



Release Notes for the Cisco 800 Series Routers for Cisco IOS Release 12.1(5)YC

March 25, 2002

These release notes describe new features and significant software components for the Cisco 800 Series Routers that support Cisco IOS Release 12.1(5)YC3. 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 *Cross-Platform Release Notes for Cisco IOS Release 12.1* located on Cisco.com and the Documentation CD-ROM.

For a list of the software caveats that apply to Release 12.1(5)YC3, 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.com and the Documentation CD-ROM.

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System Requirements

This section describes the system requirements for Cisco IOS Release 12.1(5)YC3 and includes the following sections:

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Memory Requirements

Table 1 *Memory Requirements for the Cisco 800 Series Routers*

Platforms	Image Name	Image	Required Flash Memory	Required DRAM Memory	Runs From
Cisco 811 and 813 Routers	IP	c800-y6-mw	8 MB	8 MB	RAM
	IP Plus	c800-sy6-mw	8 MB	8 MB	RAM
	IP/IPX Plus	c800-nsy6-mw	8 MB	8 MB	RAM
	IP/FW	c800-oy6-mw	8 MB	8 MB	RAM
	IP/FW Plus IPsec	c800-osy656i-mw	8 MB	12 MB	RAM
	IP/IPX/FW Plus IPsec	c800-nosy656i-mw	8 MB	12 MB	RAM
	IP/FW/Plus IPsec 3DES	c800-k2osy6-mw	8 MB	12 MB	RAM
	IP/IPX/FW/Plus IPsec 3DES	c800-k2nosy6-mw	8 MB	12 MB	RAM
Cisco 827 and Cisco 827_4V Routers	Cisco 820 Series IOS IP	c820-y6-mz	8 MB	16 MB	RAM
	Cisco 820 Series IOS IP/Voice	c820-v6y6-mz	8 MB	24 MB	RAM
	Cisco 820 Series IOS IP/FW Plus IPsec 56	c820-osy656i-mz	8 MB	24 MB	RAM
	Cisco 820 Series IOS IP/FW/Voice Plus IPsec 56	c820-osv6y656i-mz	8 MB	24 MB	RAM
	Cisco 820 Series IOS IP/IPX/Voice Plus	c820-nsv6y6-mz	8 MB	24 MB	RAM
	Cisco 820 Series IOS IP/FW Plus IPsec 3DES	c820-k2osy6-mz	8 MB	24 MB	RAM
	Cisco 820 Series IOS IP/IPX/FW Plus IPsec 3DES	c820-k2nosy6-mz	8 MB	24 MB	RAM
	Cisco 820 Series IOS IP/IPX/FW/Voice Plus IPsec 3DES	c820-k2nosv6y6-mz	8 MB	24 MB	RAM

Hardware Supported

Cisco IOS Release 12.1(5)YC3 supports the following Cisco 800 series routers:

- Cisco 811 and Cisco 813
- Cisco 827 and Cisco 827-4V

For detailed descriptions of new hardware features, see [New and Changed Information](#), page 10.

Cisco 811 and 813 Routers

The Cisco 811 and 813 Routers provide the following key hardware features:

- Flash memory: Default is 8 MB and is expandable to 12 MB. Additional Flash memory is installed using Intel “Mini-Card” technology.
- Dynamic RAM: Default is 8 MB and is expandable to 16 MB, which must be obtained from Cisco Systems.
- The central processing unit is a 33 MHz MPC 850 processor.
- Routers mounted on a wall.

[Table 2](#) lists the supported interfaces for the Cisco 811 and 813 routers.

Table 2 Supported Interfaces for the Cisco 811 and 813 Routers

Router	Ethernet LAN Ports	Ethernet WAN Ports	Analog Phone Ports	Console Ports
Cisco 811	One 10BaseT (RJ-45)	<ul style="list-style-type: none"> • One ISDN BRI U, integrated DSU (RJ-11), • One ISDN BRI S/T (R-J45) 	—	RJ-45
Cisco 813	One 10BaseT (RJ-45) 4-port hub	<ul style="list-style-type: none"> • One ISDN BRI U, integrated DSU (RJ-11), • One ISDN BRI S/T (R-J45) 	Two (RJ-11)	RJ-45

Cisco 827 and Cisco 827-4V Routers

The Cisco 827 and Cisco 827-4V 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 of 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 827 Router 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.
- Routers can be stacked or mounted on a wall.
- The routers provide locking power connectors and a Kensington-compatible locking slot.

Table 3 lists the supported interfaces for the Cisco 827 and Cisco 827-4V routers.

Table 3 Supported Interfaces for the Cisco 827 and Cisco 827-4V Routers

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

Determining Your Software Release

To determine the version of Cisco IOS software running on your Cisco 800 series router, log in to the router and enter the **show version EXEC** command:

```
router> show version
Cisco Internetwork Operating System Software
IOS (tm) 800 Software (C800-Y6-MW), Version 12.1(5)YC2, RELEASE SOFTWARE
```

Upgrading to a New Software Release

For general information about upgrading to a new software release, see *Cisco IOS Upgrade Ordering Instructions* located at:

http://www.cisco.com/warp/public/cc/cisco/mkt/ios/prodlit/957_pp.htm

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(5)YC3 supports the same feature sets as Releases 12.1 and 12.1 T, but Release 12.1(5)YC3 can include new features supported by the Cisco 800 Series Routers. Table 4 lists the feature sets supported by the Cisco 800 Series Routers.

Table 4 Feature Sets Supported by the Cisco 800 Series Routers

Image Name	Feature Set Matrix Terms	Software Image	Platform
Cisco 800 Series IOS IP	IP	c800-y6-mw	Cisco 811 and 813 routers
Cisco 800 Series IOS IP Plus	IP, Plus	c800-sy6-mw	
Cisco 800 Series IOS IP/FW	IP, FW	c800-oy6-mw	
Cisco 800 Series IOS IP/FW Plus IPsec 56	IP, FW, Plus, IPsec 56	c800-osy656i-mw	
Cisco 800 Series IOS IP/IPX Plus	IP, IPX, Plus	c800-nsy6-mw	
Cisco 800 Series IOS IP/IPX/FW Plus IPsec 56	IP, IPX, FW, Plus, IPsec 56	c800-nosy656i-mw	
Cisco 800 Series IOS IP/FW Plus IPsec 3DES	IP, FW, Plus, IPsec, 3DES	c800-k2osy6-mw	
Cisco 800 Series IOS IP/IPX/FW Plus IPsec 3DES	IP, IPX, FW, Plus, IPsec, 3DES	c800-k2nosy6-mw	

Table 4 Feature Sets Supported by the Cisco 800 Series Routers (continued)

Image Name	Feature Set Matrix Terms	Software Image	Platform
Cisco 820 Series IOS IP	IP	c820-y6-mz	Cisco 827 and Cisco 827-4V routers
Cisco 820 Series IOS IP/Voice	IP, Voice	c820-v6y6-mz	
Cisco 820 Series IOS IP/FW Plus IPsec 56	IP, FW, Plus, IPsec 56	c820-osy656i-mz	
Cisco 820 Series IOS IP/FW/Voice Plus IPsec 56	IP, FW, Voice, Plus, IPsec 56	c820-osv6y656i-mz	
Cisco 820 Series IOS IP/IPX/Voice Plus	IP, IPX, Voice, Plus	c820-nsv6y6-mz	
Cisco 820 Series IOS IP/FW Plus IPsec 3DES	IP, FW, Plus, IPsec, 3DES	c820-k2osy6-mz	
Cisco 820 Series IOS IP/IPX/FW Plus IPsec 3DES	IP, IPX, FW, Plus, IPsec, 3DES	c820-k2nosy6-mz	
Cisco 820 Series IOS IP/IPX/FW/Voice Plus IPsec 3DES	IP, IPX, FW, Voice, Plus, IPsec, 3DES	c820-k2nosv6y6-mz	

Table 5 lists the features and feature sets supported by the Cisco 811 and 813 Routers in Cisco IOS Release 12.1(5)YC3. Table 6 lists the features and feature sets supported by the Cisco 827 and Cisco 827-4V Routers in Cisco IOS Release 12.1(5)YC3. 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.

**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 5 Feature List by Feature Set for the Cisco 811 and 813 Routers

Features	Feature Sets								
	In	IP	IP Plus	IP/IPX Plus	IP/FW	IP/FW Plus IPsec 56	IP/FW/IPX/Plus IPsec 56	IP/FW/Plus IPsec 3DES	IP/FW/IPX/Plus IPsec 3DES
Address Conservation									
NAT		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ease of Use and Deployment									
Auto SPID/SWITCH Connection		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cisco Fast Step Software, Version 2.5		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Configuration Express		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Easy IP Phase I and II		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TFTP Client Server		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
INS 64 Telephone Features (813 model only)									
Call Blocking on Caller ID		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Caller ID		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 5 Feature List by Feature Set for the Cisco 811 and 813 Routers (continued)

Features	Feature Sets								
	In	IP	IP Plus	IP/IPX Plus	IP/FW	IP/FW Plus IPsec 56	IP/FW/IPX/Plus IPsec 56	IP/FW/Plus IPsec 3DES	IP/FW/IPX/Plus IPsec 3DES
Call Waiting		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Distinctive Ringing		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
E Ya Yo		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
I Number		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN Voice Priority		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Nariwake		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Troublesome Call Refusing		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voice Warp		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voice Warp Select		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LAN									
IP		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPX		No	No	Yes	No	No	Yes	No	Yes
NetBIOS Access Lists, Name Caching		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Transparent Bridging		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management									
CiscoView		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNMP, Telnet, Console Port		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNTP		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Syslog		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TACACS+		No	Yes	Yes	No	Yes	Yes	Yes	Yes
Routing									
IP Enhanced IGRP		No	Yes	Yes	No	Yes	Yes	Yes	Yes
IP Multicast (Relay Only)		No	Yes	Yes	No	Yes	Yes	Yes	Yes
IP-Policy Routing		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPX WAN		No	No	Yes	No	No	Yes	No	Yes
RIP, RIPv2, Triggered RIP		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Security (Basic)									
GRE Tunneling		No	Yes	Yes	No	Yes	Yes	Yes	Yes
NAT		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAP, CHAP, Local Password, MSCHAP		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 5 Feature List by Feature Set for the Cisco 811 and 813 Routers (continued)

Features	Feature Sets								
	In	IP	IP Plus	IP/IPX Plus	IP/FW	IP/FW Plus IPSec 56	IP/FW/IPX/Plus IPSec 56	IP/FW/Plus IPSec 3DES	IP/FW/IPX/Plus IPSec 3DES
Route and Router Authentication		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Token Card Authentication		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Security (Enhanced)									
Cisco IOS Firewall		No	No	No	Yes	Yes	Yes	Yes	Yes
Context Based Access Control Lists		No	No	No	Yes	Yes	Yes	Yes	Yes
Denial of Service Detection		No	No	No	Yes	Yes	Yes	Yes	Yes
IPSec Encryption w/ 56-bit DES		No	No	No	No	Yes	Yes	Yes	Yes
Java Blocking		No	No	No	Yes	Yes	Yes	Yes	Yes
Real-time Alerts		No	No	No	Yes	Yes	Yes	Yes	Yes
Voice Features (Supplementary)									
Call Conference		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Call Hold / Retrieve		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Call Transfer		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voice Priority		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Intercom	(5)YC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Redial	(5)YC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Local Call Transfer	(5)YC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Volume Adjustment	(5)YC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Distinctive Ringing	(5)YC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Subaddresses for Ports	(5)YC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Silent FAX Calls	(5)YC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAN									
Frame Relay (Leased Line Only)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ISDN Lease Line		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
ML-PPP, PPP Compression		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Support for PIAFS	(5)YC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
WAN Optimization									
BOD		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
DDR		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPX and SPX Spoofing		No	Yes	No	No	No	Yes	No	Yes
ISDN Caller ID Callback		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Snapshot Routing		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 5 Feature List by Feature Set for the Cisco 811 and 813 Routers (continued)

Features	Feature Sets								
	In	IP	IP Plus	IP/IPX Plus	IP/FW	IP/FW Plus IPSec 56	IP/FW/ IPX/Plus IPSec 56	IP/FW/ Plus IPSec 3DES	IP/FW/ IPX/Plus IPSec 3DES
STAC Compression		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weighted Fair Queuing Quality of Service		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
X.25 ID		No	Yes	Yes	No	Yes	Yes	Yes	Yes

Table 6 Feature List by Feature Set for the Cisco 827 and Cisco 827-4V Routers

Features	Feature Sets								
	In	IP	IP/ Voice	IP/FW Plus IPSec 56	IP/FW/ Voice Plus IPSec 56	IP/IPX/ Voice Plus	IP/FW Plus IPSec 3DES	IP/IPX/ FW Plus IPSec 3DES	IP/IPX/ FW/Plus Voice IPSec 3DES
Address Conservation									
DHCP Client Address Negotiation		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPCP Address Negotiation		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NAT Many to One (PAT)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NAT Many to Many (Multi-NAT)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Bandwidth Optimization									
NetBIOS Name Caching		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
STAC Compression		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Business-Class Quality of Service									
ATM TX Ring Programming	(5)YB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
CBR, VBRrt, VBRnrt, UBR Traffic Classes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Class-Based Weighted Fair Queuing		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP Policy Routing		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
LFI/LLQ	(5)YB	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Per-Virtual Circuit Queuing		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Per-Virtual Circuit Shaping		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Weighted Random Early Detection		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Business-Class Security									
GRE Tunneling		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP (and IPX when applicable) Basic and Extended Access Lists		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Table 6 Feature List by Feature Set for the Cisco 827 and Cisco 827-4V Routers (continued)

Features	Feature Sets								
	In	IP	IP/ Voice	IP/FW Plus IPSec 56	IP/FW/ Voice Plus IPSec 56	IP/IPX/ Voice Plus	IP/FW Plus IPSec 3DES	IP/IPX/ FW Plus IPSec 3DES	IP/IPX/ FW/Plus Voice IPSec 3DES
NetBIOS Access Lists		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PAP, CHAP, Local Password		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Route and Router Authentication		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ease of Use and Deployment									
Cisco Fast Step Software		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Easy IP Phase I and II		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PPPoE MTU Adjustment	(5)YB	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enhanced Security									
Cisco IOS Firewall	(3)XG	No	No	Yes	Yes	No	Yes	Yes	Yes
Context-Based Access Control Lists	(3)XG	No	No	Yes	Yes	No	Yes	Yes	Yes
Denial-of-Service Detection	(3)XG	No	No	Yes	Yes	No	Yes	Yes	Yes
IPSec Encryption with 3DES and L2TP	(3)XG	No	No	No	No	No	Yes	Yes	Yes
Java Blocking	(3)XG	No	No	Yes	Yes	No	Yes	Yes	Yes
Real-Time Alerts	(3)XG	No	No	Yes	Yes	No	Yes	Yes	Yes
LAN									
IP		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPX		No	No	No	No	Yes	No	Yes	No
Transparent Bridging		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Management									
CiscoView		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
OpenDSL	(5)YC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNTP		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
SNMP, Telnet, Console Port		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Syslog		No	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TACACS+ (also a security feature)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
TFTP Client and Server		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Routing									
IP Enhanced IGRP		No	No	Yes	Yes	No	Yes	Yes	No
IP Multicast (relay only)		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IP-Policy Routing		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
IPX RIP/SAP IPX WAN		No	No	No	No	Yes	No	Yes	No

Table 6 Feature List by Feature Set for the Cisco 827 and Cisco 827-4V Routers (continued)

Features	Feature Sets								
	In	IP	IP/ Voice	IP/FW Plus IPSec 56	IP/FW/ Voice Plus IPSec 56	IP/IPX/ Voice Plus	IP/FW Plus IPSec 3DES	IP/IPX/ FW Plus IPSec 3DES	IP/IPX/ FW/Plus Voice IPSec 3DES
RIP, RIPv2		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Voice Features (Cisco 827-4V only)									
G.711, G.729a, G.723.1 Codecs with High-Performance DSP Support		No	Yes	No	Yes	Yes	No	No	Yes
Loop-Start Key-System or Direct Phone Support		No	Yes	No	Yes	Yes	No	No	Yes
RAS Gatekeeper Communications Protocol		No	Yes	No	Yes	Yes	No	No	Yes
VoIP H.323		No	Yes	No	Yes	Yes	No	No	Yes

New and Changed Information

New Software Features in Release 12.1(5)YC1

Cisco 827 and Cisco 827-4V Routers

The following new software features are supported by the Cisco 827 and Cisco 827-4V routers for Cisco IOS Release 12.1(5)YC3 and above:

OpenDSL

This feature implements auto-provisioning of the Cisco 827 and Cisco 827-4V routers. Auto-provisioning operates at bootup, and includes two procedures: Device Authentication and Image Maintenance. The router will be authenticated at bootup using its vendor ID and serial number. It then requests the Proxy Element to download its configuration file, and configures itself from CLIs in this file. It then polls for configuration changes, and downloads a new image and configuration file, if available, to retrieve the latest changes.

Enhanced Cisco 810 Series Voice Features for Japan

The enhanced voice features described here are for the Japanese market only.

The first six features achieve PBX-like functionality within Cisco 811 and 813 routers. These routers support two plain old telephone service (POTS) ports. The PBX functionality is in and between these two ports.

The remaining features provide capability for silent fax calls, and support for the Personal Handy-Phone System (PHS) Internet Access Forum Standard (PIAFS).

Intercom

This feature establishes a voice connection between the two POTS ports within the router. No B channels are used for calling between ports, so the B channels are available for data calls. During an intercom call, call waiting is disabled. If an external call comes to either POTS port, no call waiting tone is generated. The calling party will hear a busy signal. Flashhook, DTMF keys and FLASHKEY are also disabled.

An intercom call is established by pressing ****0#** on the handset of either POTS port. If either port is busy with an external voice call, the intercom call will not be established.

Redial

This feature allows the user on each POTS port to redial the last number dialed on that port. Redial is activated when the user presses ****4#** on the handset. The router will store a number of up to 65 digits for each port. Feature access codes starting with an asterisk (*), interactive voice response (IVR) digits, or the pound (#) key are not stored.

The redial feature is supported separately on each POTS port.

Local Call Transfer

An external call received on either POTS port can be transferred to the other port. The transfer is initiated with a flashhook press followed by pressing ****0#** on the handset.

This feature does not support conference calls.

Volume Adjustment

This feature allows the adjustment of the receiver volume on each POTS port. Volume adjustment is configured by CLI commands, separately for each port.

To configure the telephone receiver volume on each port, use the IOS **volume** command in the dial-peer configuration mode:

volume *number*

where *number* is a numeric value from 1 to 5 representing the volume setting ranging from -12 to 0 decibels (dB). The default setting is 3.

The following example configures the volume of the receiver on the router telephone ports 1 and 2:

```
router# configure terminal
router(config)# dial-peer voice 1 pots
router(config-dial-peer)# volume 4
router(config-dial-peer)# dial-peer voice 2 pots
router(config-dial-peer)# volume 2
```

The following is an example of the volume adjustment configuration output from the **show running-config** command:

```
dial-peer voice 1 pots
destination-pattern 5551111
port 1
no call-waiting
ring 0
volume 4
```

```
dial-peer voice 2 pots
destination-pattern 5552222
port 2
no call-waiting
ring 0
volume 2
```

Distinctive Ringing Based on Caller ID

This feature allows the user to register within the router up to twenty different numbers for each POTS port and to assign distinctive ring cadences to each of these numbers. Three different cadences are available. One of them is the normal ring cadence, as defined by Nippon Telegraph and Telephone (NTT), and is the default cadence for unregistered numbers. Numbers are registered and ring cadences are assigned with CLI commands.

This feature is similar to the Nariwake feature available by subscription from NTT. However, this feature does not require the user to subscribe to any special service from the ISDN switch. If the user already subscribes to Nariwake, then Nariwake will take precedence over this feature.

The ring cadences used for this feature are the same as those used by the Nariwake feature.

To enable and configure distinctive ringing based on caller ID, use the following IOS command in dial-peer configuration mode:

caller-number *number* **ring** *cadence*

no caller-number *number* **ring** *cadence*

where *number* is the caller ID number of the incoming call, and *cadence* is the setting for ring cadence and duration. By default, this feature is disabled.

If you have configured the maximum number of twenty per dial peer, disable the numbers by using the **no caller number ring cadence** command.

The following is an example of the distinctive ringing configuration:

```
cisco801# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
cisco801#(config)#dial-peer voice 1 pots
cisco801#(config-dial-peer)#caller-number 11111 ring 1
cisco801#(config-dial-peer)#caller-number 22222 ring 2
cisco801#(config-dial-peer)#caller-number 33333 ring 1
```

The following is an example of the output for the distinctive ringing feature from the **show running-config** command:

```
!
dial-peer voice 1 pots
  no caller-id
  no forward-to-unused-port
  call-waiting
  ring 0
  no silent-fax
  registered-caller ring 1
  port 1
  volume 3
  caller-number 11111 ring 1
```

```

    caller-number 22222 ring 2
    caller-number 33333 ring 1
!
dial-peer voice 2 pots
  no caller-id
  no forward-to-unused-port
  call-waiting
  ring 0
  no silent-fax
  registered-caller ring 1
  port 1
  volume 3
  caller-number 11111 ring 1
  caller-number 33333 ring 1
  caller-number 22222 ring 2

```

Subaddresses for Ports

This feature allows the router to assign ISDN subaddresses to the POTS ports. With the subaddressing properly configured on the router, an external caller will be able to reach the dialed destination directly.

The subaddress for each POTS port is configured separately using CLI commands. To configure the subaddress for a POTS port, use the IOS **subaddress** command in dial-peer configuration mode:

subaddress *number*

no subaddress *number*

where *number* is the subaddress of a POTS port. Only one subaddress can be configured for each port. By default, no subaddresses are configured.

The following is an example of the subaddresses configuration:

```

router# configure terminal
router(config)# dial-peer voice 1 pots
router(config-dial-peer)# destination-pattern 5551111
router(config)# dial-peer voice 2 pots
router(config-dial-peer)# destination-pattern 5552222
router(config-dial-peer)# subaddress 10

```

The following is an example of the output for configuring subaddresses of the POTS ports:

```

dial-peer voice 1 pots
destination-pattern 5551111
port 1
no call-waiting
ring 0
volume 4
caller 1112222 ring 3
caller 2223333 ring 1
caller 3334444 ring 1
subaddress 20

dial-peer voice 2 pots
destination-pattern 5552222
port 2
no call-waiting
ring 0
volume 2
caller 1111111 ring 1
caller 2223323 ring 2
caller 3213213 ring 3
caller 8552345 ring 1
caller 2223456 ring 2
subaddress 10

```

Silent FAX Calls

This feature allows either POTS port to be configured as a Type 2 Smart Fax port. When configured in this way, the router will not generate a ring alert when a call comes into the port, but will instead generate a silent fax tone to which a Type 2 Smart Fax analog device will respond. The fax machine does not ring, but the fax call gets connected. If a phone is connected instead of a fax machine, the phone will not ring.

Port configuration is accomplished with CLI commands.

silent-fax

no silent-fax

By default, this feature is disabled.

The following is an example of a silent fax call configuration:

```
router# configure terminal
router(config)# dial-peer voice 1 pots
router(config-dial-peer)# silent-fax
```

The following is an example of the silent fax configuration output:

```
dial-peer voice 1 pots
  caller-id
  no forward-to-unused-port
  call-waiting
  ring 0
  no silent-fax
  registered-caller ring 1
  port 1
  volume 3
  destination-pattern 7773000
!
dial-peer voice 2 pots
  caller-id
  no forward-to-unused-port
  call-waiting
  ring 0
  no silent-fax
  registered-caller ring 1
  port 2
  volume 3
  destination-pattern 7773100
!
```

Support for PIAFS

This feature provides support for the Personal Handy-Phone System (PHS) Internet Access Forum Standard (PIAFS). PIAFS is a standard error correction protocol for cellular data communication which has been developed in Japan. It is designed to pass data over the PHS cellular system. It also provides transmission control procedures (comparable to OSI reference model layer 2) for high quality data transmission. Both PIAFS version 2.0 and version 2.1 are supported on the 811 and 813 routers.

The common applications that are supported using PIAFS in PHS data communications are:

- Email service
 - This enables the user to send and receive emails. Email is a basic service of the PHS multimedia communications menu.
- Fax Service
 - This enable faxing of data stored in a Personal Digital Assistant (PDA).

- Internet Access

Internet access has influenced PHS in that many users want to be able to obtain necessary information in a timely manner when they are outdoors. It is also projected that PHS will be used extensively to form intranets for in-house communications by facilitating the expansion of office LAN access points.

- Photograph transmission service

This service can be realized by transmitting the signals of a digital still camera directly or through the medium of a personal computer. This can be regarded as another variation of data transmission service that can use the PHS for transmission.

- Mobile office service

The spread of groupware recently has led to frequent instances where groups share common data bases in carrying out or supporting the execution of collaborative work. There are demands to extend this collaborative environment even to outside locations through the use of mobile communications. This is made possible by the use of PHS data communications.

The feature is available by default in all images, and is activated when the ISDN switch type set to **ntt**. The router must be configured for PPP encapsulation on the ISDN interface.

Limitations and Restrictions

Cisco 800 Series Router Supported MIBs

[Table 7](#) lists the MIBs supported by the Cisco 800 series routers. Each group of MIBs corresponds to a specific group of images.

Table 7 MIBs Supported by the Cisco 800 Series Routers

Image Names	MIBs
c800-sy6-mw	CISCO-IPMROUTE-MIB
c800-nsy6-mw	CISCO-SYSLOG-MIB
c800-osy656i-mw	ENTITY-MIB (added)
c800-nosy656i-mw	IPMROUTE-MIB
c800-k2osy6-mw	RFC1382-MIB
c800-k2nosy6-mw	CISCO_RTTMON_MIB
c800-nsy6-mw	NOVELL-IPX-MIB
c800-nosy656i-mw	NOVELL-RIPSAP-MIB
c800-k2nosy6-mw	OLD-CISCO-NOVELL-MIB

Table 7 *MIBs Supported by the Cisco 800 Series Routers (continued)*

Image Names	MIBs
c800-y6-mw	CISCO-BULK-FILE-MIB
c800-oy6-mw	CISCO-CALL-HISTORY-MIB
c800-sy6-mw	CISCO-CIRCUIT-INTERFACE-MIB
c800-nsy6-mw	CISCO-IMAGE-MIB
c800-osy656i-mw	CISCO-IP-STAT-MIB
c800-nosy656i-mw	CISCO-ISDN-MIB
c800-k2osy6-mw	CISCO-ISDNU-IF-MIB
c800-k2nosy6-mw	CISCO-MEMORY-POOL-MIB
	CISCO-PING-MIB
	CISCO-SNAPSHOT-MIB
	CISCO-TCP-MIB
	OLD-CISCO-CHASSIS-MIB
	OLD-CISCO-CPU-MIB
	OLD-CISCO-INTERFACES-MIB
	OLD-CISCO-IP-MIB
	OLD-CISCO-MEMORY-MIB
	OLD-CISCO-SYSTEM-MIB
	OLD-CISCO-TCP-MIB
	ETHERLIKE-MIB
	IF-MIB
	ISDN-MIB
	SNMPv2-MIB
	TCP-MIB
	UDP-MIB
	RFC1213-MIB (MIBII)
	RFC1381-MIB (LAPBMIB)

Cisco 820 Series Router Supported MIBs

MIBs for OpenDSL

The CISCO-DSL-CPE-MIB is partially supported by the Cisco 827 and Cisco 827-4V routers for the OpenDSL feature. Only those objects used in the Device Authentication and Image Maintenance procedures are supported. These objects are:

- All objects in the cdcAssetGroup
- All objects in the cdcImageGroup
- Objects cdcAutoConfRestartRequired and cdcAutoConfRestart in the cdcAutoConfGroup

Other MIBs Supported by Cisco 827 and 827-4V Routers

The following MIBs are supported by the Cisco 820 series routers, including the Cisco 827 and Cisco 827-4V routers:

- ADSL-LINE-MIB
- ADSL-DMT-LINE-MIB
- ATM-FORUM-MIB (not supported per Jenness)
- ATM-FORUM-ADDR-REG (not supported per Jenness)
- ATM-MIB
- CISCO-AAL5-MIB
- CISCO-ADSL-DMT-LINE-MIB
- CISCO-ATM-EXT-MIB
- CISCO-BULK-FILE-MIB
- CISCO-CAR-MIB
- CISCO-DIAL-CONTROL-MIB
- CISCO-FLASH-MIB
- CISCO-IETF-ATM2-PVCTRAP-MIB
- CISCO-IMAGE-MIB
- CISCO-IP-STAT-MIB
- CISCO-MEMORY-POOL-MIB
- CISCO-PING-MIB
- CISCO-QUEUE-MIB
- CISCO-RAS-MIB
- CISCO-SNAPSHOT-MIB
- CISCO-STACKMAKER-MIB
- CISCO-SYSLOG-MIB
- CISCO-TCP-MIB
- CISCO-VOICE-ANALOG-IF-MIB
- CISCO-VOICE-COMMON-DIAL-CONTROL-MIB
- CISCO-VOICE-DIAL-CONTROL-MIB
- CISCO-VOICE-IF-MIB
- DIAL-CONTROL-MIB
- ENTITY-MIB
- IF-MIB
- IGMP-MIB
- INT-SERV-GUARANTEED-MIB
- INT-SERV-MIB
- IPMROUTE-MIB

- NOVELL-IPX-MIB
- NOVELL-RIPSAP-MIB
- OLD-CISCO-CHASSIS-MIB
- OLD-CISCO-CPU-MIB
- OLD-CISCO-INTERFACE-MIB
- OLD-CISCO-IP-MIB
- OLD-CISCO-MEMORY-MIB
- OLD-CISCO-NOVELL-MIB
- OLD-CISCO-SYSTEM-MIB
- OLD-CISCO-TCP-MIB
- PIM-MIB
- RFC1398-MIB (ETHERMIB)
- RFC1213-MIB
- RSVP-MIB
- SNMPv2-MIB
- TCP-MIB
- UDP-MIB
- XGCP-MIB

Important Notes

The following sections contain important notes about Cisco IOS Release 12.1(5)YC3 that can apply to the Cisco 800 Series Routers. (Also, see the [“Caveats” section on page 23.](#))

OpenDSL Issues for the Cisco 827 and 827-4V Routers

The Cisco 827 and 827-4V routers with OpenDSL are preloaded with a CLI configuration such as “autoconfigure” instead of with no configuration. If a router is not loaded with some configuration, it will enter the initial console-user configuration dialog, which requires input from the user to get the router started.

If the image has been deleted by the user, the user needs to clear flash memory to allow the downloading of a new image during auto provisioning.

There is no WarmRestart action available for the routers. Selecting WarmRestart on CDCM will not reload the routers.

Configuration files must conform to the following:

- There must be no leading or trailing spaces in the name and revision fields of the image name or configuration file name. The dot symbol “.” can only be used as the separator between ID and Revision fields.
- Configuration files downloaded from the PE must not contain any of the following CLIs:
 - **snmp server**
 - **engineID**
 - **local**
 - any CLI that is not from the configuration terminal mode, such as **help** or **write memory**

B Channel Activation

When a call comes in, a B channel is activated. If the amount of traffic on the B channel exceeds a threshold, the other B channel is activated. If the amount of traffic falls below the threshold, one of the B channels is deactivated. The B channel that is initially activated when the call comes in is not necessarily B1 nor is the B channel that is deactivated when the traffic level lessens necessarily B2.

Cisco 800 Series Memory Management When Using WFQ

When weighted fair queuing (WFQ) is used on the Dialer interface, or when WFQ is used in the default class of a service policy, the following parameters need to be set to the values shown because of the limited amount of memory on the router:

- Congestive Discard Threshold: 64 or less
- Number Dynamic Conversation Queues: 64 or less
- Total maximum output packets: 64 or less

For example, if you apply WFQ to the Dialer interface, you need to configure it as follows:

```
interface Dialer 1
 fair-queue 64 64 0
 hold-queue 64 out
```

In this example, the command **fair-queue 64 64 0** limits the number of conversations to 64, and sets the discard threshold to 64. The command **hold-queue 64 out** limits the maximum number of output packets to 64.

In another example, if you configure a service policy, and WFQ is used on the default class, you need to configure the policy as follows:

```
policy-map mypolicy
 class voice
   priority 100
 class class-default
   fair-queue 64
   queue-limit 64

int dialer 1
 service-policy out mypolicy
 hold-queue 64 out
```

Here, the command **fair-queue 64** limits the number of conversations to 64, and the command **queue-limit 64** sets the discard threshold to 64. The command **hold-queue 64 out** limits the maximum number of output packets to 64.

Failure to configure the above parameters may cause the router to display out-of-memory messages when a large amount of mixed traffic is transmitted from ethernet to ATM.

Cisco 800 Series Router Clock—CSCdp09409

To run IPSec successfully, the Cisco 800 series router clock needs to be set accurately. Cisco 800 series router clocks are set and maintained using Simple Network Time Protocol (SNTP). For best results, set up a Network Time Protocol (NTP) server to periodically send time information messages to Cisco 800 series routers. See the SNTP configuration and command reference documentation for configuration instructions. If you do not have an NTP server, you must reset the Cisco 800 series router clock using the **clock set** command each time you restart the router.

The SNTP configuration documentation is available in the chapter “Monitoring the Router and Network” volume of the *Configuration Fundamentals Configuration Guide* in the Cisco IOS documentation set. The SNTP command reference documentation is available in the chapter “Router and Network Monitoring Commands” in the “System Management Commands” volume of the *Configuration Fundamentals Command Reference* manual of the Cisco IOS documentation set.

Cisco 800 Series Router Enhancements

Cisco 800 series routers support the following features. For more information about these features, see the Cisco IOS documentation set.

- Hot Standby Routing Protocol (HSRP), which creates a Hot Standby router group with a lead router that services all packets sent to the Hot Standby address. The lead router is monitored by other routers in the group. If it fails, one of these standby routers inherits the lead position and the Hot Standby group address.
- Service Assurance Agent (SAA), which is both an enhancement to and a new name for the Response Time Reporter (RTR) feature that was introduced in Cisco IOS release 11.2. This feature allows you to monitor network performance by measuring key Service Level Agreement (SLA) metrics, such as response time, network resources, availability, jitter, connect time, packet loss, and application performance.
- Triple Data Encryption Standard (3DES), based on the standard cryptographic algorithm developed by the U.S. National Bureau of Standards.
- X.28, X.29, and X.3 emulation for Packet Assembler/Disassembler (PAD), the standard user interface between the data terminal equipment and PAD.
- Frame Relay Inverse Address Resolution Protocol (ARP), which enables a station to request a protocol address corresponding to a given hardware address.
- Frame Relay support for a permanent virtual circuit (PVC) saves bandwidth associated with circuit establishment and tear down in situations where certain virtual circuits must exist all the time.

CiscoView Application Support

The CiscoView application supports the Cisco 800 series routers. The CiscoView application provides dynamic status, statistics, and comprehensive configuration information for Cisco switches, routers, concentrators, and adapters. It displays a graphical view of Cisco devices. This network management tool also provides configuring and monitoring functions and offers basic troubleshooting tips.

Dial Peer Limitation

The **isdn answer1** and **isdn answer2** commands determine which called telephone numbers, for example, 555-1111 and 555-2222, a Cisco 800 series router can answer. Using these commands limits a router to using the two dial peers that contain the telephone numbers 555-1111 and 555-2222. (When not using these commands, a router can use up to six dial peers.) A sample scenario in which the **isdn answer1** and **isdn answer2** commands are used is when a Cisco 801 or Cisco 803 router is connected with other ISDN devices to an ISDN S-bus.

Downloading Images

Before attempting to download new images, you must first delete files in the router Flash memory. Be sure to use the **delete** command, not command **erase**, to free up space. Entering **erase** removes all files, including the configuration.

Excessive ISDN Line Activation

The following protocols send updates that can cause an ISDN line to be activated excessively, thereby increasing your monthly ISDN line cost:

- IP
- User Datagram Protocol (UDP)
- IPX
- Cisco Discovery Protocol (CDP)
- Simple Network Time Protocol (SNTP)

See the *Cisco 800 Series Routers Software Configuration Guide* to set up extended access lists to prevent IP, UDP, IPX, and SNTP updates from activating the ISDN line. For CDP, make certain that you enter the **no cdp enable** command to disable CDP.

Hanging During Boot

If an illegal console configuration is issued to the router, the console fails the POST tests during boot and causes the router to halt. The only way to recover from this state is to pull apart the soldered boot Flash and re-burn the Boot ROM. This problem has been resolved in TinyROM version 1.0(3), a downloadable ROM upgrade available from Cisco.com. Contact Cisco to upgrade to this version or later, and to prevent this problem from occurring.

ISDN NI1 Provisioning

If you have any problems with your ISDN NI1 provisioning, visit the Cisco ISDN Web site at <http://www.cisco.com/isdn>.

NAT Support for H.323 Signaling

Currently, NAT does not support alerting H.225 messages. Therefore, NAT communication cannot be established between the router end points. NAT support for H.323 signaling is limited to the Netmeeting application.

Phone Mate Answering Machine Model 9200

A Phone Mate answering machine model 9200 fails to recognize the ringing signal sent by AMD R79 ringing SLIC. This was confirmed by testing against Phone Mate model 3750 and newer model 9300.

PPP over Frame Relay Support (RFC-1973)

Cisco 800 series routers do not support PPP protocol over Frame Relay.

TACACS+ with AAA

Cisco 800 series routers support the Terminal Access Controller Access Control System Plus (TACACS+) protocol through Telnet. TACACS+ is a Cisco proprietary authentication protocol that provides remote access authentication and related network security services, such as event logging. User passwords are administered in a central database, rather than in individual routers. TACACS+ also supports separate modular authentication, authorization, and accounting (AAA) facilities that are configured at individual routers.

For information on how to configure TACACS+, refer to the “Configuring TACACS+” chapter in the *Security Configuration Guide*. For information on TACACS+ commands, refer to the “TACACS, Extended TACACS, and TACACS+ Commands” chapter in the *Security Command Reference*.

Cisco 800 series routers do not support the following protocols:

- TACACS, an older access protocol now deprecated by Cisco, or Extended TACACS, an extension to the TACACS protocol.
- RADIUS or Kerberos protocols.

ROM Monitor set stop-bits Parameter

This release supports the setting of 1 only, for the ROM monitor **set stop-bits** parameter.

Caveats

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

For information on caveats in Cisco IOS Release 12.1 T, see *Caveats for Cisco IOS Release 12.1 T*.

All caveats in Cisco IOS Release 12.1 are also in Cisco IOS Release 12.1 T.

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



Note

If you have an account with Cisco.com, you can 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 12.1(5)YC2 and 12.1(5)YC3

This section describes unexpected behavior that is fixed in Releases 12.1(5)YC2 and 12.1(5)YC3.

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 12.1(5)YC1

This section describes possibly unexpected behavior by Release 12.1(5)YC1. These caveats are all of severity 3 (moderate).

Resolved Caveats for Release 12.1(5)YC1

This section describes possibly unexpected behavior by software releases prior to Release 12.1(5)YC1, specific to the Cisco 811 and 813 routers, that have been resolved in Release 12.1(5)YC1 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 12.1(5)YC1 release.

CSCdt35967:

When using CODEC g711alaw & g711ulaw, c827-4v fails to make an outgoing call to another Cisco voice gateway. This defect has been fixed in 12.1(5)YC1 release.

CSCds92106:

C827-4v may hang during system bootup. This defect has been fixed in 12.1(5)YC1 release.

CSCdu37345:

AAA commands are not active for 811/813 in the 12.1(5)YC release. This defect is fixed in the 12.1(5)YC1 release.

Unresolved Caveats for Release 12.1(5)YC1

This section describes possibly unexpected behavior, specific to the Cisco 827 and 827-4V routers, by Release 12.1(5)YC1.

CSCdt47054

When the router is configured to an ATM PVC with PPPoE encapsulation, it will crash when the ATM PVC is removed in a subsequent configuration while the PPPoE session is still active.

CSCdt61879

When the configuration file URL in the ImageTable script is changed to point to a different, new configuration file and the router is reloaded, the previous configuration file is downloaded, rather than the new one. The problem has been traced to the cache in the PE, which retains the previous URL of the configuration file and sends that URL to the tftp server. The workaround is to clear the PE cache before reloading the router. This forces the PE to reload its cache with the latest information from the ImageTable script.

CSCdt61928

The router will crash when executing **cl** or **de** commands in exec mode. The workaround is to expand these commands to at least **cle** and **deb**.

CSCdt61929

A zero byte configuration file will cause the router to operate in a loop and repeatedly download the configuration file.

Documentation Updates

Changes

Cisco 811 and 813 Routers

There is a change to the contents of the *Cisco 811 and Cisco 813 Routers Hardware Installation Guide*. On page 1-3, in Table 1-1, the default size of Flash memory is given as 4MB. The table entry should be updated as follows:

Flash memory	8 MB of Flash memory ¹ .
--------------	-------------------------------------

1. An additional 4 MB of Flash memory can be added at the factory or at your site. You can order an upgrade kit and have trained and qualified personnel add the memory.

Related Documentation

The following sections describe the documentation available for the 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, 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](#)
- [Release-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 Cisco.com 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 Cisco.com, 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 Cisco.com, click on this path (under the heading **Service & Support**):

Technical Documents: Product Bulletins

- *Caveats for Cisco IOS Release 12.1 and 12.1 T*

The *Caveats for Cisco IOS Release 12.1* and *Caveats for Cisco IOS Release 12.1 T* documents contain caveats applicable to all platforms for all maintenance releases of Release 12.1.

- To reach the caveats document from Cisco.com, 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 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 Cisco 800 Series Routers on Cisco.com and the Documentation CD-ROM:

Cisco 811 and 813 Routers

- *Cisco 811 and Cisco 813 Routers Hardware Installation Guide*
- *Quick Start Guide: Setting Up Cisco 811 and Cisco 813 Routers*
- *Cisco 800 Series Routers Software Configuration Guide*
- *Release Notes for Cisco 800 Routers*

On Cisco.com at:

- **Technical Documents: Documentation Home Page: Access Servers and Access Routers: Fixed Configuration Access Routers: Cisco 811 and Cisco 813 Routers**

On the Documentation CD-ROM at:

- **Cisco Product Documentation: Access Servers and Access Routers: Fixed Configuration Access Routers: Cisco 811 and Cisco 813 Routers**

Cisco 827 Routers

These documents are available for the Cisco 820 series routers on Cisco.com and the Documentation CD-ROM:

- *Cisco 827 Routers Hardware Installation Guide*
- *Quick Start Guide - Setting Up the Cisco 827 Router*
- *Cisco 827 Routers Software Configuration Guide*
- *Quick Start Guide - Setting Up the Cisco 827 Routers*
- *Release Notes for Cisco 827 Routers*

On Cisco.com at:

Technical Documents: Documentation Home Page: Access Servers and Access Routers: Fixed Configuration Access Routers: Cisco 827 Routers

On the Documentation CD-ROM at:

Cisco Product Documentation: Access Servers and Access Routers: Fixed Configuration Access Routers: Cisco 827 Routers

Feature Modules

Feature modules describe new features supported by Release 12.1(5)YC3 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 Release 12.1(5)YC3 feature modules:

- On Cisco.com, click on this path:
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 12.1 YC: New Features in Release 12.1(5)YC
- 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 12.1 YC: New Features in Release 12.1(5)YC

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 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 Cisco.com and on the Documentation CD-ROM.

On Cisco.com at:

Technical Documents: Documentation Home Page: Cisco IOS Software Configuration: Cisco IOS Release 12.1: 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 8](#) 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 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 12.1

On the Documentation CD-ROM at:

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

Table 8 Cisco IOS Software Release 12.1 Documentation Set

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Cisco IOS Configuration Fundamentals Configuration Guide</i> • <i>Cisco IOS Configuration Fundamentals Command Reference</i> 	<ul style="list-style-type: none"> 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
<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"> Overview of Apollo Domain, Banyan VINES, DECNET, ISO CLNS, and XNS Configuring Apollo Domain Configuring Banyan VINES Configuring DECnet Configuring IOS CLNS Configuring XNS
<ul style="list-style-type: none"> • <i>Cisco IOS AppleTalk and Novell IPX Configuration Guide</i> • <i>Cisco AppleTalk and Novell IPX Command Reference</i> 	<ul style="list-style-type: none"> AppleTalk and Novel IPX Overview Configuring AppleTalk Configuring Novell IPX

Table 8 Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Cisco IOS Bridging and IBM Networking Configuration Guide</i> • <i>Cisco IOS Bridging and IBM Networking Command Reference, Volume I</i> • <i>Cisco Bridging and IBM Networking Command Reference, Volume II</i> 	<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> • <i>Cisco IOS Dial Services Configuration Guide: Terminal Services</i> • <i>Cisco IOS Dial Services Configuration Guide: Network Services</i> • <i>Cisco IOS Dial Services Command Reference</i> 	<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> • <i>Cisco IOS Interface Configuration Guide</i> • <i>Cisco IOS Interface Command Guide</i> 	<ul style="list-style-type: none"> Interface Configuration Overview Configuring LAN Interfaces Configuring Serial Interfaces Configuring Logical Interfaces

Table 8 Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Cisco IOS IP and IP Routing Configuration Guide</i> • <i>Cisco IOS IP and IP Routing Command Reference</i> 	<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> • <i>Cisco IOS Multiservice Applications Configuration Guide</i> • <i>Cisco IOS Multiservice Applications Command Reference</i> 	<ul style="list-style-type: none"> 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

Table 8 Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Cisco Quality of Service Solutions Configuration Guide</i> • <i>Cisco IOS Quality of Service Solutions Command Reference</i> 	<ul style="list-style-type: none"> 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 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
<ul style="list-style-type: none"> • <i>Cisco IOS Security Configuration Guide</i> • <i>Cisco IOS Security Command Reference</i> 	<ul style="list-style-type: none"> 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

Table 8 Cisco IOS Software Release 12.1 Documentation Set (continued)

Books	Chapter Topics
<ul style="list-style-type: none"> • <i>Cisco IOS Switching Services Configuration Guide</i> • <i>Cisco IOS Switching Services Command Reference</i> 	<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> • <i>Cisco IOS Wide-Area Networking Configuration Guide</i> • <i>Cisco IOS Wide-Area Networking Command Reference</i> 	<ul style="list-style-type: none"> Wide-Area Networking Overview Configuring ATM Frame Relay Frame Relay-ATM Internetworking Configuring SMDS Configuring X.25 and LAPB
<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 Command Summary</i> • <i>Cisco IOS Debug Command Reference</i> • <i>Cisco IOS Dial Services Quick Configuration Guide</i> • <i>Cisco IOS New Features Index</i> (Cisco.com and Documentation CD only) • <i>Cisco IOS System Error Messages</i> 	

Obtaining Documentation

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

World Wide Web

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

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

Documentation CD-ROM

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

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:
http://www.cisco.com/cgi-bin/order/order_root.pl
- 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).

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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, use the response card behind the front cover of your document, or write to the following address:

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

We appreciate your comments.

Obtaining Technical Assistance

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

Cisco.com

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

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

<http://www.cisco.com>

Technical Assistance Center

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

Contacting TAC by Using the Cisco TAC Website

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

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

P3 and P4 level problems are defined as follows:

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

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

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

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

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

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

Contacting TAC by Telephone

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

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

P1 and P2 level problems are defined as follows:

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

This document is to be used in conjunction with the documents listed in the “[Related Documentation](#)” section.

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