



Release Notes for the SOHO 70 Series for Cisco IOS Release 12.2(1)XD

March 25, 2002

These release notes for the SOHO 70 Series routers describe the enhancements provided in Cisco IOS Release 12.2(1)XD4. These release notes are updated as needed. Use these release notes with *Cross-Platform Release Notes for Cisco IOS Release 12.2* located on Cisco.com and the Documentation CD-ROM.

For a list of the software caveats that apply to Cisco IOS Release 12.2(1)XD4, see the “Caveats” section on page 7 and *Caveats for Cisco IOS Release 12.1 T*. The caveats document is updated for every maintenance release and is located on Cisco.com and the Documentation CD-ROM.



Cisco IOS Release 12.2(1)XD4 is caveat-to-caveat compatible with Cisco IOS Release 12.1(5)T. Due to last-minute schedule changes, however, Release 12.2(1)XD4 does not contain some of the fixed caveats available in Cisco IOS T-train releases above Release 12.1(5)T.

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These release notes discuss the following topics:

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System Requirements

This section describes the system requirements for Release 12.2(1)XD4 and includes the following sections:

- Memory Requirements
- Hardware Supported, page 2
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Memory Requirements

Table 1 Memory Requirements for the SOHO 70 Series

Platform Name	Software Image Name	Software Image	Flash Memory	DRAM Memory	Runs from
SOHO 77	Cisco SOHO Series IOS IP	soho70-y1-mz	8 MB	16 MB	RAM

Hardware Supported

Cisco IOS Release 12.2(1)XD4 supports the SOHO 77 router. The SOHO 77 router is a small office and home office (SOHO) asymmetric digital subscriber line (ADSL) router with one Ethernet interface for connection to a service provider networks. The router also provides the following key hardware features:

- Connection to an ADSL network through an ADSL port.
- A central processing unit: 50 MHz MPC 855T RISC processor.
- Ability to be stacked or mounted on a wall.
- Locking power connectors and a Kensington-compatible locking slot.

Table 2 Supported Interfaces for the Cisco SOHO Series

Router	Ethernet Ports	ADSL Ports	Console Ports
SOHO 77	One 10BaseT (RJ-45)	RJ-45	RJ-45

Determining Your Software Release

To determine the version of Cisco IOS software running on your SOHO 70 Series router, log in to the router and enter the **show version EXEC** command:

```
router> show version
Cisco Internetwork Operating System Software
IOS (tm) Software (soho70-y1-mz), Version 12.2(1)XD4, RELEASE SOFTWARE
```

Upgrading to a New Software Release

For information about upgrading to a new software release, refer to the *Cisco IOS Upgrade Ordering Instructions* product bulletin located at the following URL:
http://www.cisco.com/warp/public/cc/pd/iosw/prodlit/957_pp.htm.

Alternatively, the Cisco IOS Software page on Cisco.com has a variety of information, including upgrade information, organized by release. If you have a Cisco.com account and log in, you can go directly to: <http://www.cisco.com/kobayashi/sw-center/sw-ios.shtml>.

If you have a Cisco.com account and log in, you can reach the new software release upgrade page by going to www.cisco.com and following this path: **Service & Support: Software Center: Cisco IOS Software: Product Bulletins: Software: General System Software Bulletins: Cisco IOS Upgrade Ordering Instructions, No. 957**

You can also reach the Cisco **IOS Upgrade Planner**, which allows you more flexibility to browse for your preferred software, by going to www.cisco.com and following this path: **Service & Support: Software Center: IOS Upgrade Planner**.

Feature Set Tables

The Cisco IOS software is packaged in feature sets consisting of software images—depending on the platform. Each feature set contains a specific set of Cisco IOS features. Release 12.2(1)XD4 supports the same feature sets as Releases 12.2 and 12.2 T, but Release 12.2(1)XD4 can include new features supported by the Cisco SOHO series routers.

In Cisco IOS Release 12.2(1)XD4, the following features are supported in the feature set soho70-y1-mz by the Cisco SOHO series routers:

- DCHP Import
- IPCP Subnet
- SA Agent



Note

This feature list is not cumulative, nor does it list all the features in each image.

New and Changed Information

The following section lists the new software features supported by the SOHO 70 Series routers for Release 12.2(1)XD4 and above.

New Software Features in Release 12.2(1)XD1

The following new software features are supported by the Cisco SOHO series for Cisco IOS Release 12.2(1)XD1 and above:

DHCP Server Import

The Cisco IOS Dynamic Host Configuration Protocol (DHCP) Server now allows a network administrator to enable Point-to-Point Protocol (PPP) to automatically configure the Domain Name System (DNS) and Windows Internet Name Service (WINS) Server IP address information within a Cisco IOS DHCP Server Pool(s). Enabling this automatic configuration works in conjunction with network access server commands that prevent a peer from receiving a negative acknowledgement (containing addresses for the peer to use), in response to an IP Control Protocol (IPCP) configuration peer request with non-zero addresses in the DNS and WINS options. (WINS is also known as the NetBios Name Server [NBNS].)

Configuring DHCP Server Import

Use the following commands to enable PPP to automatically configure the DNS and WINS Server IP address information within a Cisco IOS DHCP Server Pool(s).

- router(config-if)# **ppp ipcp dns {request|reject|A.B.C.D.|accept}**

Command Elements	Description
request	Request server addresses from the peer.
reject	Reject negotiations with the peer.
A.B.C.D.	Primary DNS IP address.
accept	Accept any non-zero DNS address.

- router(config-if)# **ppp ipcp wins {request|reject|A.B.C.D.|accept}**

Command Elements	Description
request	Request server addresses from the peer.
reject	Reject negotiations with the peer.
A.B.C.D.	Primary WINS IP address.
accept	Accept any non-zero WINS address.



Note

The above commands were introduced on the SOHO 70 Series Routers in Cisco IOS Release 12.2(1)XD.

IPCP Subnet Mask Delivery

Network administrators can assign IP address pools to customer premises equipment (CPE) devices, which, in turn, assign IP addresses to actual CPE and to a DHCP pool. This feature has three requirements:

- The Cisco IOS CPE device must be able to request and use the subnet.
- The Authentication, Authorization, and Accounting (AAA) Radius must be able to both provide that subnet and insert the framed route into the proper Virtual Route Forwarding (VRF) table.
- The provider edge (PE) router must be able to facilitate providing the subnet (via IPCP).

This functionality also exists in a non-Multiprotocol Label Switching (MPLS) environment if the CPE device is a Cisco 600 series router (which does not run Cisco IOS).

Configuring with IPCP Subnet Masks

Perform the following steps to configure your router to use IPCP subnet masks.



Note

The commands described in the following steps were introduced on the SOHO 70 Series Routers in Cisco IOS Release 12.2(1)XD.

Step 1 Define an IP DHCP pool *poolname* using the global configuration commands below. For example:

```
Router(config)# ip dhcp pool IPPOOLTEST
Router(dhcp-config)# import all
Router(dhcp-config)# origin ipcp
```

The command **import all** imports the DHCP option parameters. The command **origin ipcp** configures the origin of the pool.

Step 2 Assign the Ethernet interface IP address using the command **ip address pool *poolname***. For example:

```
Router(config-if)# ip address pool IPPOOLTEST
```

Step 3 Configure the dialer interface in the configuration interface command mode as follows:

a. Assign an IP address:

```
Router(config)# interface Dialer0
Router(config-if)# ip unnumbered Ethernet0
```

b. Set the IPCP negotiation parameters:

```
router(config-if)# ppp ipcp mask {request|reject|A.B.C.D}
```

Command Elements	Description
reject	Reject subnetmask negotiation from the peer.
request	Request the subnet mask from the peer.
A.B.C.D.	Subnet mask to provide to the peer.

The following sample shows a Cisco 827 router configured to use IPCP subnet masks:

```
Router# show run
Building configuration...

Current configuration :1479 bytes
!
version 12.2
no service single-slot-reload-enable
no service pad
service timestamps debug datetime msec
service timestamps log uptime
no service password-encryption
!
hostname Router
!
no logging buffered
logging rate-limit console 10 except errors
!
```

```

username 6400-nrp2 password 0 lab
ip subnet-zero
ip dhcp smart-relay
!
ip dhcp pool IPPOOLTEST
    import all
    origin ipcp
!
no ip dhcp-client network-discovery
!
interface Ethernet0
    ip address pool IPPOOLTEST
    ip verify unicast reverse-path
    shutdown
    hold-queue 32 in
!
interface ATM0
    no ip address
    atm ilmi-keepalive
    bundle-enable
    dsl operating-mode auto
    hold-queue 224 in
!
interface ATM0.1 point-to-point
    pvc 1/40
        no ilmi manage
        encapsulation aal5mux ppp dialer
        dialer pool-member 1
!
!
interface Dialer0
    ip unnumbered Ethernet0
    ip verify unicast reverse-path
    encapsulation ppp
    dialer pool 1
    dialer-group 1
    no cdp enable
    ppp authentication chap callin
    ppp chap hostname Router
    ppp chap password 7 12150415
    ppp ipcp accept-address
    ppp ipcp dns request
    ppp ipcp wins request
    ppp ipcp mask request
!
ip classless
ip route 0.0.0.0 0.0.0.0 Dialer0
no ip http server
!
dialer-list 1 protocol ip permit
line con 0
    exec-timeout 0 0
    transport input none
    stopbits 1
line vty 0 4
    login
!
scheduler max-task-time 5000
end

```

Service Assurance Agent

The Service Assurance (SA) Agent feature is both a new name for and an enhancement to the Response Time Reporter (RTR) feature introduced in Cisco IOS Release 11.2. The response time and availability monitoring capabilities of RTR now include support for Voice over IP (VoIP), quality of service (QoS), and the World Wide Web.

The SA Agent is an application-aware synthetic operation agent that monitors network performance by measuring key metrics such as response time, availability, jitter (interpacket delay variance), connect time, throughput, and packet loss. This feature is intended to provide support for Service Level Agreement (SLA) reporting functionality of the Cisco VPN Solution Center, but can also be used for troubleshooting, for analysis before problems occur, and for designing future network topologies. Response Time Monitoring (RTTMON) functionality is supported.

Caveats

Caveats describe unexpected behavior in Cisco IOS software releases. Severity 1 caveats are the most serious caveats, severity 2 caveats are less serious, and severity 3 caveats are the least serious of these three severity levels.

Caveats in Cisco IOS Releases 12.2 and 12.2 T are also in Cisco IOS Release 12.2(1)XD4. For information on caveats in Cisco IOS Release 12.2, see *Caveats for Cisco IOS Release 12.2*. For information on caveats in Cisco IOS Release 12.2 T, see *Caveats for Cisco IOS Release 12.2 T*. These two documents list severity 1 and 2 caveats and are located on CCO and the Documentation CD-ROM.



Note

If you have an account with Cisco.com, you can also use the Bug Toolkit to find select caveats of any severity. To reach the Bug Toolkit, log in to Cisco.com and click **Service & Support: Technical Assistance Center: Tool Index: Bug Toolkit**. Another option is to go to http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl.

Resolved Caveats - Releases 12.2(1)XD3 and 12.2(1)XD4

This section describes unexpected behavior that is fixed in Releases 12.2(1)XD3 and 12.2(1)XD4.

Management

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>

Caveats for Release 12.2(1)XD1

This section describes possibly unexpected behavior by software Release 12.2(1)XD1.

Resolved Caveats for Release 12.2(1)XD1

This section describes possibly unexpected behavior by software releases prior to Release 12.2(1)XD1 that have been resolved in Release 12.2(1)XD1 and above.

CSCdt77246:

When a router is configured for PPPoE and IP NAT, and an incoming packet does not contain an MSS field or its TCP option field is not terminated by 0, the router might stop routing packets. This defect has been fixed in 12.2(1)XD1 release.

Unresolved Caveats for Release 12.2(1)XD1

This section describes possibly unexpected behavior by Release 12.2(1)XD1.

CSCdt92752

If you remove the current access-list from the encryption map, change the definition of the access-list, and then reassign the access-list to the encryption map, the access-list does not become active. Use the following solutions to work around this problem:

- To change a definition in the current access-list, directly change the access-list definition instead of removing the access-list from the encryption map.
- To assign a different access-list to the encryption map, remove the old access-list from the encryption map, assign the new access-list to the encryption map, and then define the new access-list.

For example:

```
crypto map map1 10 ipsec-isa
no match address 100
crypto map map1 10 ipsec-isa
match address 110
no access-list 110
access-list 110 permit ip host 2.0.1.26 host 4.0.1.25
```

CSCdt94260

While using the Dialer interface with Cisco Express Forwarding (CEF) enabled, when you connect a SOHO 70 series router to an access aggregator (such as a Cisco 6400 or Cisco 7200), Unicast Reverse Path Forwarding (URPF) incorrectly drops incoming ping packets from the access aggregator. This

problem is caused by the Dialer CEF feature, which is on by default when CEF is enabled. To work around this problem, use the dialer interface command **no ip route-cache cef** to disable the Dialer CEF feature.

CSCdt95764

If you use the DHCP client feature to assign an encryption map to a Bridge Group Virtual Interface (BVI) before the BVI is up or active, the encryption map does not become active and an IPSec tunnel is not built. To work around this problem, assign the encryption map to the BVI again, after the BVI comes up. Note that rebooting the router alone does not fix the problem because the BVI is down before the reboot.

CSCdt98274

The command **ip add dhcp client-id ethernet 0** is available under the BVI but cannot be applied after the DHCP client receives an IP address from the DHCP server. For example, if you enter the command **ip address dhcp** for BVI 1, then enter the command **ip address dhcp client-id e0** on BVI 1 after the SOHO 70 router (the DHCP client) receives an IP address from the DHCP server, and follow up with the command **show run**, the following output is displayed:

```
!
interface BVI1
 ip address dhcp
 crypto map map1
```

To work around this caveat, delete the existing IP address DHCP by entering the command **no ip address dhcp**. Enter the command **ip address dhcp client-id ethernet 0**, followed by the command **ip address dhcp client-id ethernet 0**.

Similarly, for the BVI interface, if you enter the command **ip address dhcp client-id ethernet 0** and, after the SOHO 70 Series Router (the DHCP client) receives an IP address from the DHCP server, you enter the command **ip address dhcp** for BVI 1, followed by the command **show run**, the following output is displayed:

```
!
interface BVI1
 ip address dhcp client-id ethernet 0
 crypto map map1
```

To work around this bug, delete the existing IP address by entering the command **no ip address dhcp client-id ethernet 0**, and then issue a new IP address using the command **ip address dhcp**.

CSCdu02130

SOHO 70 series routers unexpectedly reload if you change the transform set during an active IPSec tunnel and then clear the previous active IPSec tunnel. To work around this problem, clear the active IPSec tunnel before changing the transform set for the active IPSec tunnel, then reapply the transform set to the encryption map.

Related Documentation

The following sections describe the documentation available for the Cisco SOHO series routers. Typically, 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 the documents listed in the following sections:

- Release-Specific Documents
- Platform-Specific Documents
- Feature Modules
- Cisco IOS Software Documentation Set

Release-Specific Documents

The following documents are specific to Release 12.2. They are located on Cisco.com and the Documentation CD-ROM.

- *Release Notes for Cisco IOS Release 12.2*

On Cisco.com at:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.2: Release Notes: Cross-Platform Release Notes

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.2: Release Notes: Cross-Platform Release Notes

- Product bulletins, field notices, and other release-specific documents on Cisco.com at:

Technical Documents: Product Bulletins

- Caveats for Cisco IOS Release 12.2 and 12.2 T

As a supplement to the caveats listed in the “Caveats” section on page 7 section in these release notes, see the *Caveats for Cisco IOS Release 12.2* and *Caveats for Cisco IOS Release 12.2 T* documents, which contain caveats applicable to all platforms for all maintenance releases of IOS Releases 12.1 and 12.1 T.

On Cisco.com at:

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

On the Documentation CD-ROM at:

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

**Note**

If you have an account with Cisco.com, you can also use the Bug Toolkit to find select caveats of any severity. To reach the Bug Toolkit, log in to Cisco.com and click **Service & Support: Technical Assistance Center: Tool Index: Bug Toolkit**. Another option is to go to http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl.

Platform-Specific Documents

These documents are available for the SOHO 70 Series on Cisco.com and the Documentation CD-ROM:

- *Cisco SOHO Series - Release Notes for Release 12.2(1)XD*
- *Configuration Note for Cisco SOHO Series Routers*
- *Regulatory Compliance and Safety Information for Cisco SOHO 76 and 77 Routers*

On Cisco.com at:

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

On the Documentation CD-ROM at:

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

Feature Modules

Feature modules describe new features supported by Release 12.2(1)XD4 and are updates to the Cisco IOS documentation set. A feature module consists of a brief overview of the feature, benefits, configuration tasks, and a command reference. As updates, the feature modules are available online only. Feature module information is incorporated 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 12.1: New Feature Documentation: New Features in 12.1-Based Limited Lifetime Releases: New Features in 12.1X Releases

On the Documentation CD-ROM at:

Cisco Product Documentation: Cisco IOS Software Configuration: Cisco IOS Release 12.1: New Feature Documentation: New Features in 12.1-Based Limited Lifetime Releases: New Features in 12.1X Releases

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. If you do not have an account on Cisco.com, go to <http://www.cisco.com/register> and follow the directions to set up an account.

To use Feature Navigator, you must have a JavaScript-enabled web browser such as Netscape 3.0 or later, or Internet Explorer 4.0 or later. Internet Explorer 4.0 always has JavaScript enabled. To enable JavaScript for Netscape 3.x or Netscape 4.x, follow the instructions provided with the web browser. For JavaScript support and enabling instructions for other browsers, check with the browser vendor.

Feature Navigator is updated when major Cisco IOS software releases and technology releases occur. You can access Feature Navigator at the following URL:

<http://www.cisco.com/go/fn>

Cisco IOS Software Documentation Set

The Cisco IOS software documentation set consists of the Cisco IOS configuration guides, Cisco IOS command references, and several other supporting documents. The Cisco IOS software documentation set is shipped with your order in electronic form on the Documentation CD-ROM—unless you specifically ordered the printed versions.

Documentation Modules

Each module in the Cisco IOS documentation set consists of one or more configuration guides and one or more corresponding command references. Chapters in a configuration guide describe protocols, configuration tasks, and Cisco IOS software functionality, and contain comprehensive configuration examples. Chapters in a command reference provide complete command syntax information. Use each configuration guide with its corresponding command reference.

The Cisco IOS software documentation set is available on Cisco.com and on the Documentation CD-ROM.

On Cisco.com at:

Technical Documents: 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

Release 12.2 Documentation Set

Table 3 lists the contents of the Cisco IOS Release 12.2 software documentation set, which is available in both electronic and printed form.



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 3 Cisco IOS Release 12.2 Documentation Set

Books	Major Topics
<ul style="list-style-type: none"> <i>Cisco IOS Configuration Fundamentals Configuration Guide</i> <i>Cisco IOS Configuration Fundamentals Command Reference</i> 	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 1 of 2</i> <i>Cisco IOS Bridging and IBM Networking Command Reference, Volume 2 of 2</i> 	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

Table 3 Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
<ul style="list-style-type: none"> • <i>Cisco IOS Dial Technologies Configuration Guide</i> • <i>Cisco IOS Dial Technologies Command Reference</i> 	<ul style="list-style-type: none"> Preparing for Dial Access Modem and Dial Shelf Configuration and Management ISDN Configuration Signaling Configuration Dial-on-Demand Routing Configuration Dial Backup Configuration Dial Related Addressing Service Virtual Templates, Profiles, and Networks PPP Configuration Callback and Bandwidth Allocation Configuration Dial Access Specialized Features Dial Access Scenarios
<ul style="list-style-type: none"> • <i>Cisco IOS Interface Configuration Guide</i> • <i>Cisco IOS Interface Command Reference</i> 	<ul style="list-style-type: none"> LAN Interfaces Serial Interfaces Logical Interfaces
<ul style="list-style-type: none"> • <i>Cisco IOS IP Configuration Guide</i> • <i>Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services</i> • <i>Cisco IOS IP Command Reference, Volume 2 of 3: Routing Protocols</i> • <i>Cisco IOS IP Command Reference, Volume 3 of 3: Multicast</i> 	<ul style="list-style-type: none"> IP Addressing and Services IP Routing Protocols IP Multicast
<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> 	<ul style="list-style-type: none"> 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> 	<ul style="list-style-type: none"> Apollo Domain Banyan VINES DECnet ISO CLNS XNS
<ul style="list-style-type: none"> • <i>Cisco IOS Voice, Video, and Fax Configuration Guide</i> • <i>Cisco IOS Voice, Video, and Fax Command Reference</i> 	<ul style="list-style-type: none"> 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"> • <i>Cisco IOS Quality of Service Solutions Configuration Guide</i> • <i>Cisco IOS Quality of Service Solutions Command Reference</i> 	<ul style="list-style-type: none"> Packet Classification Congestion Management Congestion Avoidance Policing and Shaping Signaling Link Efficiency Mechanisms

Table 3 Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
<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 Supported AV Pairs
<ul style="list-style-type: none"> • <i>Cisco IOS Switching Services Configuration Guide</i> • <i>Cisco IOS Switching Services Command Reference</i> 	Cisco IOS Switching Paths NetFlow Switching Multiprotocol Label Switching Multilayer Switching Multicast Distributed Switching Virtual LANs LAN Emulation
<ul style="list-style-type: none"> • <i>Cisco IOS Wide-Area Networking Configuration Guide</i> • <i>Cisco IOS Wide-Area Networking Command Reference</i> 	ATM Broadband Access Frame Relay SMDS X.25 and LAPB
<ul style="list-style-type: none"> • <i>Cisco IOS Mobile Wireless Configuration Guide</i> • <i>Cisco IOS Mobile Wireless Command Reference</i> 	General Packet Radio Service
<ul style="list-style-type: none"> • <i>Cisco IOS Terminal Services Configuration Guide</i> • <i>Cisco IOS Terminal Services Command Reference</i> 	ARA LAT NASI Telnet TN3270 XRemote X.28 PAD Protocol Translation
<ul style="list-style-type: none"> • <i>Cisco IOS Configuration Guide Master Index</i> • <i>Cisco IOS Command Reference Master Index</i> • <i>Cisco IOS Debug Command Reference</i> • <i>Cisco IOS Software System Error Messages</i> • New Features in 12.2-Based Limited Lifetime Releases • New Features in Release 12.2 T • Release Notes (Release note and caveat documentation for 12.2-based releases and various platforms) 	

Obtaining Documentation

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

World Wide Web

The most current Cisco documentation is available 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 products 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.

For your convenience, many documents contain a response card behind the front cover for submitting your comments by mail. 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

The following sections provide sources for obtaining technical assistance from Cisco Systems.

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/>

Cisco.com registered users who cannot resolve a technical issue by using the TAC online resource 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.

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