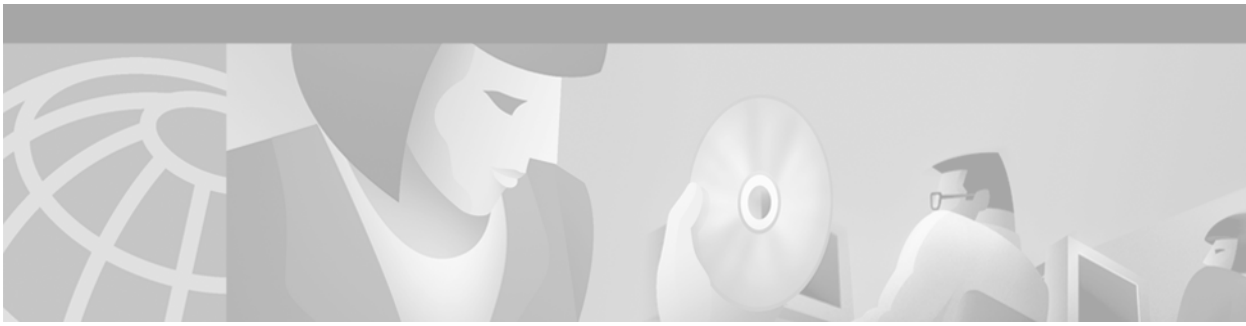

Release Notes for the SOHO 70 Series Routers and the Cisco 800 Series Routers for Cisco IOS Release 12.2(4)XM

June 25, 2002

These release notes for the SOHO 70 Series Routers and Cisco 800 Series Routers describe the enhancements provided in Cisco IOS Release 12.2(4)XM4. These release notes are updated as needed. Use these release notes with *Cross-Platform Release Notes for Cisco IOS Release 12.2 T* located on Cisco.com and the Documentation CD.

For a list of the software caveats that apply to Cisco IOS Release 12.2(4)XM4, see the *Caveats for Cisco IOS Release 12.2 T*. The caveats document is updated for every maintenance release and is located on Cisco.com and the Documentation CD.

Contents

These release notes discuss the following topics:

Corporate Headquarters:
Cisco Systems, Inc., 170 West Tasman Drive, San Jose, CA 95134-1706 USA

System Requirements

This section describes the system requirements for Release 12.2(4)XM4 and includes the following sections:

Memory Requirements

Table 1 and Table 2 provide the memory requirements for the Cisco IOS feature sets supported by Cisco IOS Release 12.2(4)XM4 on the SOHO 70 Series Routers and Cisco 800 Series Routers.

Table 1 Recommended Memory for the SOHO 70 Series Routers

Platforms	Image Name	Feature Set	Image	Recommended Flash Memory	Recommended DRAM Memory	Runs From
SOHO 77 Router	Cisco soho70 Series IOS IP	IP	soho70-y1-mz	8 MB	16 MB	RAM
SOHO 78 Router	Cisco soho78 Series IOS IP	IP	soho78-y1-mz	8 MB	16 MB	RAM

Table 2 Recommended Memory for the Cisco 800 Series Routers

Platforms	Image Name	Feature Set	Image	Recommended Flash Memory	Recommended DRAM Memory	Runs From
Cisco 806 Router	Cisco 806 Series IOS IP/FW Plus 3DES	IP/FW Plus 3DES	c806-k9osy6-mz	8 MB	20 MB	RAM
	Cisco 806 Series IOS IP/FW	IP/FW	c806-oy6-mz	8 MB	16 MB	RAM
	Cisco 806 Series IOS IP Plus	IP Plus	c806-sy6-mz	8 MB	16 MB	RAM
	Cisco 806 Series IOS IP	IP	c806-y6-mz	8 MB	16 MB	RAM
Cisco 826 and 827 Routers	Cisco 820 Ser IOS IP Plus IPSec 56	IP Plus IPSec 56	c820-k9osy6-mz	8 MB	24 MB	RAM
	Cisco 820 Ser IOS IP/FW	IP/FW	c820-oy6-mz	8 MB	20 MB	RAM
	Cisco 820 Ser IOS IP Plus	IP Plus	c820-sy6-mz	8 MB	20 MB	RAM
	Cisco 820 Ser IOS IP	IP	c820-y6-mz	8 MB	16 MB	RAM
Cisco 827-4V Routers	Cisco 820 Ser IOS IP/FW/Voice Plus 3DES	IP/FW/Voice Plus 3DES	c820-k9osv6y6-mz	8 MB	32 MB	RAM
	Cisco 820 Ser IOS IP/Voice Plus	IP/Voice Plus	c820-sv6y6-mz	8 MB	24 MB	RAM

Table 2 Recommended Memory for the Cisco 800 Series Routers (continued)

Platforms	Image Name	Feature Set	Image	Recommended Flash Memory	Recommended DRAM Memory	Runs From
Cisco 827-4V Routers (continued)	Cisco 820 Ser IOS IP/FW/ Voice	IP/FW/Voice	c820-ov6y6-mz	8 MB	24 MB	RAM
	Cisco 820 Ser IOS IP/Voice	IP/Voice	c820-v6y6-mz	8 MB	24 MB	RAM
Cisco 828 Router	IP/FW Plus 3DES	IP/FW Plus 3DES	c828-k9osy6-mz	8 MB	24 MB	RAM
	IP/FW	IP/FW	c828-oy6-mz	8 MB	20 MB	RAM
	IP Plus	IP Plus	c828-sy6-mz	8 MB	20 MB	RAM
	IP	IP	c828-y6-mz	8 MB	16 MB	RAM

Hardware Supported

Cisco IOS Release 12.2(4)XM4 supports the following Cisco routers:

- SOHO 70 series routers:
  - SOHO 77 Routers
  - SOHO 78 Routers
- Cisco 806 Routers
- Cisco 820 series routers:
  - Cisco 826 Routers
  - Cisco 827 Routers
  - Cisco 827-V Routers
  - Cisco 828 Routers

For detailed descriptions of new hardware features and which features are supported on each router, see the "New and Changed Information" section on page 9.

SOHO 77 Routers

The SOHO 77 router provides the following key hardware features:

- Connection to an ADSL network through an asymmetric digital subscriber line (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 3 summarizes Cisco SOHO 77 router ports.

Table 3 Supported Interfaces for the SOHO 77 Routers

Router	Ethernet Ports	ADSL Ports	Console Ports
SOHO 77	One 10BaseT (RJ-45)	RJ-11	RJ-45

SOHO 78 Routers

The SOHO 78 router provides the following key hardware features:

- Connection to a G.SHDSL network through a G.SHDSL 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 4 summarizes Cisco SOHO 78 router ports.

Table 4 Supported Interfaces for the SOHO 78 Routers

Router	Ethernet Ports	G.SHDSL Ports	Console Ports
SOHO 78	One 10BaseT (RJ-45)	RJ-11	RJ-45

Cisco 806 Routers

Cisco 806 routers provide the following key hardware features:

- Provide connection to 10BaseT (10-Mbps) Ethernet networks and is compatible with 10/100-Mbps devices.
- Flash memory: The Cisco IOS uses the current default of 8 MB for loading Cisco IOS images.
- Webflash: 2 MB of Flash memory reserved for use by the Cisco Router Web Setup software.
- Cisco 806 Router Dynamic RAM: Default is 12 MB of DRAM and is expandable to 32 MB, using 4-MB, 8-MB, and 16-MB DIMM cards.
- The central processing unit is a 50 MHz MPC 855T RISC processor.
- Support Cisco IOS software.
- Color-coded ports and cable reduce the chance of cabling errors.
- Ability to be stacked or mounted on a wall.
- Accept a cable lock for physically securing the router.
- The routers provide locking power connectors and a Kensington-compatible locking slot.

Table 5 summarizes Cisco 806 router ports.

Table 5 Cisco 806 Router Ports

Port Type	Description
Ethernet Port	One 10BaseT (RJ-45). Connects to broadband modem or Ethernet switch.
Ethernet Hubbed Ports	Four 10BaseT (RJ-45). Connect to Ethernet network devices.
Console Port	One (RJ-45).

Cisco 826, Cisco 827, and Cisco 827-4V Routers

The Cisco 826, Cisco 827, and Cisco 827-4V Series Routers provide the following key hardware features:

- The routers provide connection to an ADSL network or telephones and fax machines through an ADSL port.
- Flash memory: Default is 12 MB and is expandable to 20 MB. If 12 MB is Flash is installed, 8 MB is used for the Cisco IOS images and 4 MB hosts the ROMMON and NVRAM. Additional memory can be added using Flash cards.
- Cisco 826 and Cisco 827 routers Dynamic RAM: Default is 16 MB of DRAM and is expandable to 32 MB.
- Cisco 827-4V router Dynamic RAM: Default is 24 MB and is expandable to 32 MB. The Cisco 827-4V router also contains an 8-MB DIMM card.
- The central processing unit is a 50 MHz MPC 855T RISC processor.
- Color-coded ports and cable reduce the chance of cabling errors.
- Ability to be stacked or mounted on a wall.
- The routers provide locking power connectors and a Kensington-compatible locking slot.

Table 6 lists the supported interfaces for the Cisco 826, Cisco 827, and Cisco 827-4V routers.

Table 6 Supported Interfaces for the Cisco 826, Cisco 827, and Cisco 827-4V Router

Router	Ethernet Ports	ADSL Ports	Telephone Ports	Console Ports
Cisco 826	One 10BaseT (RJ-45)	RJ-45	–	RJ-45
Cisco 827	One 10BaseT (RJ-45)	RJ-45	–	RJ-45
Cisco 827-4V	One 10BaseT (RJ-45)	RJ-45	Four (RJ-11)	RJ-45

Cisco 828 Routers

Cisco 828 routers provide the following key hardware features:

- Provide connection to 10BaseT (10-Mbps) Ethernet networks and is compatible with 10/100-Mbps devices.
- Provide connection to G.991.2 (digital-encoding standard) symmetrical high-speed digital subscriber line (G.SHDSL) networks.
- Flash memory: The Cisco IOS uses the current default of 8 MB for loading Cisco IOS images, upgradable to 16 MB.
- Webflash: 2 MB of Flash memory reserved for use by the Cisco Router Web Setup software.
- Dynamic RAM: Default is 16 MB of DRAM and is expandable to 32 MB, using 4-MB, 8-MB, and 16-MB DIMM cards.
- The central processing unit is a 50 MHz MPC 855T RISC processor.
- Support Cisco IOS software.
- Color-coded ports and cables, which reduce the chance of cabling errors.
- Ability to be stacked or mounted on a wall.

- Accept a cable lock for physically securing the routers.
- Provide locking power connectors.

Table 7 summarizes Cisco 828 router ports.

Table 7 Cisco 828 Router Ports

Port Type	Description
Ethernet Hubbed Ports	Four 10BaseT (RJ-45). Connect to Ethernet network devices.
G. SHDSL Port	One (RJ-11). Provides connection to G. SHDSL networks.
Console Port	One (RJ-45).

Determining the Software Version

To determine the version of Cisco IOS software running on your Cisco router, log in to the router and enter the **show version** EXEC command. The following sample displays command output from a Cisco 806 router running Release 12.2(4)XM4:

```
Router> show version
Cisco Internetwork Operating System Software
IOS (tm) 12.2 Software (c806-y6-mz), Version 12.2(4)XM4, RELEASE SOFTWARE
```

Upgrading to a New Software Release

For general information about upgrading to a new software release, see Technical Support for 800 Series Routers.

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(4)XM4 supports the same feature sets as Releases 12.2 T, but Release 12.2(4)XM4 can include new features supported by the SOHO 70 Series Routers and Cisco 800 Series Routers.

Table 8 through Table 11 list the features and feature sets supported in Cisco IOS Release 12.2(4)XM4:

- Table 8—SOHO 77 and SOHO 78 routers
- Table 9—Cisco 806 routers
- Table 10—Cisco 826 and 827 routers
- Table 11—Cisco 828 routers

The tables use the following conventions:

- Yes—The feature is supported in the software image.
- No—The feature is not supported in the software image.
- In—The number in the “In” column indicates the Cisco IOS release in which the feature was introduced. For example, “Release 12.2(4)XM4” means the feature was introduced in Release 12.2(4)XM4. If a cell in this column is empty, the feature was included in a previous release or the initial base release.

Note These feature set tables only contain a selected list of features. These tables are not cumulative—nor do they list all the features in each image.

Table 8 Feature List by Feature Set for the SOHO 77 and SOHO 78 Routers

		Feature Set
Features	**In**	**IP**
Business-Class Quality of Service		
Class-Based Traffic Shaping to Support Low Latency Queueing		No
Weighted Fair Queuing		No
Quality of Service		
Committed Access Rate (CAR)		No
Low Latency Queueing		No
Dial Services		
Dial-On-Demand Routing for PPPoE Client	12.2(4)XM	Yes

Table 9 Feature List by Feature Set for the Cisco 806 Routers

		Feature Sets			
Features	**In**	**IP/FW Plus 3DES**	**IP/FW**	**IP Plus**	**IP**
Business-Class Quality of Service					
Class-Based Traffic Shaping to Support Low Latency Queueing	12.2(4)XM	Yes	No	Yes	No
Weighted Fair Queuing	12.2(4)XM	Yes	Yes	Yes	Yes
Quality of Service					
Committed Access Rate (CAR)	12.2(4)XM	Yes	No	Yes	No
Low Latency Queueing	12.2(4)XM	No	No	Yes	No
Dial Services					
Dial-On-Demand Routing for PPPoE Client	12.2(4)XM	Yes	Yes	Yes	Yes

Table 10 Feature List by Feature Set for the Cisco 826 and 827 Routers (Part 1 of 2)

		Feature Sets			
Features	**In**	**IP Plus IPSec 56**	**IP/FW**	**IP Plus**	**IP**
Business-Class Quality of Service					
Class-Based Traffic Shaping to Support Low Latency Queueing		No	No	No	No
Weighted Fair Queuing		Yes	Yes	Yes	Yes

Table 10 Feature List by Feature Set for the Cisco 826 and 827 Routers (Part 1 of 2) (continued)

		Feature Sets			
Features	**In**	**IP Plus IPSec 56**	**IP/FW**	**IP Plus**	**IP**
Quality of Service					
Committed Access Rate (CAR)	12.2(2)XK	Yes	No	Yes	No
Low Latency Queueing		Yes	No	Yes	No
Dial Services					
Dial-On-Demand Routing for PPPoE Client	12.2(4)XM	Yes	Yes	Yes	Yes

Table 10 Feature List by Feature Set for the Cisco 826 and 827 Routers (Part 2 of 2)

		Feature Sets			
Features	**In**	**IP/FW/Voice Plus 3DES**	**IP/Voice Plus**	**IP/FW/ Voice**	**IP/Voice**
Business-Class Quality of Service					
Class-Based Traffic Shaping to Support Low Latency Queueing		No	No	No	No
Weighted Fair Queuing		Yes	Yes	Yes	Yes
Quality of Service					
Committed Access Rate (CAR)		No	No	No	No
Low Latency Queueing		Yes	Yes	No	No
Dial Services					
Dial-On-Demand Routing for PPPoE Client	12.2(4)XM	Yes	Yes	Yes	Yes

Table 11 Feature List by Feature Set for the Cisco 828 Series Routers

		Feature Sets			
Features	**In**	**IP/FW Plus 3DES**	**IP/FW**	**IP Plus**	**IP**
Business-Class Quality of Service					
Class-Based Traffic Shaping to Support Low Latency Queueing		No	No	No	No
Weighted Fair Queuing		Yes	Yes	Yes	Yes
Quality of Service					
Committed Access Rate (CAR)	12.2(2)XK	Yes	No	Yes	No
Low Latency Queueing		Yes	No	Yes	No
Dial Services					
Dial-On-Demand Routing for PPPoE Client	12.2(4)XM	Yes	Yes	Yes	Yes

New and Changed Information

The following sections list the new software features supported by routers for Release 12.2(4)XM4 and above:

New Features in Release 12.2(4)XM

The following sections list the new software features supported by Cisco IOS Release 12.2(4)XM4 on the SOHO 70 Series Routers and the Cisco 800 Series Routers.

Committed Access Rate

Release 12.2(4)XM4 adds support for committed access rate (CAR) to limit bandwidth transmission rates to traffic sources and destinations. The CAR feature also specifies policies for handling traffic that breaches the specified bandwidth allocations. To enable CAR, enter the command **rate-limit** in ATM-interface-configuration mode. Additional feature configuration instructions and examples are available in the *Software Enhancements for the Cisco 800 Routers and SOHO Routers* publication.

Class-Based Traffic Shaping to Support Low Latency Queueing

Class-Based Traffic Shaping (CBTS) is a feature for controlling traffic that is exiting the Ethernet 1 (WAN) interface, to match the interface-transmission speed to the speed of the attached broadband modem or to the remote target interface. CBTS ensures that traffic conforms to proper policies, to eliminate bottlenecks in topologies with data-rate mismatches.

Dial-On-Demand Routing for PPPoE Client

The dial-on-demand routing (DDR) for PPPoE client feature provides flexibility for those subscribers whose ISP charges based on the amount of time they are connected to the network (non-flat rate services). With this feature, you can designate a type of traffic as interesting traffic, and configure the router to bring up the PPPoE connection when interesting traffic arrives from the LAN interface and to bring down the connection when the dialer idle timer expires.

Low Latency Queueing

Low Latency Queueing (LLQ) provides a low-latency, strict-priority transmit queue for voice over IP (VoIP) traffic. Strict priority queueing allows delay-sensitive data such as voice to be dequeued and sent first (before packets in other queues are dequeued), giving delay-sensitive data preferential treatment over other traffic. Refer to *Software Enhancements for the Cisco 800 Routers and SOHO Routers* for more information on this feature.

Weighted Fair Queuing

Weighted Fair Queuing (WFQ) enables slow-speed links, such as serial links, to provide fair treatment for all types of traffic. The WFQ feature classifies traffic into different flows (also called conversations), based on layer-three and layer-four information, such as IP addresses and TCP ports. The WFQ feature

does not require you to define access lists; this means low-bandwith traffic has priority over high-bandwith traffic because high-bandwidth traffic shares the transmission media in proportion to its assigned weight.

The WFQ feature has certain limitations: it is not scalable if the flow amount increases considerably and native WFQ is not available on high-speed interfaces, such as ATM interfaces. The feature Class-Based WFQ, available on Plus images, overcomes these limitations.

New Software Features in Release 12.2 T

For information regarding the features supported in Cisco IOS Release 12.2 T, refer to the Cross-Platform Release Notes and New Feature Documentation links at the following location on Cisco.com and the Documentation CD-ROM:

http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/index.htm

This URL is subject to change without notice. If it changes, point your web browser to Cisco.com, and click on the following path:

Service & Support: **Technical Documents**: **Release 12.2** (from the **Cisco IOS Software** drop-down list)

Important Notes

The following sections contain important notes about Cisco IOS Release 12.2(4)XM4 that can apply to SOHO 70 and Cisco 800 series routers. (Also, see the "Caveats" section on page 12.)

Configuring the DDR for PPPoE Client Feature

To configure the DDR for PPPoE client feature, use the following command:

pppoe-client dial-pool-number *number* [**dial-on-demand**]

The feature is disabled by default. The following commands must also be configured for the dialer interface to support the DDR for PPPoE client feature:

```
dialer-group dialer-group
dialer idle-timeout dialer idle-timeout
dialer hold-queue dialer hold-queue
```

Additionally, the following command must be configured in global command mode:

```
dialer-list dialer-list protocol ip [deny | list | permit]
```

Here is a PPPoE client configuration example:

```
!
vpdn enable
no vpdn logging
!
vpdn-group 1
 request-dialin
  protocol pppoe
!
```

```
interface Ethernet1
 pppoe enable
 pppoe-client dial-pool-number 1
!
interface Dialer1
 ip address negotiated
 ip mtu 1492
 encapsulation ppp
 dialer pool 1
 dialer idle-timeout 180 either
 dialer hold-queue 100
 dialer-group 1
!
dialer-list 1 protocol ip permit
!
ip route 0.0.0.0 0.0.0.0 Dialer1
```

Configuring PPPoE on a Cisco 806 Router

When specifying the method of authentication while configuring PPPoE and connecting to a Service Provider, the argument *optional* might be required to successfully authenticate the connection. For example:

```
interface Dialer0
 ppp authentication pap optional
```

or

```
interface Dialer0
 ppp authentication chap optional
```

dsl enable-training-log Command

In previous releases, a DSL training log was retrieved by default each time a Cisco router established contact with a DSLAM. The training log is a record of the events that occur when the router trains or negotiates communication parameters with the DSLAM at the central office.

Retrieving this log adds time to the training process and is not always necessary after a router has successfully trained. Therefore, the Cisco IOS 12.2(4)XM images now disable the retrieval of the training log by default.

To retrieve the log, enter the command **dsl enable-training-log**. The **no** form of this command disables the retrieval of the DSL training log. The caveat number associated with this modification is CSCdw18903. For instructions on how to use the command **dsl enable-training-log**, refer to the online document *Software Enhancements for the Cisco 800 Routers and SOHO Routers*.

Globespan R1.5 Firmware

When using Release 12.2(4)XM4, you must use firmware version R1.5 for G.SHDSL chip sets. Firmware version R1.5 is an upgrade from R1.0, with better performance and a more reliable rate adaptation training capability. The R1.5 firmware release is compliant with the ITU-T G.991.2 standard and backward-compatible with releases R1.0 and R1.35, which were released by Cisco DSLAMs with 8xG.SHDSL cards.

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(4)XM4. 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 toCisco.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 - Release 12.2(4)XM4

This section describes unexpected behavior that is fixed in Release 12.2(4)XM4.

CSCdx36052

The following Alcatel DSLAM has been tested with the c828/SOHO78 and is supported:

Alcatel 7300 with the G.SHDSL linecard. DSLAM:
Firmware: GWNAAA4.118
Software:4.1.31

The supported EOC messages are:

11 - Status Request
12 - Full Status Request
140 - Performance Status SHDSL Network Side
144 - Generic Unable To Comply (UTC)
129 - Discovery Response
130 - Inventory Response
131 - Configuration Response - SHDSL

CSCdx17233

A Cisco router running Simple Network Management Protocol (SNMP) might reload after a severe memory leak occurs.

CSCdv43559

If you use NAS for ASCII logins using a TACACS+ server that uses a TACACS+ status of GETDATA (3) to collect information, the login fails. The work around for this problem is to fail over to a backup authentication method.

CSCdv54349

Local AAA authentication might not function. To work around the problem, assign AAA to a remote server or install an earlier Cisco IOS software release.

CSCdv27836

If you enter Return without any other characters when you are prompted for a username, a Cisco router enters an infinite loop, repeatedly prompting for a username. If a hostile user repeatedly enters Return without any other characters, eventually the router unexpectedly resets. This problem occurs for Exec logins and includes Telnets.

There is no workaround for direct console access. In this case an attacker also has a physical access to the router, so other attacks are possible. If you are using Telnet to connect to the device, a workaround is to use SSH instead of Telnet, to allow Telnet access only from authorized hosts. If you are using a remote console via terminal server to access the Cisco router, a workaround is to use SSH to access the terminal server and then Telnet to the Cisco router port, to allow Telnet access from authorized hosts only.

CSCdx11089

When using Telnet and a CS UNIX TACACS+ server to access a router with TACACS+ user authentication, you cannot activate the “Change password sequence.”

CSCdx19222

The RTR Timeout resets on reload.

CSCdx22635

A Cisco router can run out of memory if the command **snmp get-many** is entered. The bug is in the MMI code. The MMI subsystem is now removed to avoid this memory-leak problem.

CSCdw35930

The command **aaa authentication attempts login** *n* appears in a configuration if the command **tacacs-server attempts** *n* is also present in the configuration. Changes to either command are reflected in the other. The number of attempts granted is actually one less than the number configured. The workaround is to configure an additional attempt.

Resolved Caveats - Release 12.2(4)XM3

This section describes unexpected behavior that is fixed in Release 12.2(4)XM3.

CSCdw54337

A Cisco 806 router might reload with a SegV Exception at PC 0x8026D074.

CSCdw61794

A PPPoE call made through a Cisco 806 router might fail. If the command **debug ppp negotiation** is enabled during the time of the failure, the following error message is displayed:

```
Vi1 UNKNOWN(0xBADD): LCP not open, discarding packet
```

A workaround is to enter the command **no ip cef** in the global configuration mode to disable **cef**.

Open Caveats - Release 12.2(4)XM3

This section describes possibly unexpected behavior by Release 12.2(2)XK3.

Miscellaneous

CSCin00238

The last encryption map entry cannot be removed from the dialer interface even after the command **no crypto map** *testtag* is given in the global configuration mode. A workaround is to manually shut down the dialer interface and then remove the encryption map entry.

CSCdu00267

When running a firewall audit for TFTP, the TFTP data session responder log displays the number of bytes transferred incorrectly. Only logging functionality is affected, however, and the TFTP firewall audit feature operates correctly.

CSCdv73353

Fast switching is enabled by the configuration of the command **ip cef**. Packets cannot be Fast switched on Cisco SOHO 77 routers because Cisco SOHO 77 routers do not support the command **ip cef**.

CSCdv81134

If a Cisco 827 router is configured to inspect TFTP application traffic with audit trails turned on, the audit trail for TFTP displays an incorrect number of bytes transmitted for the tftp-data session.

CSCdv85349

The use of PPTP functionality on a Cisco 806 router causes the router to unexpectedly reload. Although PPTP termination commands can be entered on a Cisco 806 router, Cisco 806 routers only supports PPTP passthrough and do not support the PPTP termination feature.

CSCdw30110

The encryption process on a Cisco 806 router remains in pending status even after an Entrust CA server grants a digital certificate.

Resolved Caveats - Release 12.2(4)XM2

This section describes unexpected behavior that is fixed in Release 12.2(4)XM2.

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

Resolved Caveats - Release 12.2(4)XM1

This section describes unexpected behavior that is fixed in Release 12.2(4)XM1.

Management

CSCdv65027

The command-line interface (CLI) does not prompt for the **erase** keyword when the **copy** [**/erase**] **source-url destination-url** EXEC command is entered. This behavior does not allow a file system to be erased using the **copy** [**/erase**] **source-url destination-url** EXEC command. To work around this problem, enter the **erase filesystem:** command before entering the **copy** EXEC command.

CSCdu86498

When AAA Authentication is enabled and default group RADIUS is configured, you are prompted for a user-name and password. Previous Cisco IOS releases only prompted you for “enable password.” To work around this problem, enter any character(s) at the user-name prompt and then enter the enable password.

Open Caveats - Release 12.2(4)XM

This section describes possibly unexpected behavior by Release 12.2(4)XM. Only severity 1 through 3 caveats are included.

CSCdw21031

Due to CRC errors, when a VC bundle is enabled some packets are dropped on the output queue of a Cisco 826 router ATM interface.

CSCdw22299

Incoming packets are process switched when a generic routing encapsulation (GRE) tunnel is used over a PPPoA or PPPoE connection.

CSCdw30110

A Cisco 806 router encryption process remains in pending status after an Entrust CA server is granted a digital certificate.

Related Documentation

The following sections describe the documentation available for the SOHO 70 and Cisco 800 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 and the Cisco IOS release notes, 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 and apply to Release 12.2(4)XM4. They are located on Cisco.com and the Documentation CD-ROM (under the heading **Service & Support**):

- To reach the *Release Notes for the Cisco 800 Series Routers for Cisco IOS Release 12.2*, click this path:

  Technical Documents: **Cisco IOS Software**: **Release 12.2**: **Release Notes**: **Cisco IOS Release 12.2T**

- To reach the *Cross-Platform Release Notes for Cisco IOS Release 12.2 T*, click this path:

  Technical Documents: **Cisco IOS Software**: **Release 12.2**: **Release Notes**: **Cisco IOS Release 12.2 T**

- To reach product bulletins, field notices, and other release-specific documents, click this path:

  Technical Documents: **Product Bulletins**

- The *Caveats for Cisco IOS Release 12.2* and *Caveats for Cisco IOS Release 12.2 T* documents contain caveats applicable to all platforms for all maintenance releases of Release 12.2. To reach the caveats documents, click this path:

  Technical Documents: **Cisco IOS Software**: **Release 12.2**: **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 toCisco.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

Hardware installation guides, configuration and command reference guides, and additional documents are available for the SOHO 70 and Cisco 800 series routers on Cisco.com and the Documentation CD-ROM.

Cisco 800 Series and SOHO 77 Routers

Documents specific to the Cisco 800 series and SOHO 77 routers are on Cisco.com and the Documentation CD-ROM:

Technical Documents: **Documentation Home Page**: **Access Servers and Access Routers**: **Fixed Configuration Access Routers**: **<platform_name>**

Software Configuration

The document *Cisco Router Web Setup User Guide* is available for the Cisco 800 series and SOHO 77 routers on Cisco.com and the Documentation CD-ROM at:

Technical Documents: **Router Configuration Tools**: **Cisco Router Web Setup**

Feature Modules

Feature modules describe new features supported by Release 12.2 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.

To reach the Release 12.2 feature modules from Cisco.com Documentation CD-ROM, click this path (under the heading **Service & Support**):

Technical Documents: Cisco IOS Software: Release 12.2: New Feature Documentation: New Features in 12.2-Based Limited Lifetime Releases: New Features in 12.2X 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 (under the heading **Service & Support**) at:

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

Release 12.2 Documentation Set

Table 12 lists the contents of the Cisco IOS Release 12.2 software documentation set, which is available in both electronic and printed form (under the heading **Service & Support**) on Cisco.com and on the Documentation CD-ROM:

Technical Documents: **Cisco IOS Software**: **Release 12.2**

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.

Table 12 Cisco IOS Release 12.2 Documentation Set

Books	Major Topics
• *Cisco IOS Configuration Fundamentals Configuration Guide* • *Cisco IOS Configuration Fundamentals Command Reference*	Cisco IOS User Interfaces File Management System Management
• *Cisco IOS Bridging and IBM Networking Configuration Guide* • *Cisco IOS Bridging and IBM Networking Command Reference, Volume 1 of 2* • *Cisco IOS Bridging and IBM Networking Command Reference, Volume 2 of 2*	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
• *Cisco IOS Dial Technologies Configuration Guide* • *Cisco IOS Dial Technologies Command Reference*	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
• *Cisco IOS Interface Configuration Guide* • *Cisco IOS Interface Command Reference*	LAN Interfaces Serial Interfaces Logical Interfaces
• *Cisco IOS IP Configuration Guide* • *Cisco IOS IP Command Reference, Volume 1 of 3: Addressing and Services* • *Cisco IOS IP Command Reference, Volume 2 of 3: Routing Protocols* • *Cisco IOS IP Command Reference, Volume 3 of 3: Multicast*	IP Addressing and Services IP Routing Protocols IP Multicast
• *Cisco IOS AppleTalk and Novell IPX Configuration Guide* • *Cisco IOS AppleTalk and Novell IPX Command Reference*	AppleTalk Novell IPX

Table 12 Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
• *Cisco IOS Apollo Domain, Banyan VINES, DECnet, ISO CLNS, and XNS Configuration Guide* • *Cisco IOS Apollo Domain, Banyan VINES, DECnet, ISO CLNS, and XNS Command Reference*	Apollo Domain Banyan VINES DECnet ISO CLNS XNS
• *Cisco IOS Voice, Video, and Fax Configuration Guide* • *Cisco IOS Voice, Video, and Fax Command Reference*	Voice over IP Call Control Signaling Voice over Frame Relay Voice over ATM Telephony Applications Trunk Management Fax, Video, and Modem Support
• *Cisco IOS Quality of Service Solutions Configuration Guide* • *Cisco IOS Quality of Service Solutions Command Reference*	Packet Classification Congestion Management Congestion Avoidance Policing and Shaping Signaling Link Efficiency Mechanisms
• *Cisco IOS Security Configuration Guide* • *Cisco IOS Security Command Reference*	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
• *Cisco IOS Switching Services Configuration Guide* • *Cisco IOS Switching Services Command Reference*	Cisco IOS Switching Paths NetFlow Switching Multiprotocol Label Switching Multilayer Switching Multicast Distributed Switching Virtual LANs LAN Emulation
• *Cisco IOS Wide-Area Networking Configuration Guide* • *Cisco IOS Wide-Area Networking Command Reference*	ATM Broadband Access Frame Relay SMDS X.25 and LAPB
• *Cisco IOS Mobile Wireless Configuration Guide* • *Cisco IOS Mobile Wireless Command Reference*	General Packet Radio Service

Table 12 Cisco IOS Release 12.2 Documentation Set (continued)

Books	Major Topics
• *Cisco IOS Terminal Services Configuration Guide* • *Cisco IOS Terminal Services Command Reference*	ARA LAT NASI Telnet TN3270 XRemote X.28 PAD Protocol Translation
• *Cisco IOS Configuration Guide Master Index* • *Cisco IOS Command Reference Master Index* • *Cisco IOS Debug Command Reference* • *Cisco IOS Software System Error Messages* • 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 might 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 on page 16.