If the configured LLW burst size is changed in a policy map that is attached to an interface but the configured LLQ bandwidth is not changed, priority queueing (PQ) will stop dropping packets. If the traffic going through PQ is much greater than the configured bandwidth, the minimum bandwidth guarantees of the classes are not met.

Workaround: Remove and re-attach the service policy.
- CSCin04963
 

Description: SNMP query to *cpmCPUTotalTable* returns incorrect values.

Workaround: None
- CSCin06538
 

Description: SNMP response for the variable card type returns *unknown (1)* when the following cards are inserted in the Catalyst 4224:

  - + WIC-1T
  - + WIC-2T
  - + WIC-1DSU-T1

Without this variable, these cards cannot be found in Cisco View.

Workaround: None
- CSCin06631
 

Description: IP address table rows cannot be created or modified using SNMP.

Workaround: None

- CSCin06633  
Description: The rows in *ipNetToMediaTable* cannot be created or modified using SNMP.  
Workaround: None
- CSCin14059  
Description: DiffServe CodePoint (DSCP) marking for voice packets is broken in 12.2(2 ) YC3 image.  
Workaround: None
- CSCin14106  
Description: Cannot transfer inbound VoIP calls between IP Phones in SRST mode.  
Workaround: None

**Note**

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

## Related Documentation

The following sections describe the documentation available for the Cisco Catalyst 4224 Access Gateway Switch. 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:

- [Platform-Specific Documents, page 7](#)
- [Cisco IOS Software Documentation Set, page 8](#).

## Platform-Specific Documents

These documents are available for the Cisco Catalyst 4224 Access Gateway Switch on Cisco.com :

- *Catalyst 4224 Access Gateway Switch Software Configuration Guide*
- *Catalyst 4224 Access Gateway Switch Hardware Installation Guide*
- *Regulatory Safety and Compliance Information for Catalyst 4200 Series Access Gateway Switch*

On Cisco.com at:

**Technical Documents: Documentation Home Page: Catalyst Switches: Catalyst 4224**

## Feature Modules

Feature modules describe new features supported by Cisco IOS Release 12.2(2)YC3 and are updates to the Cisco IOS documentation set. A feature module consists of a brief overview of the features, benefits, and configuration tasks as well as a command reference. As updates, the feature modules are available online only. Feature module information is incorporated in the next printing of the Cisco IOS documentation set.

On Cisco.com at:

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

On the Documentation CD-ROM at:

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

## 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.

On Cisco.com at:

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

On the Documentation CD-ROM at:

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

## Cisco IOS Release 12.2 Documentation Set Contents

[Table 2](#) lists the contents of the Cisco IOS Release 12.0 software documentation set, [Table 3](#) lists the contents of the Cisco IOS Release 12.1 software documentation set, and [Table 4](#) lists the contents of the Cisco IOS Release 12.2 software documentation set. These documents are available in electronic form and in printed form if ordered.



### Note

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

On Cisco.com at:

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

On the Documentation CD-ROM at:

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

**Table 2** *Cisco IOS Release 12.0 Documentation Set*

Books	Major Topics
<ul style="list-style-type: none"> <li><i>Configuration Fundamentals Configuration Guide</i></li> <li><i>Configuration Fundamentals Command Reference</i></li> </ul>	Configuration Fundamentals Overview Cisco IOS User Interfaces File Management System Management
<ul style="list-style-type: none"> <li><i>Bridging and IBM Networking Configuration Guide</i></li> <li><i>Bridging and IBM Networking Command Reference</i></li> </ul>	Bridging and IBM Networking Overview Bridging IBM Networking

Table 2 Cisco IOS Release 12.0 Documentation Set (continued)

Books	Major Topics
<ul style="list-style-type: none"> <li><i>Dial Solutions Configuration Guide</i></li> </ul>	<ul style="list-style-type: none"> <li>Overview of Interfaces, Controllers, and Lines Used for Dial Access</li> <li>Configuring Modem Support and Other Asynchronous Devices</li> <li>Managing Modems</li> <li>Configuring Terminal Operating Characteristics for Dial-In Sessions</li> <li>Setting Up ISDN Basic Rate Service</li> <li>Configuring Synchronous Serial Ports</li> <li>Configuring Channelized E1 and T1</li> <li>Configuring ISDN Special Signaling</li> <li>Configuring X.25 on ISDN Using A0/D1</li> <li>Configuring AppleTalk Remote Access</li> <li>Preparing for Asynchronous DDR</li> <li>Configuring Asynchronous PP and SLIP</li> <li>Configuring the Bandwidth Allocation Control Protocol</li> <li>Configuring PPP Callback for DDR</li> <li>Configuring ISDN Caller ID Callback</li> <li>Configuring Dial Backup for Dialer Profiles</li> <li>Configuring Dial Backup Using Dialer Watch</li> <li>Configuring Dial Backup for Serial Lines</li> <li>Configuring Peer-to-Peer DDR with Dialer Profiles</li> <li>Configuring DialOut</li> <li>Enterprise Dial Scenarios and Configurations</li> <li>Configuring Easy IP</li> <li>Deciding and Preparing to Configure DDR</li> <li>Configuring Legacy DDR Hubs</li> <li>Configuring Multichassis Multilink PPP</li> <li>Configuring Support For NAS1 Clients to Access Network Resources</li> <li>Dial Networking Business Applications</li> <li>Configuring the Cisco PAD</li> <li>Per-User Configuration</li> <li>Configuring Media-Independent PPP and Multilink PPP</li> <li>Configuring Protocol Translation and Virtual Asynchronous Devices</li> <li>Establishing a Reverse Telenet Session to a Modem</li> <li>Configuring Snapshot Routing</li> <li>Telco and ISP Dial Scenarios and Configurations</li> <li>Configuring Legacy DDR Spokes</li> <li>Configuring Dial-In Terminal Services</li> <li>Configuring V.120 Access</li> <li>Configuring Virtual Private Dialup Networks</li> <li>Configuring Virtual Profiles</li> <li>Configuring Virtual Template Interfaces</li> <li>Configuring X.25 on ISDN</li> </ul>

Table 2 Cisco IOS Release 12.0 Documentation Set (continued)

Books	Major Topics
<ul style="list-style-type: none"> <li>• <i>Dial Solutions Command Reference</i></li> </ul>	Dial-In Port Setup Dial-In Terminal Service and Remote Node Configuration Dial-on-Demand Routing Dial Backup Dial-Out Modem Pooling Large-Scale Dial Solutions Cost-Control Solutions Virtual Private Dialup Networks Other Network Traffic on ISDN Channels Dial-Related Addressing Services
<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>	Interface Configuration Overview LAN Interfaces Serial Interfaces Logical Interfaces
<ul style="list-style-type: none"> <li>• <i>Network Protocols Configuration Guide, Part 1</i></li> <li>• <i>Network Protocols Command Reference, Part 1</i></li> </ul>	IP Overview IP Addressing and Services IP Routing Protocols
<ul style="list-style-type: none"> <li>• <i>Network Protocols Configuration Guide, Part 2</i></li> <li>• <i>Network Protocols Command Reference, Part 2</i></li> </ul>	AppleTalk and Novell IPX Overview AppleTalk Novell IPX
<ul style="list-style-type: none"> <li>• <i>Network Protocols Configuration Guide, Part 3</i></li> <li>• <i>Network Protocols Command Reference, Part 3</i></li> </ul>	Network Protocols Overview Apollo Domain Banyan VINES DECnet ISO CLNS XNS
<ul style="list-style-type: none"> <li>• <i>Security Configuration Guide</i></li> <li>• <i>Security Command Reference</i></li> </ul>	Security Overview Authentication, Authorization, and Accounting (AAA) Security Server Protocols Traffic Filtering and Firewalls IP Security and Encryption Other Security Features
<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 Services Overview Cisco IOS Switching Paths Cisco Express Forwarding NewFlow Switching Tag Switching Multilayer Switching Multicast Distributed Switching Virtual LANs MPOA Commands
<ul style="list-style-type: none"> <li>• <i>Wide-Area Networking Configuration Guide</i></li> <li>• <i>Wide-Area Networking Command Reference</i></li> </ul>	Wide-Area Network Overview ATM Frame Relay SMDS X.25 and LAPB

**Table 2** *Cisco IOS Release 12.0 Documentation Set (continued)*

Books	Major Topics
<ul style="list-style-type: none"> <li>• <i>Voice, Video, and Home Applications Configuration Guide</i></li> <li>• <i>Voice, Video, and Home Applications Command Reference</i></li> </ul>	Using Voice, Video, and Home Applications Voice Video Broadband
<ul style="list-style-type: none"> <li>• <i>Quality of Service Solutions Configuration Guide</i></li> <li>• <i>Quality of Service Solutions Command Reference</i></li> </ul>	Quality of Service Overview Classification Congestion Management Congestion Avoidance Policy and Shaping Overview Signaling Link Efficiency Mechanisms
<ul style="list-style-type: none"> <li>• <i>Caveats</i> (Caveat documentation for Cisco IOS Releases 12.0 and 12.0 T—includes open and resolved severity 1 and 2 caveats for all platforms)</li> <li>• <i>Cisco IOS Release 12.0 Configuration Guide Master Index</i></li> <li>• <i>Cisco IOS Release 12.0 Command Reference Master Index</i></li> <li>• <i>Cisco IOS Release 12.0 Master Indexes</i></li> <li>• <i>Cisco IOS Software Command Summary</i></li> <li>• <i>Cisco IOS Software System Error Messages</i></li> <li>• <i>Debug Command Reference</i></li> <li>• <i>Dial Solutions Quick Configuration Guide</i></li> <li>• <i>New Features in 12.0-Based Limited Lifetime Releases</i></li> <li>• <i>New Features in Early Deployment Release 12.0T</i></li> <li>• <i>Release Notes</i> (Release notes for 12.0-based releases and various platforms)</li> </ul>	

Table 3 Cisco IOS Release 12.1 Documentation Set

Books	Major Topics
<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>	Configuration Fundamentals Overview Cisco IOS User Interfaces Cisco IOS File Management Cisco IOS System Management Cisco IOS User Interfaces Commands Cisco IOS File Management Commands Cisco IOS System Management Commands
<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 I</i></li> <li>• <i>Cisco IOS Bridging and IBM Networking Command Reference, Volume II</i></li> </ul>	Using Cisco IOS Software Overview of SNA Internetworking Bridging IBM Networking
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Dial Services Configuration Guide: Terminal Services</i></li> <li>• <i>Cisco IOS Dial Services Configuration Guide: Network Services</i></li> <li>• <i>Cisco IOS Dial Services Command Reference</i></li> </ul>	Preparing for Dial Access Modem Configuration and Management ISDN and Signaling Configuration PPP Configuration Dial-on-Demand Routing Configuration Dial-Backup Configuration Terminal Service Configuration Large-Scale Dial Solutions Cost-Control Solutions Virtual Private Networks X.25 on ISDN Solutions Telco Solutions Dial-Related Addressing Services Interworking 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>	Interface Configuration Overview Configuring LAN Interfaces Configuring Serial Interfaces Configuring Logical Interfaces
<ul style="list-style-type: none"> <li>• <i>Cisco IOS IP and IP Routing Configuration Guide</i></li> <li>• <i>Cisco IOS IP and IP Routing Command Reference</i></li> </ul>	IP Addressing and 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 and Novell IPX Overview Configuring AppleTalk Configuring Novell IPX
<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, and XNS Overview Configuring Apollo Domain Configuring Banyan VINES Configuring DECnet Configuring ISO CLNS Configuring XNS

**Table 3** *Cisco IOS Release 12.1 Documentation Set (continued)*

Books	Major Topics
<ul style="list-style-type: none"> <li>• <i>Cisco IOS Multiservice Applications Configuration Guide</i></li> <li>• <i>Cisco IOS Multiservice Applications Command Reference</i></li> </ul>	Multiservice Applications Overview Voice Video Broadband
<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>	Quality of Service Overview Classification Congestion Management Congestion Avoidance Policing and Shaping Signaling Link Efficiency Mechanisms Quality of Service Solutions
<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>	Security Overview Authentication, Authorization, and Accounting (AAA) Security Server Protocols Traffic Filtering and Firewalls IP Security and Encryption Other Security Features
<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 Services Overview Cisco IOS Switching Paths Cisco Express Forwarding 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>	Wide-Area Networking Overview Configuring ATM Configuring Frame Relay Configuring Frame Relay-ATM Interworking Configuring SMDS Configuring X.25 and LAPB
<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 Dial Services Quick Configuration Guide</i></li> <li>• <i>Cisco IOS Software System Error Messages</i></li> <li>• New Features in 12.1-Based Limited Lifetime Releases</li> <li>• New Features in Release 12.1 T</li> <li>• Release Notes (Release note and caveat documentation for 12.1-based releases and various platforms)</li> </ul>	

**Table 4** Cisco IOS Release 12.2 Documentation Set

Books	Major Topics
<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 4** Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
<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 4** *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>• New Features in 12.2-Based Limited Lifetime Releases</li> <li>• New Features in Release 12.2 T</li> <li>• Release Notes (Release note and caveat documentation for 12.2-based releases and various platforms)</li> </ul>	

## Obtaining Documentation

The following sections explain how to obtain documentation from Cisco Systems.

### World Wide Web

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

<http://www.cisco.com>

Translated documentation is available at the following URL:

[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

### Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which is shipped 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 through an annual subscription.

## Ordering Documentation

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- Registered Cisco Direct Customers can order Cisco product documentation from the Networking Products Marketplace:  
[http://www.cisco.com/cgi-bin/order/order\\_root.pl](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>
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## Obtaining Technical Assistance

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The Cisco TAC is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two types of support are available through the Cisco TAC: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Inquiries to Cisco TAC are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

Which Cisco TAC resource you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

## Cisco TAC Web Site

The Cisco TAC Web Site allows you to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to the following URL:

<http://www.cisco.com/tac>

All customers, partners, and resellers who have a valid Cisco services contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to the following URL to register:

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

If you cannot resolve your technical issues by using the Cisco TAC Web Site, and you are a Cisco.com registered user, you can open a case online by using the TAC Case Open tool at the following URL:

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

If you have Internet access, it is recommended that you open P3 and P4 cases through the Cisco TAC Web Site.

## Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses issues that are classified as priority level 1 or priority level 2; these classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer will automatically open a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to the following URL:

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Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled; for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). In addition, please have available your service agreement number and your product serial number.

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

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