



# Release Notes for Cisco 2600 Series for Cisco IOS Release 12.0

---

**January 2, 2001**

These release notes for Cisco 2600 series support Cisco IOS Release 12.0, up to and including Release 12.0(15). These release notes are updated as needed to describe new features, memory requirements, hardware support, software platform deferrals, and changes to the microcode or modem code and related documents.

For a list of the software caveats that apply to Release 12.0(15), see *Caveats for Cisco IOS Release 12.0* that accompanies these release notes. The caveats document is updated for every maintenance release and is located on Cisco Connection Online (CCO) and the Documentation CD-ROM.

Use these release notes with *Cross-Platform Release Notes for Cisco IOS Release 12.0* on CCO and the Documentation CD-ROM.

## Contents

These release notes describe the following topics:

- Introduction, page 2
- System Requirements, page 2
- Limitations and Restrictions, page 12
- Important Notes, page 12
- Caveats, page 13
- Related Documentation, page 13
- Service and Support, page 18
- Obtaining Documentation, page 19
- Obtaining Technical Assistance, page 21

# Introduction

The Cisco 2600 series modular routers are designed to easily adopt future technologies and scale to accommodate network expansion. The Cisco 2600 series shares modular interfaces with the Cisco 1600, 1700, and 3600 series, providing:

- Secure internet/intranet access
- Multiservice voice/data integration
- Analog and digital dial access services
- Virtual Private Network (VPN) access
- Inter-VLAN routing

The Cisco 2600 series supports advanced Quality of Service (QoS), security, and network integration features.

## System Requirements

This section describes the system requirements for Release 12.0(15):

- Memory Recommendations, page 2
- Hardware Supported, page 3
- Determining the Software Version, page 6
- Upgrading to a New Software Release, page 7
- Feature Set Tables, page 7

## Memory Recommendations

Table 1 describes the feature set memory recommendations for the Cisco 2600 series for Cisco IOS Release 12.0(15).


**Note**

All Plus feature sets include voice network support.

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

Feature Set	Images	Flash Memory	DRAM Memory	Runs From
IP	c2600-i-mz	4 MB	20 MB	RAM
IP Plus	c2600-is-mz	8 MB	24 MB	RAM
IP Plus 40	c2600-is40-mz	8 MB	32 MB	RAM
IP Plus 56	c2600-is56-mz	8 MB	32 MB	RAM
IP Plus IPsec 56	c2600-is56i-mz	8 MB	32 MB	RAM

**Table 1** Memory Recommendations for the Cisco 2600 Series (continued)

Feature Set	Images	Flash Memory	DRAM Memory	Runs From
IP/IPX/AT/DEC	c2600-d-mz	8 MB	20 MB	RAM
IP/IPX/AT/DEC Plus	c2600-ds-mz	8 MB	24 MB	RAM
Enterprise Plus	c2600-js-mz	8 MB	24 MB	RAM
Enterprise Plus IPsec 56	c2600-js56i-mz	8 MB	40 MB	RAM
Enterprise/APPN Plus	c2600-ajs-mz	8 MB	32 MB	RAM
Enterprise/APPN Plus IPsec 56	c2600-ajs56i-mz	8 MB	32 MB	RAM
Remote Access Server	c2600-c-mz	4 MB	20 MB	RAM

## Hardware Supported

Cisco IOS Release 12.0 supports the following Cisco 2600 series routers:

- Cisco 2610
- Cisco 2611
- Cisco 2612
- Cisco 2613

For detailed descriptions of the new hardware features for Release 12.0, refer to the *Cross-Platform Release Notes for Cisco IOS Release 12.0* on CCO and the Documentation CD-ROM.



### Note

The Cisco 2620 and Cisco 2621 are supported by Cisco IOS Release 12.0(2) XC and IOS Release 12.0(3) T and later. Not all modules listed below are supported with this particular IOS version or on all feature sets.

Table 2 lists the supported interfaces for Cisco IOS Release 12.0(15) for the Cisco 2600 Series.

**Table 2** Supported Interfaces on the Cisco 2600 Series

Interface, Network Module, or Data Rate <sup>1</sup>		Platforms Supported
LAN Interfaces	Ethernet (10BaseT), 1- or 2-port	Cisco 2610, Cisco 2611, Cisco 2612
	Token Ring (RJ-45), 1-port	Cisco 2612, Cisco 2613
LAN Network Modules	Ethernet, 4-port	All Cisco 2600 series platforms
	Ethernet, 1-port	All Cisco 2600 series platforms
	Two-WAN interface card network slot module (WAN interface cards offered separately)	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS release 12.0.7XK, 12.1.2T, 12.2.x mainline or later.

Table 2 Supported Interfaces on the Cisco 2600 Series (continued)

Interface, Network Module, or Data Rate <sup>1</sup>	Platforms Supported														
<b>ATM Network Modules</b>	<table border="1"> <tr> <td data-bbox="375 296 1047 342">ATM-25, RJ-45 interface, 1-port</td> <td data-bbox="1047 296 1481 342">All Cisco 2600 series platforms</td> </tr> <tr> <td data-bbox="375 342 1047 514">T1 ATM with IMA network module, 4- or 8-port</td> <td data-bbox="1047 342 1481 514">All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline, 12.1T or later.</td> </tr> <tr> <td data-bbox="375 514 1047 686">E1 ATM with IMA network module, 4- or 8-port</td> <td data-bbox="1047 514 1481 686">All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline, 12.1T or later.</td> </tr> <tr> <td data-bbox="375 686 1047 825">DS3 (T3) ATM network module, 1- port</td> <td data-bbox="1047 686 1481 825">All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.1(2)T, 12.2(x) mainline or later.</td> </tr> <tr> <td data-bbox="375 825 1047 961">E3 ATM network module, 1- port</td> <td data-bbox="1047 825 1481 961">All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.1(2)T, 12.2(x) mainline or later.</td> </tr> </table>	ATM-25, RJ-45 interface, 1-port	All Cisco 2600 series platforms	T1 ATM with IMA network module, 4- or 8-port	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline, 12.1T or later.	E1 ATM with IMA network module, 4- or 8-port	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline, 12.1T or later.	DS3 (T3) ATM network module, 1- port	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.1(2)T, 12.2(x) mainline or later.	E3 ATM network module, 1- port	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.1(2)T, 12.2(x) mainline or later.				
ATM-25, RJ-45 interface, 1-port	All Cisco 2600 series platforms														
T1 ATM with IMA network module, 4- or 8-port	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline, 12.1T or later.														
E1 ATM with IMA network module, 4- or 8-port	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline, 12.1T or later.														
DS3 (T3) ATM network module, 1- port	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.1(2)T, 12.2(x) mainline or later.														
E3 ATM network module, 1- port	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.1(2)T, 12.2(x) mainline or later.														
<b>Serial Network Modules</b>	<table border="1"> <tr> <td data-bbox="375 961 1047 1008">Asynchronous, 16- or 32-port</td> <td data-bbox="1047 961 1481 1008">All Cisco 2600 series platforms</td> </tr> <tr> <td data-bbox="375 1008 1047 1083">Asynchronous/synchronous serial low speed (128 kbps max), 4- or 8-port</td> <td data-bbox="1047 1008 1481 1083">All Cisco 2600 series platforms</td> </tr> </table>	Asynchronous, 16- or 32-port	All Cisco 2600 series platforms	Asynchronous/synchronous serial low speed (128 kbps max), 4- or 8-port	All Cisco 2600 series platforms										
Asynchronous, 16- or 32-port	All Cisco 2600 series platforms														
Asynchronous/synchronous serial low speed (128 kbps max), 4- or 8-port	All Cisco 2600 series platforms														
<b>Dial, ISDN and Channelized Serial Network Modules</b>	<table border="1"> <tr> <td data-bbox="375 1083 1047 1129">Channelized T1/ISDN PRI, 1- or 2-port</td> <td data-bbox="1047 1083 1481 1129">All Cisco 2600 series platforms</td> </tr> <tr> <td data-bbox="375 1129 1047 1176">Channelized T1/ISDN PRI with CSU, 1- or 2-port</td> <td data-bbox="1047 1129 1481 1176">All Cisco 2600 series platforms</td> </tr> <tr> <td data-bbox="375 1176 1047 1222">Channelized E1/ISDN PRI balanced, 1- or 2-port</td> <td data-bbox="1047 1176 1481 1222">All Cisco 2600 series platforms</td> </tr> <tr> <td data-bbox="375 1222 1047 1268">Channelized E1/ISDN PRI unbalanced, 1- or 2-port</td> <td data-bbox="1047 1222 1481 1268">All Cisco 2600 series platforms</td> </tr> <tr> <td data-bbox="375 1268 1047 1314">ISDN BRI S/T interface, 4- or 8-port</td> <td data-bbox="1047 1268 1481 1314">All Cisco 2600 series platforms</td> </tr> <tr> <td data-bbox="375 1314 1047 1360">ISDN BRI U (NT1) interface, 4- or 8-port</td> <td data-bbox="1047 1314 1481 1360">All Cisco 2600 series platforms</td> </tr> <tr> <td data-bbox="375 1360 1047 1388">Analog Modems, 8 or 16</td> <td data-bbox="1047 1360 1481 1388">All Cisco 2600 series platforms</td> </tr> </table>	Channelized T1/ISDN PRI, 1- or 2-port	All Cisco 2600 series platforms	Channelized T1/ISDN PRI with CSU, 1- or 2-port	All Cisco 2600 series platforms	Channelized E1/ISDN PRI balanced, 1- or 2-port	All Cisco 2600 series platforms	Channelized E1/ISDN PRI unbalanced, 1- or 2-port	All Cisco 2600 series platforms	ISDN BRI S/T interface, 4- or 8-port	All Cisco 2600 series platforms	ISDN BRI U (NT1) interface, 4- or 8-port	All Cisco 2600 series platforms	Analog Modems, 8 or 16	All Cisco 2600 series platforms
Channelized T1/ISDN PRI, 1- or 2-port	All Cisco 2600 series platforms														
Channelized T1/ISDN PRI with CSU, 1- or 2-port	All Cisco 2600 series platforms														
Channelized E1/ISDN PRI balanced, 1- or 2-port	All Cisco 2600 series platforms														
Channelized E1/ISDN PRI unbalanced, 1- or 2-port	All Cisco 2600 series platforms														
ISDN BRI S/T interface, 4- or 8-port	All Cisco 2600 series platforms														
ISDN BRI U (NT1) interface, 4- or 8-port	All Cisco 2600 series platforms														
Analog Modems, 8 or 16	All Cisco 2600 series platforms														
<b>Voice/Fax Network Module</b>	<table border="1"> <tr> <td data-bbox="375 1388 1047 1434">Voice/fax, 1 or 2 voice interface card slots</td> <td data-bbox="1047 1388 1481 1434">All Cisco 2600 series platforms</td> </tr> <tr> <td data-bbox="375 1434 1047 1606">24-channel-T1 high density voice/fax network module</td> <td data-bbox="1047 1434 1481 1606">All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline or 12.1T or later.</td> </tr> <tr> <td data-bbox="375 1606 1047 1772">Enhanced 24-channel T1 high density voice/fax network module</td> <td data-bbox="1047 1606 1481 1772">All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline or 12.1T or later.</td> </tr> </table>	Voice/fax, 1 or 2 voice interface card slots	All Cisco 2600 series platforms	24-channel-T1 high density voice/fax network module	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline or 12.1T or later.	Enhanced 24-channel T1 high density voice/fax network module	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline or 12.1T or later.								
Voice/fax, 1 or 2 voice interface card slots	All Cisco 2600 series platforms														
24-channel-T1 high density voice/fax network module	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline or 12.1T or later.														
Enhanced 24-channel T1 high density voice/fax network module	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline or 12.1T or later.														

Table 2 Supported Interfaces on the Cisco 2600 Series (continued)

Interface, Network Module, or Data Rate <sup>1</sup>	Platforms Supported
<b>Voice/Fax Network Module (continued)</b>	Forty-eight-channel T1 high density voice/fax network module
	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0(7)T, 12.1 mainline or 12.1T or later.
	Thirty-channel E1 high density voice/fax network module
	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0.7XK, 12.1.2T, 12.2.x mainline or better.
	Enhanced thirty-channel E1 high density voice/fax network module
	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0.7XK, 12.1.2T, 12.2.x mainline or better.
	Sixty-channel E1 high density voice/fax network module
	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0.7XK, 12.1.2T, 12.2.x mainline or better.
	High-density voice module, spare (no T1 or DSPs)
	All Cisco 2600 series platforms not supported in this Cisco IOS release. Requires Cisco IOS Release 12.0.7T, 12.1 mainline, 12.1T or later.
<b>Voice Interface Cards</b>	FXS voice/fax interface card for voice/fax network module, 2-port <sup>2</sup>
	All Cisco 2600 series platforms with Voice/Fax network module
	FXO voice/fax interface card for voice/fax network module, 2-port <sup>2</sup>
	All Cisco 2600 series platforms with Voice/Fax network module
	E&M voice/fax interface card for voice/fax network module, 2-port <sup>2</sup>
	All Cisco 2600 series platforms with Voice/Fax network module
	BRI S/T interface (requires external NTI), 1-port
	All Cisco 2600 series platforms with voice/fax network module. Requires Cisco IOS Release 12.0(3)T or later.
<b>WAN Interface Cards</b>	ISDN BRI S/T interface (requires external NT1), 1-port
	All Cisco 2600 series platforms
	ISDN BRI (NT1) U, 1-port
	All Cisco 2600 series platforms
	56/64-kbps DSU/CSU, 1-port
	All Cisco 2600 series platforms
	T1/Fractional T1 with DSU/CSU, 1-port
	All Cisco 2600 series platforms
	High-speed serial (up to 2.048 Mbps), 1-port
	All Cisco 2600 series platforms
	Dual high-speed serial (up to 2.048 Mbps; asynchronous/synchronous support), 2-port
	All Cisco 2600 series platforms
	Dual asynchronous/synchronous (up to 128 kbps), 2-port
	All Cisco 2600 series platforms

Table 2 Supported Interfaces on the Cisco 2600 Series (continued)

Interface, Network Module, or Data Rate <sup>1</sup>	Platforms Supported
<b>Multiflex Voice/WAN Interface Cards</b>	
T1/Fractional T1 Multiflex Trunk with CSU/DSU, 1- and 2-port <sup>3</sup>	All Cisco 2600 series platforms not supported in this Cisco release. Requires Cisco IOS Release 12.0(7)T, 12.1(x) mainline, 12.1T or later.
Dual-port T1/Fractional T1 Multiflex Trunk with CSU/DSU and Drop & Insert <sup>3</sup>	All Cisco 2600 series platforms not supported in this Cisco release. Requires Cisco IOS Release 12.0(7)T, 12.1(x) mainline, 12.1T or later.
E1/Fractional E1 Multiflex Trunk with DSU, 1- and 2-port <sup>3</sup>	All Cisco 2600 series platforms not supported in this Cisco release. Requires Cisco IOS Release 12.0(7)T, 12.1(x) mainline, 12.1T or later.
Dual-port E1/Fractional E1 Multiflex Trunk with CSU/DSU and Drop & Insert <sup>3</sup>	All Cisco 2600 series platforms not supported in this Cisco release. Requires Cisco IOS Release 12.0(7)T, 12.1(x) mainline, 12.1T or later.
G.703 Multiflex Trunk, 1- and 2-port <sup>3</sup>	All Cisco 2600 series platforms not supported in this Cisco release. Requires Cisco IOS Release 12.1(2)T, 12.2(x) mainline, or later.
<b>Advanced Integration Modules</b>	
Data compression AIM (up to 8.192Mbps)	All Cisco 2600 series platforms

1. The voice/fax and ATM-25 network modules require Cisco IOS Plus feature sets.
2. This interface card requires the NM-1V or NM-2V network module.
3. Packet telephony applications require the NM-HDV in most cases.

**Note**

For additional information on the Cisco 2600 series hardware, go to:  
[http://www-tac.cisco.com/Support\\_Library/Hardware/2600/2600-new.html](http://www-tac.cisco.com/Support_Library/Hardware/2600/2600-new.html).

## Determining the Software Version

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

```
router>show version
Cisco Internetwork Operating System Software
IOS (tm) 2600 series Software (c2600-i-mz), Version 12.0(15), 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* located at:

[http://www.cisco.com/warp/public/cc/cisco/mkt/ios/prodlit/957\\_pp.htm](http://www.cisco.com/warp/public/cc/cisco/mkt/ios/prodlit/957_pp.htm)

On CCO at:

**Software Center: Cisco IOS Software: Product Bulletins: Software: General System Software Bulletins**

## Feature Set Tables

The Cisco IOS software is packaged in feature sets consisting of software images—depending on the platform. Each feature set contains a specific software image, as shown in Table 3.

**Table 3** Feature Sets Supported by the Cisco 2600 Series

Feature Sets		Feature Set Matrix Term	Software Image	Platforms
<b>IP Standard</b>	IP	Basic <sup>1</sup>	c2600-i-mz	All Cisco 2600 series
	IP Plus	Basic, Plus <sup>2</sup>	c2600-is-mz	All Cisco 2600 series
	IP Plus 40	Plus, Plus 40 <sup>3</sup>	c2600-is40-mz	All Cisco 2600 series
	IP Plus 56	Plus, Plus 56	c2600-is56-mz	All Cisco 2600 series
	IP Plus IPsec 56	Plus, Plus IPsec 56 <sup>4</sup>	c2600-is56i-mz	All Cisco 2600 series
<b>IP/IPX/AppleTalk/DEC Standard</b>	IP/IPX/AppleTalk/DEC	Basic	c2600-d-mz	All Cisco 2600 series
	IP/IPX/AppleTalk/DEC Plus	Basic, Plus	c2600-ds-mz	All Cisco 2600 series
<b>Enterprise Standard</b>	Enterprise Plus	Plus	c2600-js-mz	All Cisco 2600 series
	Enterprise Plus IPsec 56	Plus, Plus IPsec 56	c2600-js56i-mz	All Cisco 2600 series
<b>Enterprise/APPN Standard</b>	Enterprise/APPN Plus	Plus	c2600-ajs-mz	All Cisco 2600 series
	Enterprise/APPN Plus IPsec 56	Plus, Plus IPsec 56	c2600-ajs56i-mz	All Cisco 2600 series
<b>Telco</b>	Remote Access Server	Telco Feature Set	c2600-c-mz	All Cisco 2600 series

1. This feature is offered in the Basic feature set.
2. This feature is offered in the Plus feature set.
3. This feature is offered in the encryption feature sets which consist of 40-bit (Plus 40) data encryption feature sets.
4. This feature is offered in the encryption feature sets which consist of IPsec 56-bit (Plus IPsec 56) data encryption feature sets.



### 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, the purchaser or user must obtain local import and use authorizations for all encryption strengths. Contact your sales representative or distributor for more information, or send an e-mail to [export@cisco.com](mailto:export@cisco.com).

Table 4, Part 1 and Table 4, Part 2, list the features and feature sets supported by Cisco IOS Release 12.0(15) for the Cisco 2600 Series. Both tables use the following conventions to identify features:

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



**Note** This feature set table contains only a selected list of features. This table is not a cumulative or complete list of all the features in each image.

**Table 4, Part 1 Feature List by Feature Set for the Cisco 2600 Series**

Features	Feature Sets						
	IP	IP Plus	IP Plus 40	IP Plus 56	IP Plus IPsec 56	IP/IPX/AT/DEC	IP/IPX/AT/DEC Plus
<b>IBM Support</b>							
Bridging Code Rework	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RIF Passthru in DLSw+	No	Yes	Yes	Yes	Yes	No	Yes
<b>IP Routing</b>							
IP Precedence for GRE Tunnels (GRE VPN)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Protocol- Independent Multicast (PIM) Version 2	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Management</b>							
SNMP Inform Request	No	No	No	No	No	No	No
VPDN MIB and Syslog Facility	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Scalability</b>							
Airline Product Set (ALPS)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cisco IOS File System	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Entity MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Expression MIB	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OSPF Point to Multipoint	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Per Port Debugging (Conditionally Triggered Debugging)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNMP Manager	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Security</b>							
Additional Vendor-Proprietary RADIUS Attributes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Authenticating ACLs	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Automated Double Authentication	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Certificate Authority Interoperability	No	No	No	No	Yes	No	No
Internet Key Exchange Security Protocol	Yes	Yes	Yes	Yes	Yes	No	No
IPSec Network Security	No	No	No	No	Yes	No	No
MS-CHAP Support	No	Yes	Yes	Yes	Yes	No	Yes

Table 4, Part 1 Feature List by Feature Set for the Cisco 2600 Series (continued)

Features	Feature Sets						
	IP	IP Plus	IP Plus 40	IP Plus 56	IP Plus IPsec 56	IP/IPX/AT/DEC	IP/IPX/AT/DEC Plus
Named Method Lists for AAA Authentication and Accounting	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subblock Phase 1	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Switching</b>							
Enhanced ATM VC Configuration and Management	No	Yes	Yes	Yes	Yes	No	Yes
Multiple ISDN Switch Types	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>Voice/Multimedia</b>							
VoIP	No	Yes	Yes	Yes	Yes	No	Yes
<b>WAN Optimization</b>							
ATM PVC Management	No	Yes	Yes	Yes	Yes	No	Yes
DRP Server Agent	Yes	Yes	Yes	Yes	Yes	Yes	Yes
<b>WAN Services</b>							
Always On/Dynamic ISDN (AO/DI)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Dialer Watch	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Interface Name Modularity	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Microsoft Point-to-Point Compression (MPPC)	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MS Callback	Yes	Yes	Yes	Yes	Yes	Yes	Yes
National ISDN Switch Types	Yes	Yes	Yes	Yes	Yes	Yes	Yes
New and Changed Show Commands for the Cisco 2600 Series Routers	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Stackable Home Gateway	No	Yes	Yes	Yes	Yes	No	Yes

Table 4, Part 2 Feature List by Feature Set for the Cisco 2600 Series

Features	Feature Sets			
	Enterprise Plus	Enterprise Plus IPsec 56	Enterprise/APPN Plus	Enterprise/APPN Plus IPsec 56
<b>IBM Support</b>				
Bridging Code Rework	Yes	Yes	Yes	Yes
RIF Passthru in DLSw+	Yes	Yes	Yes	Yes
<b>IP Routing</b>				
IP Type of Service Precedence for GRE Tunnels (GRE VPN)	Yes	Yes	Yes	Yes
Protocol- Independent Multicast (PIM) Version 2	Yes	Yes	Yes	Yes
<b>Management</b>				
SNMP Inform Request	Yes	Yes	Yes	Yes
VPDN MIB and Syslog Facility	Yes	Yes	Yes	Yes
<b>Scalability</b>				
Airline Product Set (ALPS)	Yes	Yes	Yes	Yes
Cisco IOS File System	Yes	Yes	Yes	Yes
Entity MIB	Yes	Yes	Yes	Yes
Expression MIB	Yes	Yes	Yes	Yes
OSPF Point to Multipoint	Yes	Yes	Yes	Yes
Per Port Debugging (Cond Triggered Debugging)	Yes	Yes	Yes	Yes
SNMP Manager	Yes	Yes	Yes	Yes
<b>Security</b>				
Additional Vendor-Proprietary RADIUS Attributes	Yes	Yes	Yes	Yes
Authenticating ACLs	Yes	Yes	Yes	Yes
Automated Double Authentication	Yes	Yes	Yes	Yes
Certificate Authority Interoperability	No	Yes	No	Yes
Internet Key Exchange Security Protocol	No	Yes	Yes	No
IPSec Network Security	No	Yes	No	Yes
MS-CHAP Support	Yes	Yes	Yes	Yes
Named Method Lists for AAA Authentication & Accounting	Yes	Yes	Yes	Yes
Subblock Phase 1	Yes	Yes	Yes	Yes

**Table 4, Part 2** Feature List by Feature Set for the Cisco 2600 Series (continued)

Features	Feature Sets			
	Enterprise Plus	Enterprise Plus IPsec 56	Enterprise/APPN Plus	Enterprise/APPN Plus IPsec 56
<b>Switching</b>				
Multiple ISDN Switch Types	Yes	Yes	Yes	Yes
National ISDN Switch Types	Yes	Yes	Yes	Yes
<b>Voice/Multimedia</b>				
Voice over IP	Yes	Yes	Yes	Yes
<b>WAN Optimization</b>				
ATM PVC Management	Yes	Yes	Yes	Yes
DRP Server Agent	Yes	Yes	Yes	Yes
<b>WAN Services</b>				
Always On/Dynamic ISDN (AO/DI)	Yes	Yes	Yes	Yes
Dialer Watch	Yes	Yes	Yes	Yes
Interface Name Modularity	Yes	Yes	Yes	Yes
Microsoft Point-to-Point Compression (MPPC)	Yes	Yes	Yes	Yes
MS Callback	Yes	Yes	Yes	Yes
New and Changed Show Commands for the Cisco 2600 Series Routers	No	No	Yes	Yes
Stackable Home Gateway	Yes	Yes	Yes	Yes

## New and Changed Information

The following sections list the new hardware and software features supported by the Cisco 2600 series for Release 12.0(15).

### New Hardware Features in Release 12.0(15)

There are no new hardware features supported by the Cisco 2600 series in Cisco IOS Release 12.0(15).

### New Software Features in Release 12.0(15)

There are no new software features supported by the Cisco 2600 series in Cisco IOS Release 12.0(15).

# Limitations and Restrictions

## 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 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	In development
OLD-CISCO-DECNET-MIB	In development
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	In development
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	In development
OLD-CISCO-VINES-MIB	CISCO-VINES-MIB
OLD-CISCO-XNS-MIB	In development

## 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 you use 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-12.0.14=	S26CP-12014=	Cisco IOS Release 12.0(14)	Cisco 2600 Series IOS IP Plus

## Caveats

Caveats describe unexpected behavior in Cisco IOS software releases. Severity 1 caveats are the most serious caveats; severity 2 caveats are less serious. Severity 3 caveats are moderate caveats, and only select severity 3 caveats are included in the caveats document.

For information on caveats in Cisco IOS Release 12.0(15), see *Caveats for Cisco IOS Release 12.0* that lists severity 1 and 2 caveats and select severity 3 caveats for Release 12.0 and is located on CCO and the Documentation CD-ROM.

## 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, and other documents.

Documentation is available as printed manuals or electronic documents.

Use these release notes with these documents:

- Release-Specific Documents, page 14
- Platform-Specific Documents, page 14
- Cisco IOS Software Documentation Set, page 15

## Release-Specific Documents

The following documents are specific to Release 12.0 and are located on CCO and the Documentation CD-ROM:

- *Cross-Platform Release Notes for Cisco IOS Release 12.0*

On CCO at:

**Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0**

On the Documentation CD-ROM at:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Release Notes: Cross-Platform Release Notes**

- Product bulletins, field notices, and other release-specific documents on CCO at:

**Technical Documents**

- Caveats for Cisco IOS Release 12.0

As a supplement to the caveats listed in “Important Notes” in these release notes, see *Caveats for Cisco IOS Release 12.0* and *Caveats for Cisco IOS Release 12.0 T* that contains caveats applicable to all platforms for all maintenance releases of Release 12.0.

On CCO at:

**Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Caveats**

On the Documentation CD-ROM at:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Caveats**



### Note

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

## Platform-Specific Documents

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

- *Quick Start Guide Cisco 2600 Series Cabling and Setup*
- *Cisco 2600 Series Hardware Installation Guide*
- *Cisco Network Module Hardware Installation Guide*
- *Cisco Update to Network Module Hardware and Software Guides*
- *Cisco WAN Interface Cards Hardware Installation Guide*
- *Cisco Update to WAN Interface Cards Hardware Installation Guide*
- *Cisco Software Configuration Guide*
- *New and Changed Show Commands for the Cisco 2600 Series Routers*
- *Cisco 2600 Series Cabling Specifications*

- *Redundant Power Systems*
- *Cisco Modular Access Router Cable Specifications*
- *Compression Advanced Integration Module (AIM)*

On CCO at:

**Technical Documents: Documentation Home Page: Cisco Product Documentation: Access Servers and Access Routers: Access Servers: Cisco 2600 series**

On the Documentation CD-ROM at:

**Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 2600 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 CCO and the Documentation CD-ROM, two master hot-linked documents provide information for the Cisco IOS software documentation set.

On CCO at:

**Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Configuration Guides and Command References**

On the Documentation CD-ROM at:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0: Configuration Guides and Command References**

### Release 12.0 Documentation Set

Table 6 describes the contents of the Cisco IOS Release 12.0 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 CCO and the Documentation CD-ROM. These electronic documents may contain updates and modifications made after the hard-copy documents were printed.

On CCO at:

**Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.0**

On the Documentation CD-ROM at:

**Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.0**

**Table 6 Cisco IOS Software Release 12.0 Documentation Set**

Books	Chapter 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>	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
<ul style="list-style-type: none"> <li>• <i>Dial Solutions Configuration Guide</i></li> <li>• <i>Dial Solutions Command Reference</i></li> </ul>	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 and 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"> <li>• <i>Cisco IOS Interface Configuration Guide</i></li> <li>• <i>Cisco IOS Interface Command Reference</i></li> </ul>	Interface Configuration Overview LAN Interfaces Logical Interfaces Serial Interfaces

**Table 6 Cisco IOS Software Release 12.0 Documentation Set (continued)**

<b>Books</b>	<b>Chapter Topics</b>
<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 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>	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"> <li>• <i>Cisco IOS Switching Services Configuration Guide</i></li> <li>• <i>Cisco IOS Switching Services Command Reference</i></li> </ul>	Switching Services Switching Paths for IP Networks Virtual LAN (VLAN) Switching and Routing
<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
<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>	Voice over IP Voice over Frame Relay Voice over ATM Voice over HDLC Frame Relay-ATM Internetworking Synchronized Clocks Video Support Universal Broadband Features

**Table 6 Cisco IOS Software Release 12.0 Documentation Set (continued)**

Books	Chapter Topics
<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>	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"> <li>• <i>Cisco IOS Release 12.0 Command Reference Master Index</i></li> <li>• <i>Cisco IOS Release 12.0 Configuration Guide Master Index</i></li> <li>• <i>Cisco IOS Software Command Summary</i></li> <li>• <i>Dial Solutions Quick Configuration Guide</i></li> <li>• <i>System Error Messages</i></li> <li>• <i>Debug Command Reference</i></li> </ul>	



**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 CCO, click on the following path: **Software Center: Network Mgmt Products: Cisco Network Management Toolkit: Cisco MIB.**

## Service and Support

For service and support for a product purchased from a reseller, contact the reseller, who offers a wide variety of Cisco service and support programs described in “Service and Support” of *Cisco Information Packet* that shipped with your product.

If you purchased your product from a reseller, you can access CCO as a guest. CCO is Cisco Systems’ primary real-time support channel. Your reseller offers programs that include direct access to CCO services.

For service and support for a product purchased directly from Cisco, use CCO.

## Software Configuration Tips on the Cisco TAC Home Page

If you have a CCO login account, you can access the following URL, which contains links and tips on configuring your Cisco products:

[http://www.cisco.com/kobayashi/serv\\_tips.shtml](http://www.cisco.com/kobayashi/serv_tips.shtml)

This URL is subject to change without notice. If it changes, point your Web browser to CCO and click on this path: **Products & Technologies: Products: Technical Tips**.

The following sections are provided from the Technical Tips page:

- **Access Dial Cookbook**—Contains common configurations or recipes for configuring various access routes and dial technologies.
- **Field Notices**—Notifies you of any critical issues regarding Cisco products and includes problem descriptions, safety or security issues, and hardware defects.
- **Frequently Asked Questions**—Describes the most frequently asked technical questions about Cisco hardware and software.
- **Hardware**—Provides technical tips related to specific hardware platforms.
- **Hot Tips**—Describes popular tips and hints gathered from the Cisco Technical Assistance Center (TAC). Most of these documents are available from the TAC Fax-on-demand service. To reach Fax-on-demand and receive documents at your fax machine from the United States, call 888-50-CISCO (888-502-4726). From other areas, call 650-596-4408.
- **Internetworking Features**—Lists tips on using Cisco IOS software features and services.
- **Sample Configurations**—Provides actual configuration examples that are complete with topology and annotations.
- **Software Products**—Contains Cisco IOS Software Bulletins, Cisco TCP/IP Suite 100, General Cisco IOS, Internet/Intranet Applications and Software, Network Management, Network Protection Software Tips, and WAN Switching Products and Software.
- **Special Collections**—Lists other helpful documents, including Case Studies, References & Request for Comments (RFCs), and Security Advisories.

## Obtaining Documentation

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

### World Wide Web

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

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

## Documentation CD-ROM

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

## Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:  
[http://www.cisco.com/cgi-bin/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>
- 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](mailto: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 13.

AtmDirector, Browse with Me, CCDA, CCDE, CCDP, CCIE, CCNA, CCNP, CCSI, CD-PAC, *CiscoLink*, the Cisco *NetWorks* logo, the Cisco Powered Network logo, Cisco Systems Networking Academy, the Cisco Systems Networking Academy logo, Fast Step, Follow Me Browsing, FormShare, FrameShare, GigaStack, IGX, Internet Quotient, IP/VC, iQ Breakthrough, iQ Expertise, iQ FastTrack, the iQ Logo, iQ Net Readiness Scorecard, MGX, the Networkers logo, *Packet*, PIX, RateMUX, ScriptShare, SlideCast, SMARTnet, TransPath, Voice LAN, Wavelength Router, WebViewer are trademarks of Cisco Systems, Inc.; Changing the Way We Work, Live, Play, and Learn, Empowering the Internet Generation, are service marks of Cisco Systems, Inc.; and Aironet, ASIST, BPX, Catalyst, Cisco, the Cisco Certified Internetwork Expert Logo, Cisco IOS, the Cisco IOS logo, Cisco Systems, Cisco Systems Capital, the Cisco Systems logo, Enterprise/Solver, EtherChannel, EtherSwitch, FastHub, IOS, IP/TV, LightStream, Post-Routing, Pre-Routing, Registrar, StrataView Plus, Stratm, SwitchProbe, TeleRouter, and VCO are registered trademarks of Cisco Systems, Inc. or its affiliates in the U.S. and certain other countries.

All other brands, names, or trademarks mentioned in this document or Web site are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (0011R)

Copyright © 1999 - 2001, Cisco Systems, Inc.  
All rights reserved.