



# Release Notes for the Cisco 1700 Series Routers for Cisco IOS Release 12.2(13)ZF

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**August 8, 2003**

These release notes describe new features and significant software components for the Cisco 1700 series routers that support Cisco IOS Release 12.2 T, up to and including Release 12.2(13)ZF2. 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 12.2 T](#) located on Cisco.com and the Documentation CD.

For a list of the software caveats that apply to Release 12.2(13)ZF2, see the “[Caveats](#)” and the online [Caveats for Cisco IOS Release 12.2 T](#) document. The caveats document is updated for every 12.2 T maintenance release and is located on Cisco.com and the Documentation CD.

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# System Requirements

This section describes the system requirements for Release 12.2(13)ZF2 and includes the following sections:

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## Memory Requirements

Table 1 describes the memory requirements for the Cisco IOS feature sets supported by Cisco IOS Release 12.2(13)ZF2 on the Cisco 1700 series routers.

**Table 1** Recommended Memory for the Cisco 1700 Series Routers

Platform	Image Name	Feature Set	Image	Flash Memory	DRAM Memory
Cisco 1710	Cisco 1710 IOS IP/IPX/AT/IBM/FW/IDS PLUS IPSEC 3DES	IP/IPX/AT/IBM/ FW/IDS PLUS IPSEC 3DES	c1710-bk9no3r2sy-mz	16 MB	48 MB
	Cisco 1710 IOS IP/FW/IDS PLUS IPSEC 3DES	IP/FW/IDS PLUS IPSEC 3DES	c1710-k9o3sy-mz	16 MB	48 MB
Cisco 1751 and Cisco 1760	Cisco 1700 IOS IP ADSL/IPX/ AT/IBM/VOX/FW/IDS PLUS IPSEC 56	IP ADSL/IPX/ AT/IBM/VOX/FW/ IDS IPSEC 56	c1700-bk8no3r2sv8y7-mz	32 MB	96 MB
	Cisco 1700 IOS IP/ADSL/IPX/AT/IBM/VOX/FW/ IDS PLUS IPSEC 3DES	IP ADSL/IPX/ AT/IBM/VOX/FW/ IDS IPSEC 3DES	c1700-bk9no3r2sv8y7-mz	32 MB	96 MB
	Cisco 1700 IOS IP/ADSL/VOX/FW/IDS PLUS IPSEC 56	IP/ADSL/ VOX/FW/IDS PLUS IPSEC 56	c1700-k8o3sv8y7-mz	16 MB	96 MB
	Cisco 1700 IOS IP/ADSL/VOX PLUS IPSEC 56	IP/ADSL/VOX PLUS IPSEC 56	c1700-k8sv8y7-mz	16 MB	96 MB
	Cisco 1700 IOS IP/ADSL/VOX/FW/IDS PLUS IPSEC 3DES	IP/ADSL/VOX/FW/ IDS PLUS IPSEC 3DES	c1700-k9o3sv8y7-mz	16 MB	96 MB
	Cisco 1700 IOS IP/ADSL/VOX PLUS IPSEC 3DES	IP/ADSL/VOX PLUS IPSEC 3DES	c1700-k9sv8y7-mz	16 MB	96 MB
	Cisco 1700 IOS IP/ADSL/IPX/VOX/FW/IDS PLUS	IP/ADSL/IPX/ VOX/FW/IDS PLUS	c1700-no3sv8y7-mz	16 MB	64 MB

**Table 1** Recommended Memory for the Cisco 1700 Series Routers

Platform	Image Name	Feature Set	Image	Flash Memory	DRAM Memory
Cisco 1751 and Cisco 1760	Cisco 1700 IOS IP/ADSL/VOX/FW/IDS PLUS	IP/ADSL/VOX/ FW/IDS PLUS	c1700-o3sv8y7-mz	16 MB	64 MB
	Cisco 1700 IOS IP/ADSL/VOX PLUS	IP/ADSL/VOX PLUS	c1700-sv8y7-mz	16 MB	64 MB
	Cisco 1700 IOS IP/VOX PLUS	IP/VOX PLUS	c1700-sv8y-mz	16 MB	64 MB
	Cisco 1700 IOS IP ADSL/IPX/ AT/IBM/VOICE/FW/IDS PLUS IPSEC 56	IP ADSL/IPX/ AT/IBM/VOICE/ FW/IDS IPSEC 56	c1700-bk8no3r2sv3y7-mz	32 MB	64 MB
	Cisco 1700 IOS IP/ADSL/IPX/AT/IBM/VOICE/ FW/IDS PLUS IPSEC 3DES	IP ADSL/IPX/ AT/IBM/VOICE/ FW/IDS IPSEC 3DES	c1700-bk9no3r2sv3y7-mz	32 MB	64 MB
	Cisco 1700 IOS IP/ADSL/VOICE/FW/IDS PLUS IPSEC 56	IP/ADSL/ VOICE/FW/IDS PLUS IPSEC 56	c1700-k8o3sv3y7-mz	16 MB	64 MB
	Cisco 1700 IOS IP/ADSL/VOICE PLUS IPSEC 56	IP/ADSL/VOICE PLUS IPSEC 56	c1700-k8sv3y7-mz	16 MB	64 MB
	Cisco 1700 IOS IP/ADSL/VOICE/FW/IDS PLUS IPSEC 3DES	IP/ADSL/ VOICE/FW/IDS PLUS IPSEC 3DES	c1700-k9o3sv3y7-mz	16 MB	64 MB
	Cisco 1700 IOS IP/ADSL/VOICE PLUS IPSEC 3DES	IP/ADSL/VOICE PLUS IPSEC 3DES	c1700-k9sv3y7-mz	16 MB	64 MB
	Cisco 1700 IOS IP/ADSL/IPX/VOICE/FW/IDS PLUS	IP/ADSL/IPX/ VOICE/FW/IDS PLUS	c1700-no3sv3y7-mz	16 MB	64 MB
	Cisco 1700 IOS IP/ADSL/VOICE/FW/IDS PLUS	IP/ADSL/ VOICE/FW/IDS PLUS	c1700-o3sv3y7-mz	16 MB	64 MB
	Cisco 1700 IOS IP/VOICE PLUS	IP/VOICE PLUS	c1700-sv3y-mz	16 MB	48 MB
	Cisco 1700 IOS IP/ADSL/VOICE PLUS	IP/ADSL/VOICE PLUS	c1700-sv3y7-mz	16 MB	64 MB

**Table 1** Recommended Memory for the Cisco 1700 Series Routers

Platform	Image Name	Feature Set	Image	Flash Memory	DRAM Memory
Cisco 1721/ Cisco 1751 and Cisco 1760	Cisco 1700 IOS IP/ADSL/IPX/AT/IBM/FW/IDS PLUS IPSEC 56	IP ADSL/IPX/ AT/IBM/FW/IDS PLUS IPSEC 56	c1700-bk8no3r2sy7-mz	16 MB	64 MB
	Cisco 1700 IOS IP/ADSL/IPX/AT/IBM/FW/IDS PLUS IPSEC 3DES	IP ADSL/IPX/ AT/IBM/FW/IDS IPSEC 3DES	c1700-bk9no3r2sy7-mz	16 MB	64 MB
	Cisco 1700 IOS IP/ADSL/IPX/AT/IBM PLUS	IP /ADSL/IPX/ AT/IBM PLUS	c1700-bnr2sy7-mz	16 MB	48 MB
	Cisco 1700 IOS IP/IPX/AT/IBM	IP/IPX/AT/IBM	c1700-bnr2y-mz	8 MB	32 MB
	Cisco 1700 IOS IP/ADSL/FW/IDS PLUS IPSEC 56	IP/ADSL/FW/IDS PLUS IPSEC 56	c1700-k8o3sy7-mz	16 MB	48 MB
	Cisco 1700 IOS IP/ADSL PLUS IPSEC 56	IP/ADSL PLUS IPSEC 56	c1700-k8sy7-mz	16 MB	48 MB
	Cisco 1700 IOS IP/ADSL/FW/IDS PLUS IPSEC 3DES	IP/ADSL/FW/IDS PLUS IPSEC 3DES	c1700-k9o3sy7-mz	16 MB	48 MB
	Cisco 1700 IOS IP/ADSL PLUS IPSEC 3DES	IP/ADSL PLUS IPSEC 3DES	c1700-k9sy7-mz	16 MB	48 MB
	Cisco 1700 IOS IP/ADSL/IPX/FW/IDS PLUS	IP/ADSL/IPX/ FW/IDS PLUS	c1700-no3sy7-mz	16 MB	48 MB
	Cisco 1700 IOS IP/IPX	IP/IPX	c1700-ny-mz	8 MB	32 MB
	Cisco 1700 IOS IP/FW/IDS	IP/FW/IDS	c1700-o3y-mz	8 MB	32 MB
	Cisco 1700 IOS IP/ADSL PLUS	IP/ADSL PLUS	c1700-sy7-mz	16 MB	48 MB
	Cisco 1700 IOS IP/ADSL	IP/ADSL	c1700-y7-mz	8 MB	32 MB
	Cisco 1700 IOS IP	IP	c1700-y-mz	8 MB	32 MB
	Cisco 1700 IOS IP PLUS	IP PLUS	c1700-sy-mz	16 MB	32 MB

## Hardware Supported

Cisco IOS Release 12.2(13)ZF2 supports the following Cisco 1700 series routers:

- Cisco 1710 routers
- Cisco 1721 routers
- Cisco 1751 and 1751-V routers
- Cisco 1760 and 1760-V routers

The Cisco 1710 and Cisco 1721 routers run data images only. The Cisco 1751, 1751-V, 1760, and 1760-V routers run data or data-and-voice images, providing digital and analog voice support.

For descriptions of existing hardware features and supported modules, see the hardware installation guides, configuration and command reference guides, and additional documents specific to the Cisco 1700 series routers, which are available on Cisco.com and the Documentation CD at the following location:

[http://www.cisco.com/univercd/cc/td/doc/product/access/acs\\_mod/1700/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/1700/index.htm)

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

**Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 1700 Series Routers: <platform\_name>**

## Determining the Software Version

To determine which 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.

```
router> show version
Cisco Internetwork Operating System Software
IOS (tm) C1700 Software (C1700-NY-MZ), Version 12.2(13)ZF2, EARLY DEPLOYMENT RELEASE
SOFTWARE (fc1)
Synched to technology version 12.2(13.1u)T
```

## Upgrading to a New Software Release

For general information about upgrading to a new software release, see *Software Installation and Upgrade Procedures* located at [http://www.cisco.com/warp/public/130/upgrade\\_index.shtml](http://www.cisco.com/warp/public/130/upgrade_index.shtml).

## Feature Set Tables

The Cisco IOS software is packaged in feature sets consisting of software images, depending on the platform. Each feature set contains a specific set of Cisco IOS features. Release 12.2(13)ZF2 supports the same feature sets as Releases 12.2 and 12.2(8)T, but Release 12.2(13)ZF2 includes new features supported by the Cisco 1700 series routers.



### 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 will likely require an export license. Customer orders can be denied or subject to delay as a result of United States government regulations. When applicable, the purchaser/user must obtain local import and use authorizations for all encryption strengths. Please contact your sales representative or distributor for more information, or send an e-mail to [export@cisco.com](mailto:export@cisco.com).

Table 2 through Table 4 list the features and feature sets supported in Cisco IOS Release 12.2(13)ZF2.

The tables use the following conventions:

- Yes—The feature is supported in the software image.
- No—The feature is not supported in the software image.
- In—The number in the “In” column indicates the Cisco IOS release in which the feature was introduced. For example, “12.2(13)ZF” means that the feature was introduced in 12.2(13)ZF. If a cell in this column is empty, the feature was included in a previous release or in the initial base release.



### Note

These feature set tables contain only a selected list of features, which are cumulative for Release 12.2(13)*nn* early deployment releases only (*nn* identifies each early deployment release). The tables do not list all features in each image—additional features are listed in the [Cross-Platform Release Notes for Cisco IOS Release 12.2 T](#) and Release 12.2 T Cisco IOS documentation.

**Table 2** Feature List by Feature Set for Cisco 1710 Routers

Feature	In	Feature Set	
		IP/IPX/AT/ IBM/FW/IDS PLUS IPSEC 3DES	IP/FW/IDS PLUS IPSEC 3DES
DHCP Authorized ARP	12.2(13)ZF	Yes	Yes
FR SVCs over ISDN	12.2(13)ZF	No	No

**Table 3, Part 1** Feature List by Feature Set for Cisco 1751 and 1760 Routers

Feature	In	Feature Set					
		IP/ADSL/ IPX/AT/ IBM/VOX/ FW/IDS PLUS IPSEC 56	IP/ADSL/IPX/ AT/IBM/VOX/ FW/IDS PLUS IPSEC 3DES	IP/ADSL/ VOX/FW/ IDS PLUS IPSEC 56	IP/ADSL/ VOX PLUS IPSEC 56	IP/ADSL/ VOX/FW/ IDS PLUS IPSEC 3DES	IP/ADSL/ VOX PLUS IPSEC 3DES
DHCP Authorized ARP	12.2(13)ZF	Yes	Yes	Yes	Yes	Yes	Yes
FR SVCs over ISDN	12.2(13)ZF	Yes	Yes	Yes	Yes	Yes	Yes

**Table 3, Part 2** Feature List by Feature Set for Cisco 1751 and 1760 Routers

Feature	In	Feature Set			
		IP/ADSL/ IPX/VOX/ FW/IDS PLUS	IP/ADSL/ VOX/FW/ IDS PLUS	IP/ADSL/ VOX PLUS	IP/VOX PLUS
DHCP Authorized ARP	12.2(13)ZF	Yes	Yes	Yes	Yes
FR SVCs over ISDN	12.2(13)ZF	Yes	Yes	Yes	Yes

**Table 3, Part 3** Feature List by Feature Set for Cisco 1751 and 1760 Routers

Feature	In	Feature Set					
		IP ADSL/ IPX/AT/ IBM/ VOICE/FW/ IDS PLUS IPSEC 56	IP/ADSL/ IPX/AT/ IBM/VOICE/F W/IDS PLUS IPSEC 3DES	IP/ADSL/ VOICE/ FW/IDS PLUS IPSEC 56	IP/ADSL/ VOICE PLUS IPSEC 56	IP/ADSL/ VOICE/FW/ IDS PLUS IPSEC 3DES	IP/ADSL/ VOICE PLUS IPSEC 3DES
DHCP Authorized ARP	12.2(13)ZF	Yes	Yes	Yes	Yes	Yes	Yes
FR SVCs over ISDN	12.2(13)ZF	Yes	Yes	Yes	Yes	Yes	Yes

**Table 3, Part 4** Feature List by Feature Set for Cisco 1751 and 1760 Routers

Feature	In	Feature Set			
		IP/ADSL/ IPX/VOICE/ FW/IDS PLUS	IP/ADSL/ VOICE/FW/ IDS PLUS	IP/VOICE PLUS	IP/ADSL/ VOICE PLUS
DHCP Authorized ARP	12.2(13)ZF	Yes	Yes	Yes	Yes
FR SVCs over ISDN	12.2(13)ZF	Yes	Yes	Yes	Yes

**Table 4, Part 1 Feature List by Feature Set for Cisco 1721, 1751, and 1760 Routers**

Feature	In	Feature Set					
		IP/ADSL/ IPX/AT/ IBM/FW/ IDS PLUS IPSEC 56	IP/ADSL/IPX/ AT/IBM/FW/ IDS PLUS IPSEC 3DES	IP/ADSL/ IPX/AT/ IBM PLUS	IP/IPX/ AT/IBM	IP/ADSL/ FW/IDS PLUS IPSEC 56	IP/ADSL PLUS IPSEC 56
DHCP Authorized ARP	12.2(13)ZF	Yes	Yes	Yes	Yes	Yes	Yes
FR SVCs over ISDN	12.2(13)ZF	Yes	Yes	Yes	No	Yes	Yes

**Table 4, Part 2 Feature List by Feature Set for Cisco 1721, 1751, and 1760 Routers**

Feature	In	Feature Set					
		IP/ADSL/ FW/IDS PLUS IPSEC 3DES	IP/ADSL PLUS IPSEC 3DES	IP/ADSL/ IPX/FW/ IDS PLUS	IP/IPX	IP/IPX IP/FW/IDS	IP/ADSL PLUS
DHCP Authorized ARP	12.2(13)ZF	Yes	Yes	Yes	Yes	Yes	Yes
FR SVCs over ISDN	12.2(13)ZF	Yes	Yes	Yes	No	No	Yes

**Table 4, Part 3 Feature List by Feature Set for Cisco 1721, 1751, and 1760 Routers**

Feature	In	Feature Set		
		IP/ADSL	IP	IP PLUS
DHCP Authorized ARP	12.2(13)ZF	Yes	Yes	Yes
FR SVCs over ISDN	12.2(13)ZF	No	No	Yes



# New and Changed Information

The following sections list the new software features supported by the Cisco 1700 series routers for Release 12.2(13)ZF.

## New Software Features in Release 12.2(13)ZF

The following sections describe the new software features supported by the Cisco 1700 series routers for Release 12.2(13)ZF.

### Frame Relay SVCs Over ISDN

This feature supports Frame Relay (FR) switched virtual circuits (SVCs) over an ISDN line. A common use of the functionality in network topology is to put it as a backup route. This feature enables the support of current FR SVC function on an ISDN BRI interface, as if running on a serial line. FR switching does not work with this feature.

### DHCP Authorized ARP

This feature enhances the Dynamic Host Configuration Protocol (DHCP) and Address Resolution Protocol (ARP) components of the Cisco IOS to limit the leasing of IP addresses to mobile users to authorized users.

A new command line interface (CLI) **arp authorized** command is defined to enable this feature.

### Configuration Example

Consider the routers R1 and R2. R1 is the DHCP server that assigns IP addresses to the routers that are seeking IP addresses, and R2 is configured to obtain its IP address through DHCP server. Since ARP update is configured on R1, it will install a secure ARP entry in its ARP table. The **arp authorized** command stops any dynamic ARP on that interface. R1 will send periodic ARPs to R2 to make sure that the client is still active; the client (R2) responds with an ARP reply. The timer for the entry is refreshed on R1 upon receiving the response.

The following example shows configuration of R1 DHCP server:

```
ip dhcp pool testing_pool
network 10.0.0.0 255.255.255.0
lease 0 0 20
update arp
!
interface Ethernet0
ip address 10.0.0.1 255.255.255.0
half-duplex
arp authorized
arp timeout 60
```

The following example shows configuration of R2 DHCP client.

```
interface Ethernet0/0
ip address dhcp
half-duplex
```

The following is the output for the **sh arp** command on R1

```
R1#sh arp
Protocol Address           Age (min)  Hardware Addr   Type   Interface
Internet 10.0.0.3             0          0004.dd0c.ffcb  ARPA   Ethernet01
Internet 10.0.0.1             -          0004.dd0c.ff86  ARPA   Ethernet0
```

The following is the output for the **sh arp** command on R2

```
R2#sh arp
Protocol Address           Age (min)  Hardware Addr   Type   Interface
Internet 10.0.0.3             -          0004.dd0c.ffcb  ARPA   Ethernet0/02
Internet 10.0.0.1             0          0004.dd0c.ff86  ARPA   Ethernet0/0
```

## New Software Features in Release 12.2(13)T

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

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios122/122relnt/xprn122t/index.htm>

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

**Service & Support: Technical Documents: Cisco IOS Software: Release 12.2: Release Notes: Cross-Platform Release Notes (Cisco IOS Release 12.2T)**

## Important Notes

The following sections describe important notes concerning the new software features supported by the Cisco 1700 series routers for Release 12.2(13)ZF2.

### Frame Relay SVCs Over ISDN

Frame Relay SVCs over ISDN is an existing feature of Cisco IOS software. To activate the Frame Relay SVCs over ISDN functionality, configure the SVCs under dialer interface or BRI interface, depending on where Frame Relay encapsulation is specified.

## Caveats

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

Caveats in Release 12.2 T are also in Release 12.2(13)ZF2. For information on caveats in Cisco IOS Release 12.2 T, refer to the *Caveats for Cisco IOS Release 12.2 T* document. For information on caveats in Cisco IOS Release 12.2, refer to the *Caveats for Cisco IOS Release 12.2* document. These documents list severity 1 and 2 caveats, and are located on Cisco.com and the Documentation CD.

1. IP address 10.0.0.3 is the secure ARP entry for R2 in the DHCP server.
2. IP address 10.0.0.3 is the DHCP obtained IP address from R1.

**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](http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl).

## Resolved Caveats for Release 12.2(13)ZF2

Cisco IOS Release 12.2(13)ZF2 is a rebuild release for Cisco IOS Release 12.2(13)ZF. This section describes unexpected behavior that is fixed in Release 12.2(13)ZF2.

### CSCdz71127

Cisco routers and switches running Cisco IOS software and configured to process Internet Protocol version 4 (IPv4) packets are vulnerable to a Denial of Service (DoS) attack. A rare sequence of crafted IPv4 packets sent directly to the device may cause the input interface to stop processing traffic once the input queue is full. No authentication is required to process the inbound packet. Processing of IPv4 packets is enabled by default. Devices running only IP version 6 (IPv6) are not affected. A workaround is available.

Cisco has made software available, free of charge, to correct the problem.

This advisory is available at

<http://www.cisco.com/warp/public/707/cisco-sa-20030717-blocked.shtml>

### CSCea02355

Cisco routers and switches running Cisco IOS software and configured to process Internet Protocol version 4 (IPv4) packets are vulnerable to a Denial of Service (DoS) attack. A rare sequence of crafted IPv4 packets sent directly to the device may cause the input interface to stop processing traffic once the input queue is full. No authentication is required to process the inbound packet. Processing of IPv4 packets is enabled by default. Devices running only IP version 6 (IPv6) are not affected. A workaround is available.

Cisco has made software available, free of charge, to correct the problem.

This advisory is available at

<http://www.cisco.com/warp/public/707/cisco-sa-20030717-blocked.shtml>

## Open Caveats for Release 12.2(13)ZF

The following sections lists the open caveats for the Cisco IOS release 12.2(13)ZF.

### CSCea33219

The throughput of the tx-ring size 1 feature on the Cisco 1700 router XDSL interface decreases when the pack latency is reduced.

**CSCdz79876**

Frame Relay encapsulation fails on legacy dial-on-demand (DDR) configuration.

**CSCdz90239**

Maps bound to Frame Relay SVCs are not being cleared after disconnecting the call.

**CSCea01223**

The dialer subinterfaces SVC establishment.

**CSCea04907**

The router crashes when multiple SVCs on one point-to-point subif is attempted to set up.

**CSCea14426**

Call cannot be made after removing the dialer subinterface.

**Resolved Caveats for Release 12.2(13)ZF**

The following sections lists the resolved caveats for the Cisco IOS release 12.2(13)ZF.

**CSCdz33676**

DHCP secure ARP installation is not correct for **no ip routing**.

**CSCdz36223**

Tracebacks are seen when **authorized arp** command is enabled.

**CSCdz38253**

ARP timer does not work correctly for secure ARP entries.

**CSCdz44824**

Same IP address used by hacker can cause refreshing of secure ARP.

**CSCdz44839**

The **static arp removal** command does not bring back secure ARP entry.

## CSCdz49146

Timer issue when the **arp timeout** is set to 60 min from the default 4 hr.

## CSCdz52933

Configuring **authorized arp** allows dynamic ARP entries to be installed.

## CSCdz59677

Timer expired notification is sent by ARP to DHCP when **no arp auth** is enabled.

## CSCdz62280

Configuring **arp auth** removes the ARP entry if the age exceeds the ARP timeout.

## 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 Cisco.com and the Documentation CD.

Use these release notes with the documents listed in the following sections:

- [Release-Specific Documents](#)
- [Platform-Specific Documents](#)

## Release-Specific Documents

The following documents are specific to Release 12.2 and apply to Release 12.2(13)ZF2. They are located on Cisco.com and the Documentation CD (under the heading Service & Support):

- To reach the *Cross-Platform Release Notes for Cisco IOS Release 12.2 T*, click this path:  
**Technical Documents: Cisco IOS Software: Release 12.2: Release Notes: Cisco IOS Release 12.2 T**
- To reach product bulletins, field notices, and other release-specific documents, click this path:  
**Technical Documents: Product Bulletins**
- To reach the *Caveats for Cisco IOS Release 12.2* and *Caveats for Cisco IOS Release 12.2 T* documents, which contain caveats applicable to all platforms for all maintenance releases of Release 12.2, click this path:  
**Technical Documents: Cisco IOS Software: Release 12.2: Caveats**

**Note**

If you have an account with Cisco.com, you can also use the Bug Toolkit to find selected 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](http://www.cisco.com/cgi-bin/Support/Bugtool/launch_bugtool.pl).

## Platform-Specific Documents

Hardware installation guides, configuration and command reference guides, and additional documents specific to Cisco 1700 series routers are available on Cisco.com and the Documentation CD at the following location:

[http://www.cisco.com/univercd/cc/td/doc/product/access/acs\\_mod/1700/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/access/acs_mod/1700/index.htm)

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

**Cisco Product Documentation: Access Servers and Access Routers: Modular Access Routers: Cisco 1700 Series Routers: <platform\_name>**

## Obtaining Documentation

These sections explain how to obtain documentation from Cisco Systems.

### World Wide Web

You can access the most current Cisco documentation on the World Wide Web at this URL:

<http://www.cisco.com>

Translated documentation is available at this URL:

[http://www.cisco.com/public/countries\\_languages.shtml](http://www.cisco.com/public/countries_languages.shtml)

### Documentation CD-ROM

Cisco documentation and additional literature are available in a Cisco Documentation CD-ROM package, which is shipped 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 through an annual subscription.

### Ordering Documentation

You can order Cisco documentation in these ways:

- Registered Cisco.com users (Cisco direct customers) can order Cisco product documentation from the Networking Products MarketPlace:

[http://www.cisco.com/cgi-bin/order/order\\_root.pl](http://www.cisco.com/cgi-bin/order/order_root.pl)

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## Obtaining Technical Assistance

Cisco provides Cisco.com as a starting point for all technical assistance. Customers and partners can obtain online documentation, troubleshooting tips, and sample configurations from online tools by using the Cisco Technical Assistance Center (TAC) Web Site. Cisco.com registered users have complete access to the technical support resources on the Cisco TAC Web Site.

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## Technical Assistance Center

The Cisco Technical Assistance Center (TAC) is available to all customers who need technical assistance with a Cisco product, technology, or solution. Two levels of support are available: the Cisco TAC Web Site and the Cisco TAC Escalation Center.

Cisco TAC inquiries are categorized according to the urgency of the issue:

- Priority level 4 (P4)—You need information or assistance concerning Cisco product capabilities, product installation, or basic product configuration.
- Priority level 3 (P3)—Your network performance is degraded. Network functionality is noticeably impaired, but most business operations continue.
- Priority level 2 (P2)—Your production network is severely degraded, affecting significant aspects of business operations. No workaround is available.
- Priority level 1 (P1)—Your production network is down, and a critical impact to business operations will occur if service is not restored quickly. No workaround is available.

The Cisco TAC resource that you choose is based on the priority of the problem and the conditions of service contracts, when applicable.

### Cisco TAC Web Site

You can use the Cisco TAC Web Site to resolve P3 and P4 issues yourself, saving both cost and time. The site provides around-the-clock access to online tools, knowledge bases, and software. To access the Cisco TAC Web Site, go to this URL:

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

All customers, partners, and resellers who have a valid Cisco service contract have complete access to the technical support resources on the Cisco TAC Web Site. The Cisco TAC Web Site requires a Cisco.com login ID and password. If you have a valid service contract but do not have a login ID or password, go to this URL to register:

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

If you are a Cisco.com registered user, and you cannot resolve your technical issues by using the Cisco TAC Web Site, you can open a case online by using the TAC Case Open tool at this URL:

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

If you have Internet access, we recommend that you open P3 and P4 cases through the Cisco TAC Web Site.

### Cisco TAC Escalation Center

The Cisco TAC Escalation Center addresses priority level 1 or priority level 2 issues. These classifications are assigned when severe network degradation significantly impacts business operations. When you contact the TAC Escalation Center with a P1 or P2 problem, a Cisco TAC engineer automatically opens a case.

To obtain a directory of toll-free Cisco TAC telephone numbers for your country, go to this URL:

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



Before calling, please check with your network operations center to determine the level of Cisco support services to which your company is entitled: for example, SMARTnet, SMARTnet Onsite, or Network Supported Accounts (NSA). When you call the center, please have available your service agreement number and your product serial number.

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