



Release Notes for Cisco 2600 Series for Cisco IOS Release 12.1 XQ

February 18, 2002

Cisco IOS Release 12.1(3) XQ4

78-11552-01 Rev. F0

These release notes describe the features provided in Cisco IOS Release 12.1(3) XQ4 for the Cisco 2600 series routers. These release notes are updated as needed.

For a list of the software caveats that apply to Release 12.1(3) XQ4, see *Caveats for Cisco IOS Release 12.1T* that accompanies these release notes. This caveats document is updated for every maintenance release and is also located on Cisco Connection Online (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

These release notes describe the following topics:

- [Introduction, page 2](#)
- [System Requirements, page 2](#)
- [New and Changed Information, page 6](#)
- [Important Notes, page 7](#)
- [Caveats, page 8](#)
- [Related Documentation, page 10](#)
- [Obtaining Documentation, page 16](#)
- [Obtaining Technical Assistance, page 17](#)



Introduction

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

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

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

For information on new features and Cisco IOS commands supported by Cisco IOS Release 12.1(3) XQ4, see the [“New and Changed Information” section on page 6](#) section and the [“Related Documentation” section on page 10](#).

System Requirements

This section describes the system requirements for Release 12.1(3) XQ4.

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

Memory Recommendations

Minimum memory recommendations for the Cisco 2600 series for Cisco IOS Release 12.1(3) XQ4 are shown in [Table 1](#).

Table 1 Minimum Memory Recommendations for the Cisco 2600 Series

Platforms	Image Name	Software Image	Recommended Flash Memory	Recommended DRAM Memory	Runs From
Cisco 2600	IP Plus	c2600-is-mz	16 MB	64 MB	RAM
	IP Plus IPSec 3DES	c2600-ik2s-mz	16 MB	64 MB	RAM

Hardware Supported

Cisco IOS Release 12.1(3) XQ4 supports the following Cisco 2600 series routers.

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

For detailed descriptions of the new hardware features, see the [“New and Changed Information” section on page 6](#). [Table 2](#) shows the supported interfaces for the Cisco 2600 series routers with Cisco IOS Release 12.1(3) XQ4.

Table 2 Supported Interfaces on the Cisco 2600 Series

Interface, Network Module, or Data Rate		Platforms Supported
Wireless Network Module	Wireless Multipoint Network Module with Diversity (NM-WMDA)	All Cisco 2600 series platforms
LAN Network Modules	4-port 10BaseT (NM-4E)	All Cisco 2600 series platforms
Dial, ISDN and Channelized Serial Network Modules	8-port Async/Sync Serial Module (NM-8A/S)	All Cisco 2600 series platforms
	8-port BRI (S/T) Module (NM-8B-S/T)	All Cisco 2600 series platforms

Determining the Software Version

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

```
router> show version
Cisco Internetwork Operating System Software
IOS (tm) 2600 Software (c2600-is-mz), Version 12.1(3) XQ4, RELEASE SOFTWARE
```

Upgrading to a New Software Release

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

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

Microcode Software

Microcode software images ship on the flash along with the system software image. When the router starts, the system software unpacks the microcode software bundle and loads the proper software on all the interface linecards.

It is possible to use a later version of microcode than the one shipped with the Cisco IOS software from the factory. The microcode in Flash memory is mapped to the linecards. Unless you fully understand how Cisco IOS software uses microcode, it is important to keep the factory configuration.

The point-to-multipoint wireless modem card requires external microcode. Information about this microcode will be available on Cisco.com in November.

Other Firmware Code

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

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

Technical Documents: Documentation Home Page: Access Servers and Access Routers: Modular Access Routers: Cisco 2600 Series Routers: Analog Modem Firmware

On the Documentation CD-ROM at:

Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 2600 Series Routers: Analog Modem Firmware

Feature Set Tables

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, as shown in [Table 3](#).

Cisco IOS Release 12.1(3) XQ4 supports the same feature sets as Cisco IOS Release 12.1(3a)T1, but Cisco IOS Release 12.1(3) XQ4 can include new features supported by the Cisco 2600 series.

Table 3 Feature Sets Supported by the Cisco 2600 Series

Feature Sets		Feature Set Matrix Term	Software Image	Platforms
IP Standard Feature Sets	IP Plus	<ul style="list-style-type: none"> Basic Plus 	c2600-is-mz	All Cisco 2600 series platforms
	IP Plus IPSec 3DES	<ul style="list-style-type: none"> Plus Plus IPSec 3DES 	c2600-ik2s-mz	All Cisco 2600 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 sets supported by the Cisco 2600 series in Cisco IOS Release 12.1(3) XQ4 and uses 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](http://www.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 12.1(3) XQ4 by using the Feature Navigator tool at: <http://www.cisco.com/go/fn>.

Table 4 Feature List by Feature Set for the Cisco 2600 Series

Features	IP Plus	IP Plus IPSec 3DES
Point to Multipoint Wireless	Yes	Yes

New and Changed Information

The following sections list the new hardware and software features supported by the Cisco 2600 series for Cisco IOS Release 12.1(3) XQ4.

New Hardware and Software Features in Cisco IOS Release 12.1(3)XQ4

No new hardware and software feature are supported by the Cisco 2600 series for Cisco IOS Release 12.1(3) XQ4.

New Hardware and Software Features in Cisco IOS Release 12.1(3)XQ3

No new hardware and software feature are supported by the Cisco 2600 series for Cisco IOS Release 12.1(3) XQ3.

New Hardware and Software Features in Cisco IOS Release 12.1(3)XQ2

No new hardware and software feature are supported by the Cisco 2600 series for Cisco IOS Release 12.1(3) XQ2.

New Hardware and Software Features in Cisco IOS Release 12.1(3)XQ1

No new hardware and software feature are supported by the Cisco 2600 series for Cisco IOS Release 12.1(3) XQ1.

New Hardware Features in Cisco IOS Release 12.1(3)XQ

The following new hardware feature is supported by the Cisco 2600 series for Cisco IOS Release 12.1(3) XQ.

Wireless Network Module

The NM-WMDA wireless network module installs in the network module slot of a Cisco 2600 series router. Installing a wireless network module enables the Cisco 2600 series router to act as a subscriber unit (SU) in a point-to-multipoint wireless network. It is configured through the router's system console or via the CiscoView network management system. The network module provides the control and data interface between the Cisco 2600 series digital motherboard and the radio frequency (RF) subsystem in the wireless transverter. It also provides the up/down conversion from baseband to intermediate frequency (IF). One network module supports one or two wireless transverters (main and diversity).

The wireless network module requires external microcode. Information about this microcode will be available on Cisco.com in November.

For further information regarding the network module, refer to the *Cisco Network Modules Hardware Installation Guide* (for Cisco 2600 series routers) for detailed installation instructions, and the *Software Configuration Guide* (for Cisco 2600 series routers) for an overview of network module configuration procedures and information on configuring specific network modules.

New Software Features in Cisco IOS Release 12.1(3) XQ4

The following new software feature is supported by the Cisco 2600 series for Cisco IOS Release 12.1(3) XQ4.

Point to Multipoint Wireless

The Cisco broadband fixed wireless point-to-multipoint system is an integrated solution consisting of one headend and multiple subscriber units. The fixed wireless point-to-multipoint subscriber unit is designed to receive radio frequency (RF) signals from the headend. It also transmits a return signal to the headend. This return signal is a point-to-point signal, so a properly installed subscriber antenna must be correctly oriented with the headend antenna to which it is transmitting. For more information about the fixed wireless point-to-multipoint headend feature, see the *Point-to-Multipoint Support for the Cisco uBR7200 Series Universal Broadband Router*.

Important Notes

The following sections contain important notes about Cisco IOS Release 12.1(3) XQ4 that can apply to the Cisco 2600 series.

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
S364AR1K2-12.0.7XK=	S364AR1K2-12007XK=	Cisco IOS Release 12.0(7) XK	Cisco 3640 Series IOS Enterprise/SNA SW PLUS IPSEC 3DES
S26CP-12.1.3=	S26CP-12103=	Cisco IOS Release 12.1(3)	Cisco 2600 Series IOS IP Plus

MIBs

Old Cisco Management Information Bases (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 decided
OLD-CISCO-DECNET-MIB	To be decided
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 decided
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 decided
OLD-CISCO-VINES-MIB	CISCO-VINES-MIB
OLD-CISCO-XNS-MIB	To be decided

**Note**

Note Cisco Management Information Base (MIB) User Quick Reference is no longer published. If you have an account with Cisco.com, you can find the current list of MIBs supported by Cisco. To reach the Cisco Network Management Toolkit, go to Cisco.com, press Login, and click to Software Center: Network Mgmt Products: Cisco Network Management Toolkit: Cisco MIB.

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(3) T, see *Caveats for Cisco IOS Release 12.1T* that accompanies these release notes. This document lists severity 1 and 2 caveats and selected severity 3 caveats for Cisco IOS Release 12.1T.

All caveats in Cisco IOS Release 12.1(3a)T1 are also in Cisco IOS Release 12.1(3) XQ4.

For information on caveats in Cisco IOS Release 12.1, see *Caveats for Cisco IOS Release 12.1*, which lists severity 1 and 2 caveats and is located on Cisco.com and the Documentation CD-ROM.

**Note**

If you have an account with Cisco.com, you can use Bug Navigator II to find caveats of any severity for any release. 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(3) XQ4

There are no open caveats specific to Cisco IOS Release 12.1(3) XQ4 that require documentation in the release notes.

Resolved Caveats—Cisco IOS Release 12.1(3) XQ4

All the caveats listed in this section are resolved in Cisco IOS Release 12.1(3) XQ4. 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 Caveats for Release 12.1(3) XQ3

This section documents possible unexpected behavior by Cisco IOS Release 12.1(3) XQ3, and describes only severity 1 and 2 caveats and select severity 3 caveats.

- CSCdr62997

During brief periods of high-traffic activity on the subscriber-unit router and with the router's CPU overloaded, the radio "link-metrics" (continuous codeword error statistics) might not be collected because network-packet traffic has priority over the radio "link-metrics" on the CPU. This might cause the "link-metrics" tables to show zeros only and/or error messages to be generated. There is no workaround.

- CSCds51507

The system will accept a statistic parameter for a second antenna even though it is a single-antenna system.

Workaround: Disregard data for the second antenna.

Closed and Resolved Caveats for Release 12.1(3)XQ3

All the caveats listed in this section are resolved in Cisco IOS Release 12.1(3)XQ3. This section describes only severity 1 and 2 caveats and select severity 3 caveats.

- CSCds00152

When the radio debugging function is enabled via the **debug radio** command, none of the radio debugging flags appear in the output of the **show debug** command. This makes it difficult to determine if the radio debugging function is turned on. There is no workaround.

This caveat is resolved in Cisco IOS Release 12.1(3)XQ3.

- CSCds01893

The Cisco vendor-specific DOCSIS TLV 129, which performs a Cisco IOS configuration file download without disabling the console, is not supported.

Workaround: Use DOCSIS TLV 128, which performs a Cisco IOS configuration file download, but does disable the console afterwards.

This caveat is resolved in Cisco IOS Release 12.1(3)XQ3: DOCSIS TLV 129 is now supported.

- CSCds14451

Tag-Length-Value (TLV) option 43.129, which is used to download an Cisco IOS configuration file without disabling the console, is currently not supported on the Cisco 2600 routers functioning as subscriber units.

Workaround: Use TLV option 43.128, which is used to download an Cisco IOS configuration file and requires disabling the console.

This caveat is resolved in Cisco IOS Release 12.1(3)XQ3: TLV option 43.129 is now supported.

- CSCds04747

Connection setup improvements.

This caveat is resolved in Cisco IOS Release 12.1(3)XQ3.

Related Documentation

The following sections describe the documentation available for the Cisco 2600 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 11](#)
- [Platform-Specific Documents, page 11](#)
- [Feature Modules, page 12](#)
- [Cisco IOS Software Documentation Set, page 12](#)

Release-Specific Documents

The following documents are specific to or support Cisco IOS Release 12.1 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

On the Documentation CD-ROM at:

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

- 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 12.1*

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: Caveats: Caveats for Cisco IOS Release 12.1

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS 12.1: Release Notes: Caveats: Caveats 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>

Platform-Specific Documents

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

- *Quick Start Guide Cisco 2600 Series Cabling and Setup*
- *Cisco 2600 Series Hardware Installation Guide*
- *Cisco Network Modules Hardware Installation Guide*
- *Update to Cisco Network Modules Hardware Installation Guide*
- *Cisco WAN Interface Cards Hardware Installation Guide*
- *Update to WAN Interface Cards Hardware Installation Guide*
- *Software Configuration Guide For Cisco 3600 and Cisco 2600 Series Routers*
- *New and Changed Show Commands for the Cisco 2600 Series Routers*
- *Regulatory Compliance and Safety Info for the Cisco 2600 Series*
- *International Regulatory Compliance Information for Telecommunications Equipment*

- Cisco 2600 Series Configuration Notes
- *Cisco Modular Access Router Cable Specifications*
- Redundant Power Systems
- *Data Compression AIM for the Cisco 2600 Series Routers*
- Digital Modem Portware
- Analog Modem Firmware
- *Voice Features for Cisco 2600 Series Routers*

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

Technical Documents: Documentation Home Page: Access Servers and Access Routers: Modular Access Routers: Cisco 2600 Series Routers

On the Documentation CD-ROM at:

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

Feature Modules

Feature modules describe new features supported by Cisco IOS Release 12.1 XQ1, and are updates to the Cisco IOS documentation set. A feature module consists of a brief overview of the feature, benefits, and configuration tasks, and a command reference. As updates, the feature modules are available online only. Feature module information is incorporated in the next printing of the Cisco IOS documentation set.

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

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1: New Feature Documentation: New Features in Release 12.1T

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1: New Feature Documentation: New Features in Release 12.1T

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 that 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, 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 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

On the Documentation CD-ROM at:

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

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.

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

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 <http://www.cisco.com>. Translated documentation can be accessed at http://www.cisco.com/public/countries_languages.shtml.

Documentation CD-ROM

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

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:
http://www.cisco.com/cgi-bin/order/order_root.pl
- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:
<http://www.cisco.com/go/subscription>
- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco corporate headquarters (California, USA) at 408 526-7208 or, in North America, by calling 800 553-NETS(6387).

Documentation Feedback

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

Cisco.com

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

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

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

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

<http://www.cisco.com>

Technical Assistance Center

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

Contacting TAC by Using the Cisco TAC Website

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

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

P3 and P4 level problems are defined as follows:

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

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

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

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

If you cannot resolve your technical issue by using the TAC online resources, Cisco.com registered users can open a case online by using the TAC Case Open tool at the following website:

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

Contacting TAC by Telephone

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

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

P1 and P2 level problems are defined as follows:

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

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

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