Release Notes for the Cisco 1700 Series Routers for Cisco IOS Release 12.1(1)XC

March 27, 2000

These release notes describe new features and significant software components for the Cisco 1700 series routers that support Cisco IOS Release 12.1 T, up to and including Release 12.1(1)XC. These release notes are updated as needed to describe new memory requirements, new features, new hardware support, software platform deferrals, microcode or modem code changes, related document changes, and any other important changes. Use these release notes with the C*ross-Platform Release Notes for Cisco IOS Release 12.1 T* located on CCO and the Documentation CD-ROM.

For a list of the software caveats that apply to Release 12.1(1)XC, refer to the section "Caveats" and to the online *Caveats for Cisco IOS Release 12.1 T* document. The caveats document is updated for every 12.1 T maintenance release and is located on Cisco Connection Online (CCO) and the Documentation CD-ROM.

Contents

These release notes discuss the following topics:

CISCO SYSTEMS

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System Requirements

This section describes the system requirements for Release 12.1(1)XC and includes the following sections:

- Memory Requirements
- Hardware Supported, page 2
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- Upgrading to a New Software Release, page 5
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Memory Requirements

This section describes the memory requirements for the Cisco IOS feature sets supported by Cisco IOS Release 12.1(1)XC on the Cisco 1700 series routers.

Table 1   Memory Requirements for the Cisco 1700 Series

Feature Sets	Image Name	Software Image	Required Flash Memory	Required DRAM Memory	Runs from
IP Feature Sets	IP Plus IPSec 56 (DES)	c1700-sy56i-mz	8 MB	32 MB	RAM
	IP/FW Plus IPSec 56 (DES)	c1700-o3sy56i-mz	8 MB	32 MB	RAM
	IP Plus IPSec 3DES	c1700-k2sy-mz	8 MB	32 MB	RAM
	IP/FW Plus IPSec 3DES	c1700-k2o3sy-mz	8 MB	32 MB	RAM
	IP/IPX/AT/IBM/FW Plus IPSec 56 (DES)	c1700-bno3r2sy56i-mz	8 MB	32 MB	RAM
	IP/IPX/AT/IBM/FW Plus IPSec 3DES	c1700-bk2no3r2sy-mz	8 MB	32 MB	RAM
	IP/Voice Plus IPSec 56 (DES)	c1700-sv3y56i-mz	8 MB	32 MB	RAM
	IP/FW/Voice Plus IPSec 56 (DES)	c1700-o3sv3y56i-mz	8 MB	32 MB	RAM
	IP/Voice Plus IPSec 3DES	c1700-k2sv3y-mz	8 MB	32 MB	RAM
	IP/FW/Voice Plus IPSec 3DES	c1700-k2o3sv3y-mz	8 MB	32 MB	RAM
	IP/IPX/AT/IBM/FW/Voice Plus IPSec 56 (DES)	c1700-bno3r2sv3y56i-mz	16 MB	48 MB	RAM
	IP/IPX/AT/IBM/FW/Voice Plus IPSec 3DES	c1700-bk2no3r2sv3y-mz	16 MB	48 MB	RAM

Hardware Supported

Cisco IOS Release 12.1(1)XC supports the Cisco 1700 series routers:

- Cisco 1720—Runs data images only.
- Cisco 1750—Runs data and data-plus-voice images.

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

Cisco 1720

The 1720 router provides Internet and intranet access and includes the following:

- Support for virtual private networking
- Modular architecture
- Network device integration

The Cisco 1720 router has the following hardware components:

- One autosensing 10/100 Fast Ethernet port
- Two WAN interface card slots
- One auxiliary (AUX) port (up to 115.2 kbps asynchronous serial)
- One console port
- RISC Processor for high performance encryption
- One internal expansion slot for support of future hardware-assisted services such as encryption (up to T1/E1) and compression
- DRAM memory: 16 MB default, expandable to 48 MB
- Flash memory: 4 MB default, expandable to 16 MB
- Desktop form factor

The Cisco 1720 router supports any combination of one or two of the following WAN interface cards, which are shared with the Cisco 1600, 2600, and 3600 routers:

- WIC-1T: One port high speed serial (sync/async)
- WIC-2T: Two port high speed serial (sync/async)
- WIC-2A/S: Two port low speed serial (sync/async) (up to 128 kbps)
- WIC-1B-S/T: One port ISDN BRI S/T
- WIC-1B-U: One port ISDN BRI U
- WIC-1DSU-56K4: One port integrated 56/64 kbps 4-wire DSU/CSU
- WIC-1DSU-T1: One port integrated T1 / Fractional T1 DSU/CSU

Cisco 1750

The voice-and-data capable Cisco 1750 router provides global Internet and company intranet access and includes the following:

- Voice-over-IP (VoIP) voice-and-data functionality; the router can carry voice traffic (for example, telephone calls and faxes) over an IP network
- Support for virtual private networking
- Modular architecture
- Network device integration

The Cisco 1750 router has the following hardware components:

- One autosensing 10/100 Fast Ethernet port, which operates in full- or half-duplex mode (with manual override available)
- One Voice interface card slot—Supports a single voice interface card (Table 4) with two ports per card

- Two WAN interface card slots for either WAN interface cards (WICs) or voice interface cards (VICs)

- Synchronous serial interfaces on serial WAN interface cards

- Asynchronous serial interfaces on serial WAN interface cards

- ISDN WAN interface cards—ISDN dialup and ISDN leased line (IDSL) at 144 kbps; encapsulation over ISDN leased line: Frame Relay and PPP

- One auxiliary (AUX) port (up to 115.2 kbps asynchronous serial)

- One console port

- One internal expansion slot—Supports future hardware-assisted services such as encryption (up to T1/E1) and compression processor

- RISC Processor—Motorola MPC860T PowerQUICC at 48 MHz

- One security slot that supports Kensington or similar lockdown equipment

- DRAM memory: 16 MB default, expandable to 48 MB

- Flash memory: 4 MB default, expandable to 16 MB

- Desktop form factor

The Cisco 1750 router also supports any combination of one or two of the following WAN interface cards, which are shared with the Cisco 1600, 1720, 2600, and 3600 routers:

- WIC-1T: One port high speed serial (sync/async)(T1/E1)

- WIC-2T: Two port high speed serial (sync/async) (T1/E1)

- WIC-2A/S: Two port low speed serial (sync/async) (up to 128 kbps)

- WIC-1B-S/T: One port ISDN BRI S/T

- WIC-1B-U: One port ISDN BRI U with integrated NT1

- WIC-1DSU-56K4: One port integrated 56/64 kbps 4-wire DSU/CSU

- WIC-1DSU-T1: One port integrated T1 / Fractional T1 DSU/CSU

The Cisco 1750 router supports any combination of one or two of the following voice interface cards, which are shared with the Cisco 2600 and 3600 routers:

- VIC-2FXS: Two port Foreign Exchange Station (FXS) voice/fax interface card for voice/fax network module

- VIC-2FXO: Two port Foreign Exchange Office (FXO) voice/fax interface card for voice/fax network module

- VIC-2FXO-EU: Two port FXO voice/fax interface card for Europe

- VIC-2E/M: Two port Ear & Mouth (E&M) voice/fax interface card for voice/fax network module

Determining Your Software Release

To determine the version of Cisco IOS software currently running on your Cisco 1700 series router, log in to the router and enter the **show version** EXEC command. The following sample output from the **show version** command indicates the version number on the second output line:

```
router> show version
Cisco Internetwork Operating System Software
IOS (tm) c1700 Software (c1700-sy56i-mz), Version 12.1(1)XC, RELEASE SOFTWARE
```

Additional command output lines include more information, such as processor revision numbers, memory amounts, hardware IDs, and partition information.

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/cisco/mkt/ios/prodlit/957_pp.htm.

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

If you have a CCO account and log in, you can reach the Cisco IOS Software page by going to www.cisco.com and following this path: **Service & Support**: **Software Center**: **Cisco IOS Software**: **Cisco IOS 12.1: Ordering Procedures and Hardware Platform Support**: **Cisco IOS Upgrade Ordering Instructions**.

You can also reach the **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 12.1(1)XC supports the same feature sets as Releases 12.1 and 12.1 T, but Release 12.1(1)XC can include new features supported by the Cisco 1700 series routers. Table 2 lists the feature sets supported by the Cisco 1700 series routers.

Table 2 Feature Sets Supported by the Cisco 1700 Series Routers

Feature Sets	Image Name	Feature Set Matrix Terms	Software Image	Platform	In[1]
IP Feature Sets	IP Plus IPSec 56 (DES)	IP Plus, IPSec 56	c1700-sy56i-mz	Cisco 1720 Cisco 1750	12.0(3)T
	IP/FW Plus IPSec 56 (DES)	IP, FW, Plus, IPSec 56	c1700-o3sy56i-mz	Cisco 1720 Cisco 1750	
	IP Plus IPSec 3DES	Plus, IPSec, 3DES[2]	c1700-k2sy-mz	Cisco 1720 Cisco 1750	12.0(1)XA3
	IP/FW Plus IPSec 3DES	IP, FW, Plus, IPSec, 3DES	c1700-k2o3sy-mz	Cisco 1720 Cisco 1750	
	IP/IPX/AT/IBM/FW Plus IPSec 56 (DES)	IP, IPX, AT, IBM, FW, Plus, IPSec 56	c1700-bno3r2sy56i-mz	Cisco 1720 Cisco 1750	

Table 2   Feature Sets Supported by the Cisco 1700 Series Routers

Feature Sets	Image Name	Feature Set Matrix Terms	Software Image	Platform	In[1]
IP Feature Sets (continued)	IP/IPX/AT/IBM/FW Plus IPSec 3DES	IP, IPX, AT, IBM, FW, Plus, IPSec, 3DES	c1700-bk2no3r2sy-mz	Cisco 1720 Cisco 1750	
	IP/Voice Plus IPSec 56 (DES)	IP, Voice, Plus, IPSec 56	c1700-sv3y56i-mz	Cisco 1750	
	IP/FW/Voice Plus IPSec 56 (DES)	IP, FW, Voice, Plus, IPSec 56	c1700-o3sv3y56i-mz	Cisco 1720 Cisco 1750	
	IP/Voice Plus IPSec 3DES	Plus, Voice, IPSec, 3DES	c1700-k2sv3y-mz	Cisco 1750	
	IP/FW/Voice Plus IPSec 3DES	IP, FW, Voice, Plus, IPSec, 3DES	c1700-k2o3sv3y-mz	Cisco 1720 Cisco 1750	
	IP/IPX/AT/IBM/FW/Voice Plus IPSec 56 (DES)	IP, IPX, AT, IBM, FW, Voice, Plus IPSec 56	c1700-bno3r2sv3y56i-mz	Cisco 1720 Cisco 1750	
	IP/IPX/AT/IBM/FW/Voice Plus IPSec 3DES	IP, IPX, AT, IBM, FW, Voice, Plus IPSec, 3DES	c1700-bk2no3r2sv3y-mz	Cisco 1720 Cisco 1750	

1. The number in the "In" column indicates the Cisco IOS release in which the feature was introduced. For example, 12.0(3)T means a feature was introduced in Release 12.0(3)T. If a cell in this column is empty, the feature was included in the initial base release.

2. This set of features is provided in the Triple DES (3DES) Encryption data encryption feature sets.

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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 may require an export license. Customer orders may be denied or subject to delay due to United States government regulations. When applicable, the purchaser or the 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.

Table 3 lists the features and feature sets supported by the Cisco 1700 series routers in Cisco IOS Release 12.1(1)XC. Table 4 lists the features and feature sets supported by the Cisco 1750 routers in Cisco IOS Release 12.1(1)XC. Both tables use the following conventions:

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

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 3 *Feature List by Feature Set for the Cisco 1700 Series Routers*

Features	Feature Sets					
	IP Plus IPSec 56 (DES)	IP/FW Plus IPSec 56 (DES)	IP Plus IPSec 3DES	IP/FW Plus IPSec 3DES	IP/IPX/AT /IBM/ FW Plus IPSec 56 (DES)	IP/IPX/ AT/IBM/ FW Plus IPSec 3DES
Connectivity						
L2TP Dial-Out	Yes	Yes	Yes	Yes	Yes	Yes
IBM Support						
Bridging Code Rework	Yes	Yes	Yes	Yes	Yes	Yes
DSLw+ Ethernet Redundancy	No	No	No	No	Yes	Yes
IP Routing						
IP Type of Service and Precedence for GRE Tunnels	Yes	No	Yes	Yes	Yes	Yes
OSPF Point to Multipoint	No	No	No	No	No	No
Management						
Cisco IOS File System	Yes	Yes	Yes	Yes	Yes	Yes
Entity MIB	Yes	Yes	Yes	Yes	Yes	Yes
Expression MIB	Yes	Yes	Yes	Yes	Yes	Yes
Conditionally Triggered Debugging	Yes	Yes	Yes	Yes	Yes	Yes
Process MIB	Yes	Yes	Yes	Yes	Yes	Yes
Miscellaneous						
Multicast Source Discovery Protocol	Yes	Yes	Yes	Yes	Yes	Yes
X.25 Closed User Groups	Yes	Yes	Yes	Yes	Yes	Yes
X.25 Switch Local Acknowledgment	Yes	Yes	Yes	Yes	Yes	Yes
VPN Tunnel Management	Yes	Yes	Yes	Yes	Yes	Yes
Multimedia						
Protocol-Independent Multicasts Version 2	Yes	Yes	Yes	Yes	Yes	Yes

Table 3   Feature List by Feature Set for the Cisco 1700 Series Routers

Features	Feature Sets					
	IP Plus IPSec 56 (DES)	IP/FW Plus IPSec 56 (DES)	IP Plus IPSec 3DES	IP/FW Plus IPSec 3DES	IP/IPX/AT /IBM/ FW Plus IPSec 56 (DES)	IP/IPX/ AT/IBM/ FW Plus IPSec 3DES
Switching						
Web Cache Communications Protocol Version 2 (WCCPv2)	Yes	Yes	Yes	Yes	Yes	Yes
WAN Services						
Always On/Direct ISDN	Yes	Yes	Yes	Yes	Yes	Yes
Dialer Watch	Yes	Yes	Yes	Yes	Yes	Yes
DLSw+ Enhancements	No	No	No	No	Yes	Yes
DLSw+ RSVP	No	No	No	No	Yes	Yes
MPPC-MS PPP Compression	Yes	Yes	Yes	Yes	Yes	Yes
MS Callback	Yes	Yes	Yes	Yes	Yes	Yes
VPDN MIB Feature	Yes	Yes	Yes	Yes	Yes	Yes

Table 4   Feature List by Feature Set for the Cisco 1750 Series Routers

Features	Feature Sets					
	IP/Voice Plus IPSec 56 (DES)	IP/FW/ Voice Plus IPSec 56 (DES)	IP/Voice Plus IPSec 3DES	IP/FW/Voice Plus IPSec 3DES	IP/IPX/AT/ IBM/FW/ Voice Plus IPSec 56 (DES)	IP/IPX/ AT/IBM/ FW/Voice Plus IPSec 3DES
Connectivity						
L2TP Dial-Out	Yes	Yes	Yes	Yes	Yes	Yes
IBM Support						
Bridging Code Rework	Yes	Yes	Yes	Yes	Yes	Yes
DSLw+ Ethernet Redundancy	No	No	No	No	Yes	Yes
IP Routing						
IP Type of Service and Precedence for GRE Tunnels	Yes	No	Yes	Yes	Yes	Yes
OSPF Point to Multipoint	No	No	No	No	No	No
Management						
Cisco IOS File System	Yes	Yes	Yes	Yes	Yes	Yes
Entity MIB	Yes	Yes	Yes	Yes	Yes	Yes
Expression MIB	Yes	Yes	Yes	Yes	Yes	Yes

Table 4   Feature List by Feature Set for the Cisco 1750 Series Routers

Features	Feature Sets					
	IP/Voice Plus IPSec 56 (DES)	IP/FW/ Voice Plus IPSec 56 (DES)	IP/Voice Plus IPSec 3DES	IP/FW/Voice Plus IPSec 3DES	IP/IPX/AT/ IBM/FW/ Voice Plus IPSec 56 (DES)	IP/IPX/ AT/IBM/ FW/Voice Plus IPSec 3DES
Conditionally Triggered Debugging	Yes	Yes	Yes	Yes	Yes	Yes
Process MIB	Yes	Yes	Yes	Yes	Yes	Yes
Miscellaneous						
Multicast Source Discovery Protocol	Yes	Yes	Yes	Yes	Yes	Yes
X.25 Closed User Groups	Yes	Yes	Yes	Yes	Yes	Yes
X.25 Switch Local Acknowledgment	Yes	Yes	Yes	Yes	Yes	Yes
VPN Tunnel Management	Yes	Yes	Yes	Yes	Yes	Yes
Multimedia						
Protocol-Independent Multicasts Version 2	Yes	Yes	Yes	Yes	Yes	Yes
Switching						
Web Cache Communications Protocol Version 2 (WCCPv2)	Yes	Yes	Yes	Yes	Yes	Yes
Voice Services						
Voice over IP	Yes	Yes	Yes	Yes	Yes	Yes
WAN Services						
Always On/Direct ISDN	Yes	Yes	Yes	Yes	Yes	Yes
Dialer Watch	Yes	Yes	Yes	Yes	Yes	Yes
DLSw+ Enhancements	No	No	No	No	Yes	Yes
DLSw+ RSVP	No	No	No	No	Yes	Yes
MPPC-MS PPP Compression	Yes	Yes	Yes	Yes	Yes	Yes
MS Callback	Yes	Yes	Yes	Yes	Yes	Yes
VPDN MIB Feature	Yes	Yes	Yes	Yes	Yes	Yes

New and Changed Information

The following sections list the new hardware and software features supported by the Cisco 1700 series for Release 12.1 T:

New Hardware Features in Release 12.1(1)XC

The following new hardware enhancements are supported by the Cisco for Release 12.1(1)XC and above. For more information about new hardware, see the "Platform-Specific Documents" section on page 13.

Support for the Virtual Private Network Module

Cisco IOS Release 12.1(1)XC includes support for the Cisco Virtual Private Network (VPN) module, which fits into a slot inside the Cisco 1720 or 1750 chassis. The VPN module assists the host processor by accelerating layer 3 IP Security (IPSec) data encryption and decryption. The module supports DES and 3DES encryption algorithms, MD5 and SHA-1 hashing, and Diffie-Hellman key generation.

Using DES and 3DES algorithms, the VPN module encrypts data at speeds suitable for full duplex T1/E1 serial connections (4 megabits per second for 1518-byte packets). A Cisco 1700 router equipped with a VPN module supports up to 100 encrypted tunnels for concurrent sessions with mobile users or other sites.

New Software Features in Release 12.1(1)

For information regarding the features supported in Cisco IOS Release 12.1, refer to the Cross-Platform Release Notes and New Feature Documentation links at the following location on CCO:

http://www.cisco.com/univercd/cc/td/doc/product/software/ios121/index.htm

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

Service & Support: **Technical Documents**: **Documentation Home Page**: **Cisco IOS Software Configuration**: **Cisco IOS Release 12.1**: **Cisco IOS Release 12.1**

Important Notes

The following sections contain important notes about Cisco IOS Release 12.1 that can apply to the Cisco 1700 series. (Also, see the "Caveats" section on page 11.)

Using the boot flash Command

Booting a Cisco 1700 series router with the commands **boot flash** or **boot system flash** results in unpredictable behavior. To work around this problem, be sure to enter a colon (:) following both commands (for example, **boot flash:** or **boot system flash:**.)

Fan Operation in Cisco 1700 Series Routers

The fans in Cisco 1700 series routers stay off until thermally activated.

Cisco Express Forwarding

When installed in a Cisco 1720 or 1750 router, the Cisco Virtual Private Network (VPN) module does not support Cisco express forwarding (CEF).

Flash defaults to Flash:1 on Multipartition Flash

When using a multipartition flash card, the various flash partitions are referred to as "flash:1:", "flash:2:", etc. If you specify only "flash" in a multipartition flash, the parser assumes "flash:1:." For example, if you enter **show flash all** the parser defaults to "show flash:1: all" and only the flash information for the first partition displays. To see information for all flash partitions, enter **show flash ?**. This will list all of the valid partitions. Then enter **show flash:xx: all** on each valid partition.

Caveats

Caveats describe unexpected behavior or defects in Cisco IOS software releases. For information on caveats in Cisco IOS Release 12.1 T, refer to the *Caveats for Cisco IOS Release 12.1 T* document. All caveats in Release 12.1 T are also in Release 12.1(1)XC.

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

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**: **BUG TOOLKIT**: **Cisco Bug Navigator II**, or at http://www.cisco.com/support/bugtools/bugtool.shtml.

Caveats for Release 12.1(1)XC

This section describes possibly unexpected behavior by Release 12.1(1)XC. Only severity 1 through 3 caveats are included.

Miscellaneous

- CSCdp16708

  When a Cisco 1700 series router is configured with IPSec and L2TP, the command **ping** fails when the packet size is larger than 1,460 bytes. To work around this problem, do not configure IPSec and L2TP with packet sizes larger than 1,460 bytes.

- CSCdp34158

  When the packet size sent through a Cisco 1700 router is changed from 1,518 bytes to 512 bytes, the following errors occur:

  ```
  19:12:38:  pkt LocalAddr :0x50011C00 also marked for error 4615
  19:12:38: c1700_em_rx_error: 1207, id 53, pool offset 0
  ```

- CSCdp34560

  SAs are sometimes used before they are created, causing the following error message:

  ```
  C1700_EM-3-CMD_ERR: Encryption Module command returned error: (0x1045 )
  ```

- CSCdp77551

  Only one of two tunnels are reestablished after you issue the command **no crypto engine accelerator**. To work around this problem, use the command **no crypto engine accelerator** to disable the VPN module and then perform the following steps to correctly bring up all of the encryption tunnels:

  1. Shut down all interface(s) on which **crypto map** is applied on all involved routers.

  2. Type the commands **clear cry sa** and **clear cry isakmp** on all involved routers.

  3. Type the command **show cry eng conn a** on all involved routers to verify that no connections are listed. Repeat steps **1** through **3** as needed until no connections are listed.

  4. Bring up the interface(s) that you shut down in step **1** for all involved routers.

- CSCdp78787

  Using IPSec with generic routing encapsulation (GRE) fails on Cisco 1700 routers. The following traceback is displayed:

  ```
  00:48:39: %IP-3-DESTHOST: src=16.0.0.1, dst=16.0.0.3, NULL desthost
   -Process= "Crypto HW Proc", ipl= 0, pid= 42
   -Traceback= 80250668 80A10CF0 80A08174 80A08534 80147A08
  ```

  To work around this problem, use process-switching.

- CSCdp80459

  Traffic is process-switched, not fast-switched, when **crypto map** and **PPP** are configured on the same interface. All interfaces are affected by this error, not only the interfaces on which **crypto map** is applied. That is, non-encryption interfaces also fail to perform fast-switching. In addition, if you use **PPP**, performance might drop because of the use of process-switching.

- CSCdp81883

  With fast-switching and traceback enabled on a VPN interface, sending traffic at very high speeds causes a memory (malloc) failure. To work around this problem, reduce the traffic rate.

- CSCdp92610

  Configuring the command **req-qos controlled-load** for Resource Reservation Protocol (RSVP) in a voice-over-IP (VoIP) dial peer causes a memory leak, which causes an unexpected router reset.

Related Documentation

The following sections describe the documentation available for the Cisco 1700 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 CCO 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 12.1. They are located on CCO and the Documentation CD-ROM:

- *Release Notes for Cisco IOS Release 12.1*
  - To reach the *Cross-Platform Release Notes for Cisco IOS Release 12.1* from CCO, click on this path (under the heading **Service & Support**):

    Technical Documents: **Documentation Home Page**: **Cisco IOS Software Configuration**: **Cisco IOS Release 12.1**: **Release Notes**: **Cross-Platform Release Notes**

  - To reach the *Cross-Platform Release Notes for Cisco IOS Release 12.1* on the Documentation CD-ROM, click on this path:

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

- Product bulletins, field notices, and other release-specific documents

  To reach these documents from CCO, click on this path (under the heading **Service & Support**):

  Technical Documents: **Product Bulletins**

- *Caveats for Cisco IOS Release 12.1 T*

  As a supplement to the caveats listed in the "Caveats" section on page 11 section in these release notes, see the *Caveats for Cisco IOS Release 12.1* and *Caveats for Cisco IOS Release 12.1 T* documents, which contain caveats applicable to all platforms for all maintenance releases of Release 12.1.

  – To reach the caveats document from CCO, click on this path (under the heading **Service & Support**):

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

  – To reach the caveats document on the Documentation CD-ROM, click on this path:

     Cisco Product Documentation: **Cisco IOS Software Configuration**: **Cisco IOS Release 12.1**: **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**: **BUG TOOLKIT**: **Cisco Bug Navigator II**, or at http://www.cisco.com/support/bugtools/bugtool.shtml.

Platform-Specific Documents

Cisco 1720

These documents are available for the Cisco 1720 router on CCO and the Documentation CD-ROM:

- *Installing Your Cisco 1720*
- *Cisco 1720 Router Hardware Installation Guide*
- *Cisco 1700 Router Software Configuration Guide*
- *Regulatory Compliance and Safety Information*
- Configuration Notes
- Release Notes for the Cisco 1720 Router
- *WAN Interface Cards Hardware Installation Guide*

On CCO at:

Technical Documents: Documentation Home Page: Access Servers and Access Routers: Modular Access Routers: Cisco 1720 Router

On the Documentation CD-ROM at:

Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 1720 Router

Cisco 1750

These documents are available for the Cisco 1750 router on CCO and the Documentation CD-ROM:

- *Cisco 1750 Router Hardware Installation Guide*
- Safety Information for Cisco 1600 and 1700 Routers

- *Cisco 1750 Router Voice over IP Configuration Guide*
- *Voice-over-IP Quick Start Guide*
- Release Notes for the Cisco 1750 Router

On CCO at:

Technical Documents: Documentation Home Page: Access Servers and Access Routers: Modular Access Routers: Cisco 1750 Router

On the Documentation CD-ROM at:

Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 1750 Router

Feature Modules

Feature modules describe new features supported by Release 12.1(1)XC 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 12.1(1)XC feature modules:

- From CCO, click on this path (under the heading **Service & Support**):

  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 Release 12.1X**: **New Features in Release 12.1(1)X**

- From the Documentation CD-ROM, click on this path:

  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 Release 12.1X**: **New Features in Release 12.1(1)X**

Cisco IOS Software Documentation Set

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

Documentation Modules

Each module in the Cisco IOS documentation set consists of two types of 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.

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

On CCO at:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1: Configuration Guides and Command References

On the Documentation CD-ROM at:

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

Release 12.1 Documentation Set

Table 5 describes the contents of the Cisco IOS Release 12.1 software documentation set, which is available in both electronic and printed form.

> **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 12.1

On the Documentation CD-ROM at:

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

Table 5   Cisco IOS Software Release 12.1 Documentation Set

Books	Chapter Topics
• *Cisco IOS Configuration Fundamentals Configuration Guide* • *Cisco IOS Configuration Fundamentals Command Reference*	Configuration Fundamentals Overview Using the Command-Line Interface (CLI) Using Configuration Tools Configuring Operating Characteristics Managing Connections, Menus, and System Banners Using the Cisco Web Browser Using the Cisco IOS File System Modifying, Downloading, & Maintaining Configuration Files Loading and Maintaining System Images Maintaining Router Memory Rebooting a Router Configuring Additional File Transfer Functions Monitoring the Router and Network Troubleshooting a Router Performing Basic System Management System Management Using System Controllers Web Scaling Using WCCP Managing Dial Shelves
• *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*	Overview of Apollo Domain, Banyan VINES, DECNET, ISO CLNS, and XNS Configuring Apollo Domain Configuring Banyan VINES Configuring DECnet Configuring IOS CLNS Configuring XNS

Table 5   Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
• *Cisco IOS AppleTalk and Novell IPX Configuration Guide* • *Cisco AppleTalk and Novell IPX Command Reference*	AppleTalk and Novel IPX Overview Configuring AppleTalk Configuring Novell IPX
• *Cisco IOS Bridging and IBM Networking Configuration Guide* • *Cisco IOS Bridging and IBM Networking Command Reference, Volume I* • *Cisco Bridging and IBM Networking Command Reference, Volume II*	Overview of SNA Internetworking Overview of Bridging Configuring Transparent Bridging Configuring Source-Route Bridging Configuring Token Ring Inter-Switch Link Configuring Token Ring Route Switch Module Overview of IBM Networking Configuring Remote Source-Route Bridging Configuring Data-Link Switching Plus+ Configuring Serial Tunnel and Block Serial Tunnel Configuring LLC2 and SDLC Parameters Configuring IBM Network Media Translation Configuring Frame Relay Access Support Configuring NCIA Server Configuring the Airline Product Set Configuring DSPU and SNA Service Point Support Configuring SNA Switching Services Configuring Cisco Transaction Connection Configuring Cisco Mainframe Channel Connection Adapters Configuring CLAW and TCP/IP Offload Support Configuring CMPC and CSNA Configuring CMPC+ Configuring the TN3270 Server
• *Cisco IOS Dial Services Configuration Guide: Terminal Services* • *Cisco IOS Dial Services Configuration Guide: Network Services* • *Cisco IOS Dial Services Command Reference*	Large-Scale Dial Solutions Cost-Control Solutions Virtual Private Networks X.25 on ISDN Solutions Telco Solutions Dial-Related Addressing Services Internetworking Dial Access Scenarios Preparing for Dial Access Modem Configuration and Management ISDN and Signalling Configuration PPP Configuration Dial-on-Demand Routing Configuration Dial-Backup Configuration Terminal Service Configuration
• *Cisco IOS Interface Configuration Guide* • *Cisco IOS Interface Command Guide*	Interface Configuration Overview Configuring LAN Interfaces Configuring Serial Interfaces Configuring Logical Interfaces

Table 5   Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
• *Cisco IOS IP and IP Routing Configuration Guide* • *Cisco IOS IP and IP Routing Command Reference*	IP Overview Configuring IP Addressing Configuring DHCP Configuring IP Services Configuring Mobile IP Configuring On-Demand Routing Configuring RIP Configuring IGRP Configuring OSPF Configuring IP Enhanced IGRP Configuring Integrated IS-IS Configuring BGP Configuring Multicast BGP (MBGP) Configuring IP Routing Protocol-Independent Features Configuring IP Multicast Routing Configuring Multicast Source Discovery Protocol Configuring PGM Router Assist Configuring Unidirectional Link Routing Using IP Multicast Tools
• *Cisco IOS Multiservice Applications Configuration Guide* • *Cisco IOS Multiservice Applications Command Reference*	Multiservice Applications Overview Configuring Voice over IP Configuring Gatekeepers (Multimedia Conference Manager) Configuring Voice over Frame Relay Configuring Voice over ATM Configuring Voice over HDLC Configuring Voice-Related Support Features Configuring PBX Signaling Configuring Store and Forward Fax Configuring Video Support Configuring Head-End Broadband Access Router Features Configuring Subscriber-End Broadband Access Router Features Configuring Synchronized Clocking
• *Cisco Quality of Service Solutions Configuration Guide* • *Cisco IOS Quality of Service Solutions Command Reference*	Quality of Service Overview Classification Overview Configuring Policy-Based Routing Configuring QoS Policy Propagation via Border Gateway Protocol Configuring Committed Access Rate Congestion Management Overview Configured Weighted Fair Queueing Configuring Custom Queueing Configuring Priority Queueing Congestion Avoidance Overview Configuring Weighted Random Early Detection Policing and Shaping Overview

Table 5 *Cisco IOS Software Release 12.1 Documentation Set (continued)*

Books	Chapter Topics
(Continued) • *Cisco Quality of Service Solutions Configuration Guide* • *Cisco IOS Quality of Service Solutions Command Reference*	Configuring Generic Traffic Shaping Configuring Frame Relay and Frame Relay Traffic Shaping Signalling Overview Configuring RSVP Configuring Subnetwork Bandwidth Manager Configuring RSVP-ATM Quality of Service Internetworking Link Efficiency Mechanisms Overview Configuring Link Fragmentation and Interleaving for Multilink PPP Configuring Compressed Real-Time Protocol IP to ATM CoS Overview Configuring IP to ATM CoS QoS Features for Voice Introduction
• *Cisco IOS Security Configuration Guide* • *Cisco IOS Security Command Reference*	Security Overview AAA Overview Configuring Authentication Configuring Authorization Configuring Accounting Configuring RADIUS Configuring TACACS+ Configuring Kerberos Radius Commands TACACS+ Commands Access Control Lists: Overview and Guidelines Cisco Secure Integrated Software Firewall Overview Configuring Lock-and-Key Security (Dynamic Access Lists) Configuring IP Session Filtering (Reflexive Access Lists) Configuring TCP Intercept (Prevent Denial-of-Service Attacks) Configuring Context-Based Access Control Configuring Cisco Secure Integrated Software Intrusion Detection System Configuring Authentication Proxy Configuring Port to Application Mapping IP Security and Encryption Overview Configuring IPSec Network Security Configuring Certification Authority Interoperability Configuring Internet Key Exchange Security Protocol Configuring Passwords and Privileges Neighbor Router Authentication: Overview and Guidelines Configuring IP Security Options
• *Cisco IOS Switching Services Configuration Guide* • *Cisco IOS Switching Services Command Reference*	Cisco IOS Switching Services Overview Switching Paths Overview Configuring Switching Paths Cisco Express Forwarding Overview Configuring Cisco Express Forwarding NetFlow Switching Overview Configuring NetFlow Switching MPLS Overview

Table 5   Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
(Continued) • *Cisco IOS Switching Services Configuration Guide* • *Cisco IOS Switching Services Command Reference*	Configuring MPLS Configuring IP Multilayer Switching Configuring IP Multicast Multilayer Switching Configuring IPX Multilayer Switching Configuring Multicast Distributed Switching Routing Between VLANs Overview Configuring Routing Between VLANs with ISL Encapsulation Configuring Routing Between VLANs with IEEE 802.10 Encapsulation Configuring Routing Between VLANs with IEEE 802.1Q Encapsulation LAN Emulation Overview Configuring LAN Emulation Configuring Token Ring LANE MPOA Overview Configuring the MPOA Client Configuring the MPOA Server Configuring Token Ring LANE for MPOA
• *Cisco IOS Wide-Area Networking Configuration Guide* • *Cisco IOS Wide-Area Networking Command Reference*	Wide-Area Networking Overview Configuring ATM Frame Relay Frame Relay-ATM Internetworking Configuring SMDS Configuring X.25 and LAPB
• *Cisco IOS Configuration Guide Master Index* • *Cisco IOS Command Reference Master Index* • *Cisco IOS Command Summary* • *Cisco IOS Debug Command Reference* • *Cisco IOS Dial Services Quick Configuration Guide* • *Cisco IOS New Features Index* (CCO and Documentation CD only) • *Cisco IOS System Error Messages*	

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

Obtaining Documentation

World Wide Web

You can access the most current Cisco documentation on the World Wide Web at http://www.cisco.com, http://www-china.cisco.com, or 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. Therefore, it is probably more current than printed documentation. The CD-ROM package is available as a single unit or as an annual subscription.

Ordering Documentation

Registered CCO users can order the Documentation CD-ROM and other Cisco Product documentation through our online Subscription Services at http://www.cisco.com/cgi-bin/subcat/kaojump.cgi.

Nonregistered CCO users can order documentation through a local account representative by calling Cisco's corporate headquarters (California, USA) at 408 526-4000 or, in North America, call 800 553-NETS (6387).

Obtaining Technical Assistance

Cisco provides Cisco Connection Online (CCO) as a starting point for all technical assistance. Warranty or maintenance contract customers can use the Technical Assistance Center. All customers can submit technical feedback on Cisco documentation using the web, e-mail, a self-addressed stamped response card included in many printed docs, or by sending mail to Cisco.

Cisco Connection Online

Cisco continues to revolutionize how business is done on the Internet. Cisco Connection Online 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.

The CCO broad range of features and services helps customers and partners to streamline business processes and improve productivity. Through CCO, you will find information about Cisco and our networking solutions, services, and programs. In addition, you can resolve technical issues with online support services, 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 CCO to obtain additional personalized information and services. Registered users may order products, check on the status of an order and view benefits specific to their relationships with Cisco.

You can access CCO in the following ways:

- WWW: www.cisco.com
- Telnet: cco.cisco.com
- Modem using standard connection rates and the following terminal settings: VT100 emulation; 8 data bits; no parity; and 1 stop bit.
  - From North America, call 408 526-8070
  - From Europe, call 33 1 64 46 40 82

You can e-mail questions about using CCO to cco-team@cisco.com.

Technical Assistance Center

The Cisco Technical Assistance Center (TAC) is available to warranty or maintenance contract customers who need technical assistance with a Cisco product that is under warranty or covered by a maintenance contract.

To display the TAC web site that includes links to technical support information and software upgrades and for requesting TAC support, use www.cisco.com/techsupport.

To contact by e-mail, use one of the following:

Language	E-mail Address
English	tac@cisco.com
Hanzi (Chinese)	chinese-tac@cisco.com
Kanji (Japanese)	japan-tac@cisco.com
Hangul (Korean)	korea-tac@cisco.com
Spanish	tac@cisco.com
Thai	thai-tac@cisco.com

In North America, TAC can be reached at 800 553-2447 or 408 526-7209. For other telephone numbers and TAC e-mail addresses worldwide, consult the following web site: http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml.

Configuration Tips on the Cisco Technical Assistance Center Home Page

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

http://www.cisco.com/kobayashi/technotes/serv_tips.shtml

This URL is subject to change without notice. If it changes, point your Web browser to CCO, log in, and click on this path: **Technical Assistance Center**:**Technical Tips**.

The following sections are provided from the Technical Tips page:

- Configuration Cookbooks—Cisco's Configuration Cookbooks contain common configuration examples that demonstrate how to configure various internetworking technologies on Cisco devices.

- Field Notices—Field Notices are designed to provide notification of any critical issues regarding Cisco products. These include problems descriptions, safety or security issues and hardware defects.

- Frequently Asked Questions (FAQs)—Collections of the most frequently asked technical questions about Cisco hardware and software.

- Hardware—Technical Tips related to specific hardware platforms, including the following:
  - Access Products
  - Comm Servers
  - Core Products
  - General Cabling Information
  - Internet Products
  - LAN2LAN
  - Product Support Pages
  - Security Products
  - WAN Switching Products
  - Workgroup Products

- Hot Tips— Popular tips and hints gathered from Cisco's Technical Assistance Center (TAC). Most of these documents are also available from the TAC Fax-on-Demand service. To access Fax-on-Demand and receive documents at your fax machine, call 888-50-CISCO (888-502-4726). From international areas, call 415-596-4408.

- Internetworking Features—Tips on using and deploying Cisco IOS software features and services, including the following:
  - LAN & Workgroup
  - Router Management
  - Routing Protocols
  - Security
  - SNA Features
  - Voice and Multimedia Technologies
  - WAN Features

- Sample Configurations—Actual configuration examples complete with topology and annotations for the following areas:
  - Software Products
  - Cisco ICM/NAM
  - Cisco Live!
  - Cisco IOS Software Bulletins
  - Cisco TCP/IP Suite 100

- General Cisco IOS

- Internet/Intranet Appliances and Software

- Network Management

- Security Technical Tips

- WAN Switching Products and Software

- Special Collections—Other Helpful Documents:

- Case Studies

- Cisco Standard Icons

- References & RFCs

- Security Advisories

Documentation Feedback

We appreciate and value your comments:

- If you are reading Cisco product documentation on the World Wide Web, you can submit technical comments electronically. Click **Feedback** in the toolbar and select **Documentation**. After you complete the form, click **Submit** to send it to Cisco.

- You can e-mail your comments to bug-doc@cisco.com.

- To submit your comments by mail, for your convenience many documents contain a response card behind the front cover. Otherwise, you can mail your comments to the following address:

Cisco Systems, Inc.
Document Resource Connection
170 West Tasman Drive
San Jose, CA 95134-9883

This document is to be used in conjunction with the documents listed in the "Related Documentation" section.