



# Release Notes for the Cisco 10000 Series Router for Cisco IOS Release 12.3(7)XI4

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**April 21, 2005**

Cisco IOS Release 12.3(7)XI4

OL-5057-05

These release notes provide information about Cisco IOS Release 12.3(7)XI4, which provides broadband aggregation, leased-line, and MPLS features for the Cisco 10000 series router.

For a list of the software caveats that apply to Cisco IOS Release 12.3(7)XI4, see the [“Caveats for Cisco IOS Release 12.3\(7\)XI4” section on page 8](#) and *Caveats for Cisco IOS Release 12.3 T*. The caveats document is updated for every maintenance release and is located on [Cisco.com](#).

These release notes are updated as needed to describe new features, memory requirements, hardware support, software platform deferrals, and changes to the microcode and related documents.

Cisco recommends that you view the field notices for this release to see if your software or hardware platforms are affected. If you have an account on Cisco.com, you can find field notices at [http://www.cisco.com/warp/customer/tech\\_tips/index/fn.html](http://www.cisco.com/warp/customer/tech_tips/index/fn.html). If you do not have a Cisco.com login account, you can find field notices at [http://www.cisco.com/warp/public/tech\\_tips/index/fn.htm](http://www.cisco.com/warp/public/tech_tips/index/fn.htm)

Cisco IOS Release 12.3(7)XI4 is based on the following releases:

- Cisco IOS Release 12.2(16)BX
- Cisco IOS Release 12.3T
- Cisco IOS Release 12.3(7)XI4

To review the release notes for Cisco IOS Release 12.2(16)BX, go to the following URL:

<http://www.cisco.com/univercd/cc/td/doc/product/aggr/10000/10krn/122bx/index.htm>

To review the release notes for Cisco IOS Release 12.3, go to the following URL:

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123reInt/xprn123/index.htm>



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## System Requirements

Cisco IOS Release 12.3(7)XI4 requires that you have the performance routing engine (PRE), Part Number ESR-PRE2 installed in the Cisco 10000 series router chassis. To verify which PRE is installed in the router, use the **show version** command.

## Route Processor Redundancy Mode

The Cisco 10000 series router supports route processor redundancy (RPR) mode or RPR+ mode to provide fault resistance and to ensure high availability. In RPR mode, one supervisor engine is active and operational while the second supervisor engine is in standby mode waiting for the active supervisor to fail so that it can take over and maintain the operation of the router. In RPR+ mode, the standby supervisor engine is fully initialized and configured, which shortens the time needed to switch over to the standby supervisor.

When upgrading or downgrading the Cisco IOS software, the RPR mode used on the Cisco 10000 series router depends upon the Cisco IOS software currently running on the Cisco 10000 series router and the Cisco IOS software to which you want to upgrade or downgrade.

**Table 1** lists the RPR modes used when upgrading or downgrading Cisco IOS software. For example, when upgrading to Cisco IOS Release 12.3(7)XI4 from Release 12.2(16)BX, the router uses RPR mode instead of RPR+ mode. When downgrading to Cisco IOS Release 12.2(16)BX from Cisco IOS Release 12.3(7)XI4, the router uses RPR mode.

**Table 1** RPR Modes for Cisco IOS Software Releases

Releases	12.2(16)BX	Cisco IOS Release 12.3(7)XI4
12.2(16)BX	RPR+	RPR
12.3(7)XI4	RPR	RPR+

## Before You Upgrade the Cisco IOS Software

Before you upgrade (or downgrade) the Cisco IOS software running on the Cisco 10000 series router, save the running configuration file. In RPR mode, the router synchronizes only the startup configuration.

## Upgrading to a New Software Release

For specific information about upgrading your Cisco 10000 series router to a new software release, refer to the *Cisco 10000 Series Router Line Card Configuration Guide*.

For general information about upgrading to a new software release, refer to the product bulletin *Cisco IOS Upgrade Ordering Instructions*.

For additional information about ordering Cisco IOS software, refer to the *Cisco IOS Software Releases*.

## New Features—Cisco IOS Release 12.3(7)XI4

There are no new features in Cisco IOS Release 12.3(7)XI4.

For information about new features supported on the Cisco 10000 series router in other releases, see the appropriate Release Notes at the following URL:

<http://www.cisco.com/univercd/cc/td/doc/product/aggr/10000/10krn/index.htm>

## Limitations and Restrictions

This section describes limitations and restrictions for the following areas. Be sure to review the following limitations and restrictions before using the features in Cisco IOS Release 12.3(7)XI4:

- [Controlling the Rate of Logging Messages, page 4](#)
- [Frame Relay, page 4](#)
- [PRE Network Management Ethernet Port, page 4](#)
- [Scalability, page 4](#)
- [Testing Performance of High-Speed Interfaces, page 4](#)

For more information about the restrictions for a specific feature, refer to the *Cisco 10000 Series Broadband Aggregation, Leased-Line, and MPLS Configuration Guide, through 12.3XI*.

## Controlling the Rate of Logging Messages

It is important that you limit the rate that system messages are logged by the Cisco 10000 series router. This helps to avoid a situation in which the router becomes unstable and the CPU is overloaded. To control the output of messages from the system, use the **logging rate-limit** command.

Cisco recommends that you configure the **logging rate-limit** command as follows. This limits the rate of all messages to the console to 10 per second, except for messages with critical priority (level 3) or greater.

```
Router(config)# logging rate-limit console all 10 except critical
```

For more information, refer to the **logging rate-limit command** in the [Cisco IOS Configuration Fundamentals and Network Management Command Reference, Release 12.3](#).

## Frame Relay

The following limitations apply to the Cisco 10000 series router implementation of Frame Relay:

- The **ip rtp reserve** command is not supported.
- Only one priority queue per VC is allowed.

## PRE Network Management Ethernet Port

Ensure that the Fast Ethernet NME port on the PRE is configured for auto-negotiation mode, which is the system default. Duplex mode can cause problems, such as flapping. If the port is experiencing such problems and has been configured for duplex mode, use the **no half-duplex** or **no full-duplex** command to disable duplex mode.

## Scalability

If you configure create on demand PVCs (individual and within a range) and PPP sessions, RP CPU utilization can be extremely high when bringing up and tearing down sessions and PVCs. This is only a concern when the configuration contains approximately 30,000 PPP sessions, and additional services are enabled such as DBS, ACLs, and service policies.

To reduce the RP CPU usage for PPPoA sessions, reduce the number of configured PVCs in a single subinterface. To reduce the RP CPU usage for PPPoEoA sessions, use call admission control (**call admission limit** command).



### Note

Do not configure more than 1500 VCs under a multipoint interface. Exceeding this recommended limit can cause very high CPU utilization. Refer to CSCeh07013 in [Resolved Caveats—Cisco IOS Release 12.3\(7\)X14, page 34](#).

## Testing Performance of High-Speed Interfaces

Cisco IOS software running on the Cisco 10000 series router has multiple queues for all classes of traffic over high-speed interfaces. The software selects a queue based on the source and destination address for the packet. This ensures that a traffic flow always uses the same queue and the packets are transmitted in proper order.

When the Cisco 10000 series router is installed in a real network, the high-speed interfaces work efficiently to spread traffic flow equally over the queues. However, using single traffic streams in a laboratory environment may result in less-than-expected performance.

Therefore, to ensure accurate test results, you should test the throughput of the gigabit Ethernet, Packet over SONET (POS), or ATM uplink with multiple source or destination addresses.

**Tip**

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To determine if traffic is being properly distributed, use the **show hardware pxf cpu queue** command.

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## Important Notes

This section provides important information about the following topics:

- [Configuring the aaa new-model Command, page 5](#)
- [Enhancing Scalability of Per-User Configurations, page 6](#)
- [Inserting a New Line Card, page 7](#)
- [Provisioning for Scaling, page 7](#)

## Configuring the aaa new-model Command

The **aaa new-model** command is disabled by default on the Cisco 10000 series router. In previous releases, the default configuration did not appear in the running configuration file. However, in Cisco IOS Release 12.3(7)X11 or later releases, the running configuration file now includes the **no aaa new-model** command. This is an intentional change in behavior for this command and is the first step in a three-step process to change the default configuration to **aaa new-model**.

**Note**

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This change in behavior differs from Cisco IOS software, which typically does not include default configurations in the running configuration file.

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For example, when you enter the **show running-config** command, **no aaa new-model** appears in the configuration if either of the following conditions previously occurred:

- You did not configure the **aaa new-model** command on the router and instead accepted the default configuration of the file: **no aaa new-model**.
- You entered the **no aaa new-model** command to remove the previously configured **aaa new-model** command.

## Enhancing Scalability of Per-User Configurations

To enhance scalability of per-user configurations without changing the router configuration, use the **ip:vrf-id** and **ip:ip-unnumbered** RADIUS attributes. These per-user vendor specific attributes (VSAs) are used to map sessions to VRFs and IP unnumbered interfaces. The VSAs apply to virtual access subinterfaces and are processed during PPP authorization.

In releases earlier than Cisco IOS Release 12.2(16)BX1, the **lcp:interface-config** RADIUS attribute is used to map sessions to VRFs. This per-user VSA applies to any type of interface configuration, including virtual access interfaces. Valid values of this VSA are essentially any valid Cisco IOS interface command; however, not all Cisco IOS commands are supported on virtual access subinterfaces. To accommodate the requirements of the **lcp:interface-config** VSA, the per-user authorization process forces the Cisco 10000 series router to create full virtual access interfaces, which consume more memory and are less scalable.

In Cisco IOS Release 12.2(16)BX1 and later releases, the **ip:vrf-id** is used to map sessions to VRFs. Any profile that uses the **ip:vrf-id** VSA must also use the **ip:ip-unnumbered** VSA to install IP configurations on the virtual access interface that is to be created. PPP that is used on a virtual access interface to be created requires the **ip:ip-unnumbered** VSA. An Internet Protocol Control Protocol (IPCP) session is not established if IP is not configured on the interface. You must configure either the **ip address** command or the **ip unnumbered** command on the interface so that these configurations are present on the virtual access interface that is to be created. However, specifying the **ip address** and **ip unnumbered** commands on a virtual template interface is not required because any pre-existing IP configurations are removed when the **ip:ip-vrf** VSA is installed on the virtual access interface. Therefore, any profile that uses the **ip:vrf-id** VSA must also use the **ip:ip-unnumbered** VSA to install IP configurations on the virtual access interface that is to be created.

These per-user VSAs can be applied to virtual access subinterfaces; therefore, the per-user authorization process does not require the creation of full virtual access interfaces, which improves scalability.

## Setting VRF and IP Unnumbered Interface Configurations in User Profiles

Although the Cisco 10000 series router continues to support the **lcp:interface-config** VSA, the **ip:vrf-id** and **ip:ip-unnumbered** VSAs provide another way to set the VRF and IP unnumbered interface configurations in user profiles. The **ip:vrf-id** and **ip:ip-unnumbered** VSAs have the following syntax:

```
Cisco:Cisco-AVpair = "ip:vrf-id=vrf-name"
Cisco:Cisco-AVpair = "ip:ip-unnumbered=interface-name"
```

Specify only one **ip:vrf-id** and one **ip:ip-unnumbered** value in a user profile. However, if the profile configuration includes multiple values, the Cisco 10000 series router applies the value of the last VSA received, and creates a virtual access subinterface. If the profile includes the **lcp:interface-config** VSA, the router always applies the value of the **lcp:interface-config** VSA, and creates a full virtual access interface.

Whenever you specify a VRF in a user profile, but you do not configure the VRF on the Cisco 10000 series router, in Cisco IOS Release 12.2(15)BX, the router accepted the profile. However, in Cisco IOS Release 12.2(16)BX1 and later releases, the router rejects the profile.

## Setting VRF and IP Unnumbered Interface Configuration in a Virtual Interface Template

You can specify one VSA value in the user profile on RADIUS and another value locally in the virtual template interface. The Cisco 10000 series router clones the template and then applies the values configured in the profiles it receives from RADIUS, resulting in the removal of any IP configurations when the router applies the profile values.

## Redefining User Profiles to Use the `ip:vrf-id` and `ip:ip-unnumbered` VSAs

The requirement of a full virtual access interface when using the `lcp:interface-config` VSA in user profiles can result in scalability issues, such as increased memory consumption. This is especially true when the Cisco 10000 series router attempts to apply a large number of per-user profiles that include the `lcp:interface-config` VSA. Therefore, when updating your user profiles, we recommend that you redefine the `lcp:interface-config` VSA to the scalable `ip:vrf-id` and `ip:ip-unnumbered` VSAs.

[Example 1](#) shows how to redefine the VRF named *newyork* using the `ip:vrf-id` VSA.

### Example 1 Redefining VRF Configurations

Change:

```
Cisco:Cisco-Avpair = "lcp:interface-config=ip vrf forwarding newyork"
```

To:

```
Cisco:Cisco-Avpair = "ip:vrf-id=newyork"
```

[Example 2](#) shows how to redefine the Loopback 0 interface using the `ip:ip-unnumbered` VSA.

### Example 2 Redefining IP Unnumbered Interfaces

Change:

```
Cisco:Cisco-Avpair = "lcp:interface-config=ip unnumbered Loopback 0"
```

To:

```
Cisco:Cisco-Avpair = "ip:ip-unnumbered=Loopback 0"
```

## Inserting a New Line Card

Unlike other Cisco routers, if you insert a new or different line card into a Cisco 10000 series router chassis slot that previously had a line card installed, the line card initially reports that it is administratively up.

## Provisioning for Scaling

The following configuration parameters enhance scalability on the Cisco 10000 series router:

- [PPPoA Sessions with IP QoS Static Routes, page 8](#)
- [AAA Authentication on the NME Port, page 8](#)
- [Call Admission Control, page 8](#)

To configure the Cisco 10000 series router for high scalability, be sure to configure the configuration parameters as described in the sections that follow.

For more information, refer to the *Cisco 10000 Series Broadband Aggregation and Leased-Line Configuration Guide*.

## PPPoA Sessions with IP QoS Static Routes

To scale to 32,000 PPPoA sessions with IP QoS enabled, you must limit the number of IP QoS static routes to 4,000 unidirectional QoS static routes.

## AAA Authentication on the NME Port

If you use AAA authentication on the NME port, set both the in and out interface hold queues to 4096. For example:

```
Router(config)# int fa 0/0/0
Router(config-if)# hold-queue 4096 in
Router(config-if)# hold-queue 4096 out
```

## Call Admission Control

We recommend that you set the Call Admission Control (CAC) to a maximum of 95. For example:

```
Router(config)# call admission limit 95
```

# Caveats for Cisco IOS Release 12.3(7)XI4

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.

This section contains open and resolved caveats for the current Cisco IOS maintenance release.

All caveats in Cisco IOS Release 12.3 and Cisco IOS Release 12.3 T that apply to the Cisco 10000 series are also in Cisco IOS Release 12.3(7)XI4.

For information on caveats in Cisco IOS Release 12.3, see *Caveats for Cisco IOS Release 12.3*.

For information on caveats in Cisco IOS Release 12.3 T, see *Caveats for Cisco IOS Release 12.3 T*, which lists severity 1 and 2 caveats and select severity 3 caveats and is located on [Cisco.com](http://www.cisco.com).



### Note

If you have an account on 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](http://www.cisco.com) and click **Products and Services: Cisco IOS Software: Cisco IOS Software Releases 12.2: Troubleshooting: 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). (If the defect that you have requested cannot be displayed, this may be due to one of more of the following reasons: the defect number does not exist, the defect does not have a customer-visible description yet, or the defect has been marked Cisco Confidential.)

The *Dictionary of Internetworking Terms and Acronyms* contains definitions of acronyms that are not defined in this document:

## Open Caveats—Cisco IOS Release 12.3(7)X14

This section describes caveats that are open in Cisco IOS Release 12.3(7)X14.

- CSCdt94857

High impact commands or commands used in high scaling environments impact scaling by increasing CPU cycles, increasing boot time, and decreasing control plane run-time efficiency.

There are no known workarounds.

- CSCdy45049

When scaling over 3000 serial interfaces, line rate traffic may not be achieved. This problem occurs when thousands of serial interfaces (PPP or HDLC) are used on the port and line rate traffic is sent through all interfaces.

There are no known workarounds.

- CSCdz40002

When you remove APS and then re-activate it, traffic convergence after an APS switchover takes longer than 2 seconds.

There are no known workarounds.

- CSCea63115

When you enter the **redundancy force-failover main-cpu** privileged EXEC command on a router that is configured with two Performance Routing Engines (PREs), an automatic protection system (APS) switchover occurs on OC-12 Packet-over-SONET (POS) line cards, which is incorrect behavior.

This problem occurs when APS is configured on OC-12 POS line cards in two different Cisco 10000 series routers that are connected back-to-back and you enter the following sequence of commands:

1. Enter the **aps force pos slot/subslot/port from working** interface configuration command on both routers.
2. Enter the **show aps** EXEC command. The output displays the active channels for both routers.
3. Enter the **redundancy force-failover main-cpu** privileged EXEC command on one of the routers, causing an APS switchover to occur on this router.

There are no known workarounds. However, when problem occurs, there is no loss of data.

- CSCea63638

When Automatic Protection Switching (APS) is enabled, if you issue the **hw-module reset** command on the primary APS slot, no change is observed because the router does not switch to the secondary APS slot. This problem occurs when the **hw-module reset** command is issued.

There are no known workarounds.

- CSCec13372

The router can generate wrong or misleading sub-pool or global pool flooding messages when up or down thresholds for MPLS TE resource availability (bandwidth) are crossed. The configured thresholds for MPLS TE resource availability are crossed when defining bandwidth on the MPLS tunnel interface reserved on the physical interface/subinterface.

There are no known workarounds.

- CSCec37207  
On Cisco 10000 series routers running in PTA mode, PPPoEoA sessions using bandwidth queues drop packets if a priority queue is also configured in the policy map. When there is traffic sent to priority queue, all other queues can drop packets below line rate if the traffic consists of small packets.  
There are no known workarounds.
- CSCec42315  
When scaling to 12,000 Frame Relay DLCI interfaces, line rate traffic may not be achieved. This problem occurs when thousands of Frame Relay DLCIs are used on the port and line rate traffic is sent through all interfaces.  
There are no known workarounds.
- CSCec42451  
The RIP routing protocol does not function properly over VLAN interfaces with IP unnumbered.  
There are no known workarounds.
- CSCec43937  
When you run hierarchical shaping, a small number of UPC violations can occur on a DS3 ATM interface on an LS1010 that is connected to a LAC. The traffic shaped by the LAC is slightly above the tunnel PCR. The number of violations does not depend on the tunnel oversubscription but seems to be proportional to the tunnel PCR.  
There are no known workarounds.
- CSCec48111  
When sending 64 byte packets through 300 serial interfaces or more, line rate traffic may not be achieved. This problem occurs with 64 byte packets and a large number of interfaces.  
There are no known workarounds.
- CSCec80927  
Call setup rate slower is for a particular configuration running on a 12.3(6)TX image compared with 12.2(16)BX. If the **mtu** command is added to the vtemplate for sessions, the command processing for the command takes significantly longer on a 12.3(6)TX image as compared to a 12.3(16)BX image.  
Workaround: Remove the **mtu** command from the vtemplate configuration.
- CSCec85628  
Outgoing traffic is above VP speed on an 8e3d3atm line card. For this problem to occur, the total SCR value of all VBR-nrt VCs in a VP is above 80 percent of the VPs PCR value but still smaller than the total VP bandwidth (PCR). All the VCs should be overdriven by outgoing traffic.  
There are no known workarounds.
- CSCed03248  
The CLI error “IP address is already defined as an interface” appears when the address is not used anywhere in the running configuration. The error occurs when the IP address was used by a serial interface and the interface was removed or unconfigured from the system.  
Workaround: Use the **no ip address** command before removing a serial interface or use a different IP address (if possible).

- CSCed17570
 

When using thousands of QoS queues with WRED configured in each queue, a traceback message can appear when you execute the **microcode reload pxf** command. The traceback message appears only when thousands of PXF queues are configured with random-detect enabled and the **microcode reload pxf** command is issued.

There are no known workarounds.
- CSCed20626
 

'Exec' process CPUHOG occurs. This is caused by the **dir all** command, probably due to the attempted accesses to the secondary's PCMCIA slots.

There are no known workarounds. The router continues to function, but the console is unusable for a short while(10-30 seconds). Alternatively, use the **dir device** commands only for known good device names.
- CSCed29494
 

The maximum queue limit for a low -speed link is 4,096, but the system allows you to set the queue limit to 8192.

There are no known workarounds.
- CSCed54867
 

The input service policy does not match traffic as shown by the **show policy-map interface** command if there is no action associated for that class.

Workaround: Set up an action such as "set" or "police".
- CSCed59185
 

When you apply the following example configuration to an output interface that is MPLS enabled, and send traffic from the CPU of the local router (ping other routers or hosts), the traffic is not policed by the policy map.

```
Policy Map exp2cos
Class exp0
set cos 1
Class exp1
police 104000 5000 150800 conform-action transmit exceed-action drop violate-action
drop
Class exp2
```

This problem only affects the traffic from the router CPU, and does not affect traffic passing through the router.

There are no known workarounds.
- CSCed62503
 

When you apply a policy map to a tunnel interface on a router configured with a PRE2 processor, a traceback message appears. This problem occurs when the policy map is applied to a tunnel interface.

There are no known workarounds.
- CSCed65349
 

When you configure 2,000 PPP interfaces, traffic does not reach 99 percent of the line rate after performing 4 HA RPR switchovers. The traffic rates keep fluctuating.

There are no known workarounds.

- CSCed68868  
A traceback message appears when you unconfigure the spoke PE router configured for half-duplex VRF over PPPoE. This problem occurs with 32,000 PPPoE sessions and 40 spoke VRF, therefore scaling to high values.  
There are no known workarounds.
- CSCed70202  
A traceback message appears when you unconfigure the hub PE router configured for half-duplex VRF. This problem occurs with 32,000 sessions, therefore scaling to high values.  
There are no known workarounds.
- CSCed71107  
When 2 time-based ACLs are configured to deny traffic at the same time and are applied to different interfaces, one of the ACLs fails to work properly.  
There are no known workarounds.
- CSCed72023  
Excessive CPU utilization is detected for 5 minutes after unconfiguring half-duplex VRF with a large number of PPPoE user sessions. This problem occurs with 32,000 PPPoE sessions, therefore scaling to high values.  
There are no known workarounds.
- CSCed72338  
The system allows non-nested queuing policy maps to be applied via the **frame-relay map-class** command on Frame Relay main interfaces and subinterfaces; it should not allow such policy maps to be configured.  
There are no known workarounds.
- CSCed86371  
The Automation Protection Switching (APS) active state does not stay with the lowest active odd port after a PRE switchover.  
There are no known workarounds.
- CSCed88782  
The secondary port does not go to a working state during a signal degrade of the primary port using threshold SON ERR RAT 1e-6.  
Workaround: Set the BIP threshold to 6; do not set the BIP threshold to 7.
- CSCee02536  
When configuring MPLS Layer 3 VPN, the PXF CEF/FIB table can hold up to 4,085 VRFs, although it is designed to hold 4,095 VRFs. If more than 4,085 VRFs are configured, 10 of those VRFs do not have an entry in the PXF CEF/FIB table, so traffic is not forwarded in those 10 VRFs.  
There are no known workarounds.
- CSCee03801  
After you issue the **clear ip bgp \*** command, a Cisco 10000 series router takes longer than 30 minutes to achieve convergence. eBGP sessions between PE and CE routers can go up and down multiple times, and the IGP routing protocol and LDP session can also go down and up again.

These problems occur under the following conditions:

1. 4,095 VRFs are configured on a router
2. 500 eBGP sessions are established between the router (PE) and CE routers
3. 540 VRF routes per VRF in the 500 VRFs that are running eBGP between PE and CE routers
4. 40 VRF routes per VRF in the rest of 3595 VRF

There are no known workarounds.

- CSCee06089

When you apply a nested policy map using the **bandwidth** command in the child policy map to a POS OC48 interface, PXF stops responding. This problem occurs when you allocate a small amount of bandwidth, and it only occurs on POS OC48 interfaces.

Workaround: Allocate more bandwidth in the child policy map.

- CSCee14864

Policing under a created queue, when attached at an MLP interface, accounts for only 2 bytes of the L2 header, so that policing is done at a higher rate than configured. This can cause a problem with priority queue CBWFQ functionality because the priority queue is configured with policing and its dequeue rate can be higher than intended.

Workaround: Do not configure policing under a created queue.

- CSCee15674

When broadband PTA is configured with 114,000 queues, executing the **microcode reload pxf** command causes the ATM interface to display a big number of total output drops.

Workaround: Clear the counters.

- CSCee20418

If you change the amount of intercepted streams from 8 to 2 streams, the wrong amount of packets is intercepted. This occurs in Lawful Interception scenarios.

There are no known workarounds.

- CSCee25615

This problem occurs when almost all the system resources (VCCI) are in use, after an OIR (slot reset) is issued, and in the OC3 ATM line card. The reason it occurs in the OC3 ATM line card is that it happens in an ATM line card with multiple ports. The symptom is that all the sessions in the same port stop passing traffic after OIR.

There are no known workarounds.

- CSCee27630

A low-bandwidth class can be allocated more than its share of bandwidth at the expense of a high-bandwidth class. This problem occurs when the ratio of the configured bandwidths between two data classes is high (8:1 or higher) and when there is a priority class that receives traffic at (at least) 20 percent of the line rate. The traffic that is received by the data classes should be in the ratio of the configured bandwidths.

There are no known workarounds.

- CSCee42746

When using multiple intercepts in Lawful Intercept mode, the MIB information is not completely cleared after intercepts are cleared from SNMP. This problem occurs when 35 or more streams are intercepted at the same time.

Workaround: Use Cisco IOS to delete the stream that was not deleted by SNMP.

- CSCee44273  
The **show activity** line card debug command shows the VC configuration from the perspective of the line card, but the autovc information is not shown. Also, after you delete or create an autovc, the counter is inaccurate.  
There are no known workarounds.
- CSCee45306  
With 40 or more intercept streams in Lawful Intercept mode, the LI engine fails to intercept correctly for UDP traffic. This problem occurs when 40 or more streams are intercepted at the same time.  
There are no known workarounds.
- CSCee45378  
When intercepting streams at 5 Mbps or above in Lawful Intercept, the router CPU runs at about 78 percent of capacity. This problem occurs when 35 or more streams are intercepted at the same time.  
There are no known workarounds.
- CSCee50060  
A Cisco 10000 series router with PPPoA VCs can, under abnormal conditions (such as a denial-of-service attack involving the sending of PPPoA data packets before the PPPoA session is up), experience heavy RP CPU use. The router with PPPoA VCs can forward PPPoA data packets for non-existent sessions.  
This problem occurs when PPPoA data traffic is sent before the session reaches the PTA forwarded state. A normal PPPoA client does not send traffic before the session is up.  
Workaround: Configure RPF on all ATM subinterfaces containing PPPoA sessions. The subinterface should have an RPF check in addition to using an RPF check in the virtual template. Configuring RPF on the subinterface forces all PPPoA data traffic to be dropped by the PXF before the session reaches the PTA forward state.
- CSCee54408  
When the 1choc12 line card uses SDH framing, the Path Trace Buffer is unstable for au3 mode. This problem occurs only with SDH framing; the Path Trace Buffer is stable with SONET framing.  
There are no known workarounds.
- CSCee54426  
When the 1choc12 line card uses SDH framing, the J1 Path trace message is not received. This problem occurs only with SDH framing. The J1 Path Trace message is received when SONET framing is used.  
There are no known workarounds.
- CSCee54473  
A loss of frame (LOF) alarm appears for a T1 when framing SF is configured on both ends. This problem occurs when you configure **T1 1 framing sf** under AU-3 on a 1 port channelized OC12 line card.  
There are no known workarounds.

- CSCee54971
 

The **show policy-map interface** command output does not display the layer 2 frame size correctly. The actual output policing rate is 6.6 percent higher than the configured policing rate on gigabit Ethernet and POS OC48 interfaces. The problem occurs when a **police** command is configured in a policy map, and the policy map is applied to a gigabit Ethernet or POS OC48 interface as an output policy map.

Workaround: Use shaping instead of policing.
- CSCee55828
 

You cannot configure **t1 1 framing esf** and **t1 loopback remote** at the same time on a 1-port channelized OC12 line card. This problem occurs when you configure **t1 1 framing esf** under an AU-4 on a 1-port channelized OC12 line card.

Workaround: Configure **t1 1 framing esf** without the loopback configured for the T1.
- CSCee57219
 

The **set cos** command in an output policy map applied to a VLAN subinterface does not work if the outgoing traffic is MPLS packets (with MPLS labels). The problem occurs when outgoing traffic is MPLS packets.

There are no known workarounds.
- CSCee57357
 

When scaling Frame Relay DLCIs on routers running IOS version 12.3(7)XI, traceback messages can appear on the console when bringing up the high number of DLCIs. This problem occurs when there are more than 3,000 DLCIs on the interface.

There are no known workarounds.
- CSCee58454
 

On a router running 12.3(7)XI, if the LAC tries to redirect a call to the bid-winning LNS and fails after three attempts, a new RADIUS disconnect cause code with the value as 608 is not being sent to RADIUS by the LAC.

There are no known workarounds.
- CSCee60038
 

When a proxy service profile defined with V & X attributes is configured locally on the router, which is enabled to run SSG, an SSG host cannot activate the service it has been subscribed to.

There are no known workarounds.
- CSCee60101
 

ALIGN-3 traceback messages are displayed while running regression tests on a channelized OC12 line card with sonet 768 encap with E1 framing. This problem does not seem to affect the functionality of the card.

There are no known workarounds.
- CSCee61067
 

In 2-level policy map configurations using a parent shaper, the shaped traffic rate might not be within plus or minus 1 percent of the configured value. This problem occurs with certain parent shaper values and mostly small packet sizes.

There are no known workarounds.

- CSCee61485
 

Several PIM-related messages appear on the console when you remove, then re-apply a PIM configuration on the interface. This problem occurs when the removal and re-application of the configuration is done in a rapid manner.

There are no known workarounds.
- CSCee61502
 

When configuring an MLPPP interface on a redundant system, the standby PRE adds the **no ip route-cache cef** interface command to multilink interfaces. This additional line causes the system to generate the following error when the new standby PRE is reloaded:

```
May 19 13:20:47.222 EDT: %REDUNDANCY-3-CONFIG_SYNC: Active and Standby bulk configuration out of sync
```

Workaround: Remove the **no ip route-cache cef** command from each multilink interface.
- CSCee62159
 

Actual output and expected output for packet 1 does not match at nibble 8. This packet (packet\_no 1, fragment\_no : 1) is received in the wrong order. Other packets are also received in the wrong order. This problem occurs with the bootflash:c10k2-p11-mz.v123\_7\_xi\_throttle.040510 image and the test is passed with Feb17 bba image.

There are no known workarounds.
- CSCee63636
 

MPLS:Traceroute does not show Labels being switched-propagate-ttl ON.

There are no known workarounds.
- CSCee64067
 

Traffic is not forwarded to an RBE client in a VRF. This problem occurs when an RBE client that doesn't respond to ARP requests, exists in a MPLS VPN. A static ARP entry for the client must be configured on the access router but the traffic is still not forwarded due to this problem

There are no known workarounds.
- CSCee65789
 

A 4 percent packet drop is seen for various packet sizes over a 1choc12-sdh interface when running performance/scalability tests.

There are no known workarounds.
- CSCee66066
 

BERT testing over a clear channel DS3 interface for the 1CHOC12 line card fails as a result of the DS3 interface, which remains in a DOWN state.

There are no known workarounds.
- CSCee66091
 

During SNMP polling of the AAA Server MIB, the casDeadCount variable can cause a CPU hog on the router. This problem occurs with a large number of RBE interfaces (16,000) and bi-directional traffic running.

There are no known workarounds.

- CSCee66314  
 In Lawful Intercept mode a traceback message might appear on the Intercept Access Point (IAP) router when the interface to the mediation router is shut down. This problem occurs when traffic is sent through the IAP and interception is turned on.  
 There are no known workarounds.
- CSCee68404  
 If a PRE2 is in the early process of booting up, sometimes the SEND-BREAK character sequence can cause the router to reload instead of gracefully dropping back into ROMMON. This problem occurs when the PRE2 is in the early stages of the boot process and the SEND-BREAK is issued. If the PRE2 is already booted up, this is not an issue.  
 Workaround: To gracefully drop the PRE2 into ROMMON, if the configuration register is set to accept SEND-BREAK, wait until the PRE2 is fully booted.
- CSCee68480  
 Priority queue latency can exceed the threshold of 2MTU+6msec. This problem occurs when more than 3 queues are configured on a interface, in addition to the priority queue.  
 There are no known workarounds.
- CSCee72919  
 AAA accounting records for a PPPoA session terminated on a Cisco 10000 series router in a PTA fashion shows repeated entries for the Framed-Route attribute (attribute 22).  
 There are no known workarounds.
- CSCee72931  
 When a PPPoA session is cleared on the PTA router using the **clear pppatm interface ATM X/Y/Z.A** command or the **clear int virtual-access** command, the accounting stop record does not display the Octet and Packet counters. This problem occurs only when the session is cleared on the PTA router. If the user disconnects the session, the counters are displayed correctly.  
 There are no known workarounds.
- CSCee81270  
 When a source sends packets to a destination under the TCP protocol, the destination sends an echo response back to the sender. With the intercepting router configured to intercept "all", those echo packets should also be picked off. This does not occur.  
 There are no known workarounds.
- CSCee86091  
 The show version command does not display the bootloader image name.  
 Workaround: There is no workaround for this problem.
- CSCee90904  
 In the presence of a large number of static routes (16,000- 32,000), line card flap/ router reload/OIR cause high CPU usage for a long period of time.  
 There are no known workarounds.
- CSCee93055  
 When clearing a PPPoE session using the **clear pppoe all** or **clear interface virtual-access x.y** command, the router displays the following messages:

```
XCM access error at ../toaster/c10k_rp/c10kds2_qos.c (4888) Jun 23 12:34:12.587:
c10k_ttcmm_read: Invalid Address 3FC110A4
```

This problem occurs when the ATM interface VC is configured with **protocol pppoe** and **dbns enable** (Dynamic Bandwidth Selection).

There are no known workarounds.

- CSCee94457

Actual throughput is lower than expected throughput (94 percent of expected throughput). This problem occurs when testing CAR (with MQC Policy command) on 4 Port OC3 ATM line card, packet size is 64 bytes, and encapsulation type is aal5snap. There is no problem with a packet size of 128 bytes or higher. If the encapsulation type is aal5mux, no problem is found.

There are no known workarounds.

- CSCee95619

Attribute 1 User-Name is not included in Stop records from LNS. This problem occurs when the LNS router runs the 12.3(5a)B image.

There are no known workarounds.

- CSCee96582

With broadband multipoint 31,500 PVCs with 30,000 sessions up, 126,000 queues, and you add a class with the **set** command in an output policy map on the fly, the router hangs for a long time then crashes. This problem occurs with broadband multipoint PVCs with 30,000 sessions up, 120,000 queues, then you add a class with the **set** command in a policy map on the fly.

There are no known workarounds. With a large number of sessions and queue scaling, avoid changing policy map on the fly.

- CSCef00808

The **show pxf cpu stat security** command shows incorrect statistics when Legal Intercept is configured along with time-based or regular access lists. This problem occurs only if Legal Intercept and access lists are configured and are interoperating

There are no known workarounds.

- CSCef05454

In a router running Cisco IOS Release 12.3(9), the PPPoA sessions can get stuck in LCP\_NEGOTIATION. The problem also occurs in Cisco IOS Release 12.2T. The output of the **show atm pvc** command shows the number of packet and cell drops incrementing continuously:

```
InPktDrops: 0, OutPktDrops: 13376/0/13376 (holdq/outputq/total) InCellDrops: 0,
OutCellDrops: 12178
InByteDrops: 0, OutByteDrops: 198692
```

The status of the sessions cycles between the following states and gets stuck in LCP\_NEGOTIATION:

```
Jul 1 12:41:54.187: PPPATM: ATM2/0.1 1/176 [1220], State = WAIT_FOR_CALL
Jul 1 12:41:55.139: PPPATM: ATM2/0.1 1/176 [1220], State = INCOMING_CALL
Jul 1 12:41:55.139: PPPATM: ATM2/0.1 1/176 [1220], State = NAS_PORT_POLICY_INQUIRY
Jul 1 12:41:55.139: PPPATM: ATM2/0.1 1/176 [1220], State = PPP_START
Jul 1 12:41:55.139: PPPATM: ATM2/0.1 1/176 [1220], State = LCP_NEGOTIATION
```

Workaround: Reload the router.

- CSCef08967

The WRED sampling frequency is too slow, which can cause jitter for the overall algorithm.

There are no known workarounds.

- CSCef09119
 

With broadband PTA 128,000 queue with input and output policy map, removing the input policy from Virtual-Template causes a CPUHOG traceback message. This occurs when configuring 31.5,000 ATM subinterfaces with output CBWFQ policy, and input police policy in Virtual-Template, bringing up 30,000 PPPoE sessions, and removing the input policy map.

There are no known workarounds.
- CSCef14249
 

When sending traffic with 1,024 byte large size packets over 120,000 queues with 80 percent oc12atm line rate, traffic drops 10 percent due to buffer\_low packet drop. This problem occurs when 120,000 queue scaling is configured with only large packet size traffic.

There are no known workarounds. Send traffic with mixed size packets, tending to small packets.
- CSCef15141
 

On Cisco 10000 series routers running Cisco IOS Release 12.3(7)XI, the Priority Queue latency values (in milliseconds) is higher than  $2 * MTU + 6ms$  on 4Mbps and 8Mbps subrates of the 8e3ds3 line card.

There are no known workarounds.
- CSCef17801
 

When configuring over 2,000 Frame-Relay DLCI interfaces on a 1choc12 line card, the router's CPU runs over 30 percent of its capacity. This problem occurs only if the number of Frame-Relay sub-interfaces is over 2,000.

There are no known workarounds.
- CSCef18947
 

The **show vlans** command does not report the correct statistics when a second CPU is enabled on 7301/NPPEG1 platforms.

Workaround: Disable the second CPU, however, this affects performance.
- CSCef19259
 

If autovc is configured, tracebacks can occur when an ATM VC is deactivated.

There are no known workarounds.
- CSCef20523
 

PPPoEoA sessions using CBWFQ experience BQ drops. In some cases, when aggregate traffic is near the VC rate, the BQ tail drops packets. This problem appears with low bandwidth VCs, in this case 196 kbps.

Workaround: Changing the queue-limit via the policy map and/or the VC queue depth will improve the result.
- CSCef24008
 

When using a 4choc3 line card and 300 or more VT T1 interfaces are configured with PPP encapsulation, some T1 links do not achieve full traffic line rate. This problem occurs when all 300+ interfaces are sending traffic at line rate concurrently.

There are no known workarounds.
- CSCef24551
 

When running Automated Protection Switching (APS), the router can experience traffic loss after the **hw-module slot x reset** command is executed.

Workaround: Avoid executing **hw-module slot x reset**.

- CSCef27202

On Cisco 10000 series routers running in PTA mode, a CPU hog message appears if you execute the **show vpdn session** command when there are more than 30,000 sessions active. This problem occurs if the number of active sessions is large.

There are no known workarounds.

- CSCef27221

When a router runs as a LAC and the rate at which PPPoA sessions are established is high, some sessions may not be established and the router can display an error message on the console. This problem occurs when 30,000 PPPoA sessions or more are established at high rate, such as when the ATM link to the DSLAM is restored after a link failure.

Workaround: Reduce the call admission rate for the PPPoA sessions.

- CSCef27417

Output drops can be erroneously reported on the ATM OC12 interface upon reloading the router and without any traffic sent or received on the interface. The output drops interface counter may also report invalid non-zero values with a light traffic load on the interface (PPPoX session establishment). This problem occurs when a high number of VCs is configured on the interface.

There are no known workarounds.

- CSCef27539

PPPoEoA sessions experience priority traffic drops when using an absolute priority configuration. This problem occurs during traffic congestion; with 8,000 PPPoEoA sessions, priority traffic is dropped at the line card.

Workaround: Modifying the VC queue depth improves but does not alleviate the drops. Changing the configuration to a generic PQ configuration (without absolute priority) alleviates the drops.

- CSCef30736

When using WRED with 10,000 queues on 4,000 ATM subinterfaces after counters have been cleared, the total output drops on the ATM interface increases without any traffic.

Workaround: There is no workaround for this problem.

- CSCef30873

The router can crash due to an "Unexpected Exception" when you flap several Multilink PPP interfaces several times. This problem occurs when over 50 MLPPP interfaces are concurrently brought up, then down, several times in a short period of time.

There are no known workarounds.

- CSCef31662

The first serial interface on a line card is down after adding it to an MLP bundle. This problem occurs when the interface had been configured earlier as a bundle member, removed together with the bundle and then created back again.

There are no known workarounds.

- CSCef32203

A serial interface using PPP encapsulation is in up/down state. All incoming packets are errored. This problem occurs when the serial interface is removed and recreated while forwarding traffic.

Workaround: Reload the linecard code using the **hw-module slot <1-8> reset** command.

- CSCef32601
 

When configuring 1,000 VRFs in a Cisco 10000 series router and injecting 660 static VRF routes per VRF, the route processor cannot hold the total of 660k VRF routes. The CEF is disabled automatically on the router and the router is not able to forward any traffic. When 660 static VRF routes are injected per VRF of 1000 VRFs, the router runs out of memory on the route processor.

If 620 VRF routes per VRF are injected into the router via 1000 eBGP sessions (one eBGP session per VRF), the router runs out of memory on the route processor.

There are no known workarounds.
- CSCef32815
 

The MQC policer overhead accounting is not consistent between input and output service policies applied to a PPPoA or PPPoEoA virtual-access interface.

There are no known workarounds.
- CSCef36672
 

The **debug aaa pod** command shows information pertaining to all sessions, not the session you want to end. There is too much information you are not interested in.

There are no known workarounds.
- CSCef42332
 

The MLPPP peer router reloads after executing the microcode reload pxf command.

This problem occurs when the Cisco 10000 series router crashes when configured with several Multilink interfaces and is passing traffic after a PXF reload on a peer router.

There are no known workarounds.
- CSCef44918
 

The Cisco 10000 series router shows incorrect counters when executing the **show policy-map interface ATM x vc y** command.

There are no known workarounds.
- CSCef47220
 

The Path Trace buffer value may be displayed as UNSTABLE, when you do a **show controller** for the AU-3 port and are looking for the overhead bytes.

For a Cisco 10000 series router, the 4-port Channelized OC3 line card is configured as AU-3 E1 configure **j1 length 16** and the AU3 controller is configured **j1 message CISCO SYSTEMS**.

There are no known workarounds.
- CSCef47280
 

A T1 interface configured under an AU-4 on a 4-port channelized OC3 line card does not come up when interoperating with a 3rd party test analyzer device.

On a Cisco 10000 series router, when you configure the AU-4 T1 interface on a 4-port channelized OC3 line card that is connected to a 3rd party test analyzer device on the far end with the same configuration, the T1 interface does not come up.

There are no known workarounds.
- CSCef47688
 

When configuring a range of PVCs with more UBR VCs than the limit on the interface, the following error message appears:

PVC Range: Total number of VCs exceeds the interface limit.

Even if you configure oversubscription under that interface, you cannot configure more circuits than the interface limit.

There are no known workarounds.

- CSCef50661

In some configurations the weight (used for round robin scheduling of the VC into a VP) may be more than the queue depth (the amount of cells the line card will hold for the VC). In this scenario the user may not see the proper weighting of the VCs in the VP. The queue depth places a ceiling on how many cells can be sent at one time.

Workaround: Both the weight and queue depth can be configured with CLI. Ensure that the queue depth is at least as high as the weight.

- CSCef51082

The discard bit match is not done at the MPLS output interface when it is set at the VRF input interface. This problem occurs when the qos set was initially done with the mpls exp bit, then changed to the discard bit.

Workaround: If the discard bit needs to be matched at the MPLS interface, do not configure the mpls exp bit set at the VRF input interface.

- CSCef56348

With PPPoE, PPPoA, or VPDN sessions, the following message may appear in the log: “\*Aug 25 06:57:07.759: Reload unknown session type.” This problem can occur after a microcode reload.

There are no known workarounds.

- CSCef56455

On rare occasions, configuring speed using the Dynamic Bandwidth Selection (DBS) feature is not fully reliable. Initial user connections are properly set, but subsequent connections will not. This failure to configure the connection speed using DBS occurs when bringing up over 2,000 user connections.

There are no known workarounds.

- CSCef59264

The IP shaping rate is changed to the VC shaping rate provisioned via DBS. If the VC shaping rate is provisioned via DBS and there is an IP shaper configured in the service policy attached to this VC, the IP shaping rate is set to the VC shaping rate that was provisioned via DBS.

There are no known workarounds.

- CSCef61177

MLPPP traffic is not utilizing full interface bandwidth. This problem occurs when MLPPP and LFI over a serial interface are configured and traffic is sent at the rate of the serial interface or at a greater rate.

There are no known workarounds.

- CSCef61795

F4 OAM cells are not generated or received for end-to-end loopback. Only end-to-end loopback is affected, whereas segment loopback functions as expected.

There are no known workarounds.

- CSCef64315
 

A traceback can appear when deconfiguring an ATM PVC on a 4-port ATM line card. This problem occurs on a Cisco 10000 series router, on a 4-port ATM OC3 line card.

There are no known workarounds.
- CSCef64378
 

The Cisco 10000 series router configured and LNS with tos-reflection applied onto the L2TP tunnel towards the LAC drops packets that do not have TOS field=0 on the original IP Header of the packet. Present in Cisco IOS Release 12.3(7)XI with tos-reflect either configured using "ip tos reflect" in the LNS VPDN group.

Workaround: Disable tos-reflection on the VPDN-group on the LNS.
- CSCef69197
 

When a Cisco 10000 series router is configured for Automatic Protection Switching (APS), a spurious memory access traceback occurs during a router reload. The traceback occurs when one or more pairs of 4 port OC3 ATM line cards are configured for APS, the configuration is saved, and the router is reloaded. There are no subsequent problems related with this traceback.

There are no known workarounds.
- CSCef70580
 

A Cisco router running Cisco IOS Release 12.3(7)XI1 can reload unexpectedly. Output similar to the following is displayed on the console during the reload:

```
%SYS-2-CHUNKBADMAGIC: Bad magic number in chunk header, chunk 64A72148 data 64A72AFC
chunkmagic 15A3C78B chunk_freemagic 642A4D04
-Process= "Check heaps", ipl= 0, pid= 5
-Traceback= 608960C8 608962D0 60895F08

%Software-forced reload
Unexpected exception, CPU signal 23, PC = 0x60873608
```

There are no known workarounds.
- CSCef71570
 

When APS is configured, you see console messages when the PRE2 is rebooted or failed over. There is no impact on the sessions.

There are no known workarounds.
- CSCef72129
 

When configuring create on demand PVCs (individual and within a range) and PPP sessions, RP CPU utilization can be extremely high when bringing up and tearing down sessions and PVCs. This is only a concern when the configuration contains approximately 30,000 PPP sessions, and additional services are enabled such as DBS, ACLs, and service policies.

Workaround: To reduce the RP CPU usage for PPPoA sessions, reduce the number of configured PVCs in a single subinterface. To reduce the RP CPU usage for PPPoEoA sessions, use call admission control (**call admission limit** command).
- CSCef73055
 

When switchover is done from the primary PRE2 to the standby PRE2, console messages appear. There is no impact to the system.

There are no known workarounds.

- CSCef74370  
At high call rate when the PRE2 is switched over from Primary to Secondary, some of the PTA sessions are stuck in “TRANS” state.  
Workaround: Reduce the call rate of the sessions.
- CSCef74990  
Broadband PPPoE PTA 28,000 subinterfaces (PVCs) with policy-map, total 114,000 queues, CPU about 62 percent after traffic. This problem occurs when PPPoE PTA 28,000 subinterfaces (PVCs), 114,000 queue scaling configured with traffic.  
There are no known workarounds.
- CSCef75434  
Inaccurate traffic counters are displayed when running traffic on the Managed LNS router. Cisco 10000 series LNS routers do not match the transmit and receive packets for Managed LNS traffic.  
There are no known workarounds.
- CSCef76338  
PTA PPPoE 8,000 PVC 32,000 queue, send mixed size line rate traffic, packets drop. Condition: Send mixed size packets line rate traffic, packets tail drop on BQ.  
Workaround: Lower the traffic rate.
- CSCef79045  
The auto VCs (infinite range VCs) do not disappear even when the traffic from the client is stopped. If traffic is sent on a large number of VCs at a high rate, then infinite range VCs are created, they do not disappear even when the traffic is stopped or the interface is shut down.  
Workaround: Stop the traffic and wait for a couple hours for the buffer to clear up and then eventually the VCs to disappear or reload.
- CSCef79688  
MPLS Packets are punted to the Route Processor. This problem occurs when MPLS Packets are sent over a Frame Relay Interface.  
There are no known workarounds.
- CSCef80300  
Enabling multicast on a Cisco 10000 series router working as an LNS causes high CPU usage.  
There are no known workarounds.
- CSCef81452  
On a Cisco 10000 series router, if the router is configured for Multilink PPP (MLPPP) with QoS and the user resets the line card containing member links, traffic can be affected as a result of the reset. This problem occurs when QoS is configured on MLPPP links and the line card is reset using the **hw-module card x/y/z reset** command.  
Workaround: Execute the **microcode reload pxf** command to resolve the problem.
- CSCef81634  
Using the external generating tool IXIA Explorer to bring up and tear down SSG sessions quickly, the PRE2 crashes with a Bus Error Exception. This problem occurs when the tool initializes the interface and quickly brings sessions back up while the old sessions are still cleared out.  
There are no known workarounds.

- CSCef82322

A line card remains down for more than 10 minutes when you OIR the line card. This problem only occurs with a high number of QinQ sessions (31,000 QinQ sessions).

There are no known workarounds.
- CSCef82371

Changing policy map criteria with a high number of QinQ sessions (31,000) results in CPU-Hog Tracebacks.

There are no known workarounds.
- CSCef83376

When using the VRF to local RADIUS feature that was introduced in Cisco IOS Release 12.3(7)X11, the default authentication fails, causing the PPPoA or PPPoE session to fail.

There are no known workarounds.
- CSCef84595

The OAM ping sent from the client to UUT, does not get a response back. The UUT was configured with infinite range VCs on the interface. When the client sent an OAM ping packet on one VC to the UUT, the UUT did not create the VC and did not send the response back to the client.

Workaround: If the interface on UUT is configured with no pxf queuing, then the client receives the ping response.
- CSCef84923

The SAR Rev B chip on an OC12 ATM line card reloads multiple times during ATM card reset or boot up. This problem occurs with the latest SAR Rev 1.7.4 running on Cisco IOS Release 12.3(7)X12 image on a Cisco 10000 series router

There are no known workarounds.
- CSCef85857

E1 interfaces on the 4-Ch-STM1 line card flap randomly. This problem occurs with very little traffic flowing through the router. Whenever the interface goes down, it comes back up after 10 seconds.

There are no known workarounds.
- CSCef89397

On a Cisco 10000 series router running Cisco IOS Release 12.3(7)XI, alignment errors occur after executing the **redundancy force-switchover main-cpu** command. This problem was found while running 4,000 active PPPoE sessions and running traffic over some of the sessions.

There are no known workarounds.
- CSCef89413

On a Cisco 10000 series router running Cisco IOS Release 12.3(7)XI, there is no message displayed on the router to warn the user that the router has run out of available VCCI interfaces. This problem occurs when more PPPoX sessions come in than there are available VCCIs.

There are no known workarounds.
- CSCef90647

On a Cisco 10000 series router running Cisco IOS Release 12.3(7)XI, copying a large file to disk can render the disk unusable. This problem occurs when copying the file on a router with a busy CPU load.

There are no known workarounds.

- CSCef91000
 

On a Cisco 10000 series router running Cisco IOS Release 12.3(7)XI2, when create on demand PPPoE and PPPoA VC classes are configured on the same interface, the PPPoA sessions are not established. This problem occurs only if both PPPoE and PPPoA are configured on the interface with create on demand.

Workaround: Configure different VCs for PPPoE and PPPoA.
- CSCef92161
 

The absolute priority queue over an MLP bundle drops traffic after policing even when the traffic load is less than the MLP link capacity. This problem occurs when the MLP bundle has more than 1 member and no LFI enabled.

There are no known workarounds.
- CSCef92176
 

Packets/Bytes counters in the **show interface multilink X** are counted twice. This problem only applies to locally generated traffic, such as ICMP packets.

There are no known workarounds.
- CSCef92261
 

If large numbers of MPLS VPNs are configured, an SNMP mibwalk of the MPLS-VPN-MIB can timeout and cause a high CPU in the mplsVpnVrfPerfTable and the mplsVpnVrfRouteTable. (This MIB is not supported in Cisco IOS Releases 12.2(16)BX or 12.3(7)XI.)

Workaround: Exclude the mplsVpnMIB (or the mplsVpnVrfPerfTable and mplsVpnVrfRouteTable) from the SNMP view.
- CSCef92404
 

On a Cisco 10000 series router running Cisco IOS Release 12.3(7)XI in RPR+ mode, the microcode of an ATM OC12 line card can reload on PRE failure. This problem occurs only when there is a PRE failure and switchover in RPR+ mode.

There are no known workarounds.
- CSCef92424
 

The nas-port attribute is not sent correctly while authenticating rfc1,483 users. This problem occurs with a per-server group nas-port configuration enabled on a Cisco 10000 series router, the nas-port attribute [5] is not sent correctly in the access/accounting requests, while bringing up/down rfc1483 users.

There are no known workarounds.
- CSCef92479
 

Nas-port attribute [5] gets sent out, with 'attribute nas-port none' configured while bringing up ssg rfc1483 users. This problem occurs on a Cisco 10000 series router, where ssg is enabled, and with per-server group nas-port configured. In bringing up rfc1,483 sessions, the nas-port attribute is sent out, despite 'attribute nas-port none' being configured on the router (which should disable sending out of the nas-port attribute).

There are no known workarounds.
- CSCef92614
 

An incorrect nas-port value is sent out in authentication requests, based on what the configuration on the router was for the same. This problem occurs when the per-server group nas-port has been configured on the Cisco 10000 series router in such a way that the nas-port value in all authentication requests should be sent out in format e string of 32 I's (VPI value of incoming

session) and the accounting requests should be sent out in format e string of 32 C's (VCI value of incoming session). However, on session bring up the authentication requests have a nas-port value representing the format e string value corresponding to 32 C's, which is incorrect.

There are no known workarounds.

- CSCef93639

Some Multilink PPP member links turn to up/down after an MR-APS switchover. This problem occurs with T1 interfaces over 4CHOC3 line card on the C10000 platform. The T1 Multilink PPP member links are seen as up/down after a couple of MR-APS switchovers.

Workaround: Resetting the 4CHOC3 line card or reloading the router could bring the interfaces to an up/up state.

- CSCef93866

On a Cisco 10000 series router running Cisco IOS Release 12.3(7)XI, the router can reload if high numbers of MLPPP and MR-APS are unconfigured via a tftp configuration file. This problem occurs when a high amount of unconfiguration commands are executed at the same time. This problem occurs with a 4CHOC3 line card while tftp-loading an unconfiguration file to unconfigure a Multilink PPP and MR-APS related running configuration.

There are no known workarounds.

- CSCef94282

On a Cisco 10000 series router running Cisco IOS Release 12.3(7)XI, the router could experience longer high CPU Utilization than normal when configuring it with VRFs with VPN overlay. This problem occurs while attempting to bring up 645 PPPoA sessions over 215 VRFs (with VPN overlay) and there are approximately 150,000 BGP routes in the system.

There are no known workarounds.

- CSCef94504

Cisco 10008 router can reload when reporting a software forced crash (memory corruption). The problem was reported in 12.3(7)XI1.

There are no known workarounds.

- CSCef94588

The in/out counters in the output of the **show ip multicast interface** command display only multicast packets punted to the RP for processing. Punted multicast packets are usually control packets. PXF switched packets are not counted in this display.

Workaround: Do **no ip domain server lookup**.

- CSCef94838

On a broadband PTA with 14,336 PPPoE sessions and 43,000 queues, the domain server lookup failure causes a CPUHOG traceback message. This problem occurs when broadband PTA PPPoE queue scaling is configured and domain lookup is enabled.

Workaround: Do **no ip domain server lookup**.

- CSCef95719

RP CPU utilization can be high when bringing up PPPoA sessions when the following features are enabled: 31,500 PPPoA sessions, 12 VRFs, multipoint I/F, pvc (no range), autosense, pxf queueing, vbr-nrt vc shaping, hierarchical shaping, create-on-demand, ACLs (attribute 11), URPF, DBS, and QoS.

There are no known workarounds.

- CSCef95738
 

RP CPU utilization can be high when sustaining 30,000 PPPoA sessions when the following features are enabled: 12 VRFs, multipoint I/F, pvc (no range), autosense, pxf queueing, vbr-nrt vc shaping, hierarchical shaping, create-on-demand, ACLs (attribute 11), URPF, DBS, QoS, and keepalive 60.

Workaround: The only changeable parameter is the keepalive; turning it off or changing the value to a larger one might improve the situation.
- CSCef96002
 

No traffic is going out of a few random interfaces on the feed Cisco 10000 series router of an MR-APS setup. This problem occurs with a 4CHOC3 line card on a Cisco 10000 series router that is used as the feed router for an MR-APS setup. Frame Relay is configured on the T1 interfaces and there are two equal weight static routes (one via the MR-APS Working and another via the MR-APS Protect) over each interface for the same traffic destination.

Workaround: Reset the line card or reload the router.
- CSCef96748
 

The output of the **sh policy-map interface** command shows counter values even before traffic is sent.

There are no known workarounds.
- CSCef96834
 

Two microcode reloads causes memory corruption and a router reload.

There are no known workarounds.
- CSCef97101
 

A PXF crash can occur when 3,000 PPPoX sessions are all joining the same multicast group and receiving traffic from a multicast source at a rate of approximately 300 Kbits/sec. The PXF is crashing with the following error in particular:

```
Oct  8 12:51:47.977: %PXF-2-FAULT: T3 XCM1 FCRAM-C: Address Boundary Error
Oct  8 12:51:47.977: %PXF-2-FAULT: T3 HW Exception: CPU[t3r3c1] IWRA at 0x0914 LR
0x090C
Oct  8 12:51:47.977: %PXF-2-FAULT: T3 Local Bus Exception: CPU[t3r3c1] TBNP at 0x0914
LR 0x090C
Oct  8 12:51:47.977: %PXF-2-FAULT: T3 Exception summary: CPU[t3r3c1] Stat=0x00000026
HW=0x00100000 LB=0x00000008 SW=0x00000000
```

There are no known workarounds.
- CSCef97118
 

On a Cisco 10000 series router running Cisco IOS version 12.3(7)X11, removing an ATM subinterface with an MQC service policy configured and active PPPoA sessions causes the PRE2 to reload. This problem occurs when MAC is configured on the interface.

Workaround: Remove the QoS configuration from the subinterface before removing the subinterface.
- CSCef97194
 

OC12POS receive interface counters are not accurate. The OC12POS interface counter on the receive side of the MPLS core is reporting almost twice the value than the value reported on the transmit side of the link.

There are no known workarounds.

- CSCef97242  
Routers do not use all MPLS loadsharing interfaces to send traffic at the label imposition direction. This problem occurs with MPLS loadsharing and each interface has a unique label.  
There are no known workarounds.
- CSCeg00016  
On a Cisco 10000 series router running Cisco IOS Release 12.3(7)X11, the PXF can crash in PTA mode with 8,000 PPPoE sessions configured. This problem occurs when there is a high amount of PPPoE and does not happen in a predictable manner.  
There are no known workarounds.
- CSCeg00190  
When the VT controller is going down/admindown, an incorrect dsx3LineStatusLastChange trap is sent out. This problem occurs when the VT path is configured on the 1choc12-1 or 4chstm1-1 line card.  
There are no known workarounds.
- CSCeg00438  
On a Cisco 10000 series router running Cisco IOS Release 12.3(7)X11, the policer counters in the output of **show policy-map interface** do not increment if the policy map is applied to a Virtual Access Interface. The police conformed/exceeded/violated counters are not updated (values are all zeroes) when an output service policy is applied on a virtual- access interface.  
There are no known workarounds.
- CSCeg01317  
When the resource limitations of cbwfq policy-map are reached, any change to queue limits (even a decrease) displays the “Queue limit failed” error for each and every session on the router.  
There are no known workarounds.
- CSCeg01323  
Even though policy maps are accepted by the console, they do not appear in **sh run** output.  
There are no known workarounds.
- CSCeg01756  
LAC-switched PPPoA sessions do not work when a PVC is configured to use aal5ciscopp as the encapsulation. IPCP negotiation does not complete and PPP keepalives originating at the client timeout. This problem occurs when the Cisco 10000 series router is used as a LAC switch and the PVC is configured to use an encapsulation type of aal5ciscopp.  
Workaround: Use a different encapsulation type on the PVC such as aal5mux.
- CSCeg02916  
With a PRE2 system, when pinging another PRE2 across a serial link with a DSCP service policy attached at both ends and a priority queue designed to match ip dscp default, the outgoing pings go out through the priority queue, but the ping replies come back via the default queue at the remote end (not the priority queue). This is indicated by the **show pxf cpu queue subinterfacename** command. On the PRE1, the ping replies come back via the priority queue.  
There are no known workarounds.

- CSCeg03962
 

PPPoE sessions on standalone VCs don't go down even after the interface is shut down. This problem occurs when PPPoE sessions are created on standalone PVCs, PVC range, and on PVC in range. All sessions are up, and when the interface is shut down all the sessions went down except for the sessions on stand-alone PVCs.

There are no known workarounds.
- CSCeg03964
 

RP CPU utilization can be extremely high when bringing up PPPoA sessions when using I/F Policy Map AV Pairs.

There are no known workarounds.
- CSCeg04038
 

Ping fails across native VLAN1. Dot1Q is enabled between 7500a and esr1 and between esr2 and gsr1. In both the cases the ping fails across the native VLAN1.

There are no known workarounds.
- CSCeg04052
 

Policing CONFORM, EXCEED, VIOLATE counters are incorrect. This problem occurs when attached at an oc48pos interface.

There are no known workarounds.
- CSCeg05090
 

The Cisco 10000 series router reloads upon disconnecting PPPoX sessions. While disconnecting the sessions the CPU utilization is rising to 100 percent (or close) and causing other active sessions to be disconnected. Active sessions being disconnected is also due to the inability of the Route Processor to handle the sending and receiving of the PPP keepalive on these active sessions. The reload is causing an RP switchover but the new active RP is logging the following error messages continuously:

```
Oct 14 17:03:32.401: %C10K-4-LC_WARN: Slot[8/0] loc12atm-1 SAR: 25/190 reassembly
device Get_Channel_Stats failure, status 0x02 (port 0, handle 0x36B3, id 0x0D3E)
Oct 14 17:03:32.925: %C10K-4-LC_WARN: Slot[7/0] loc12atm-1 SAR: 0/54 segmentation
device Get_Channel_Stats failure, status 0x02 (port 0, handle 0x11C7, id 0x00F6)
```

The reload and unexpected PPPoX disconnection of active sessions is triggered by the termination of some sessions (Terminate-Request packets sent on a few sessions).

There are no known workarounds.
- CSCeg05765
 

The session set up rate for more than 15,000 PPPoA sessions decreases to 1 session/second when all of the VCs are configured on the same multipoint subinterface.

Workaround: Spread the VCs over several multipoint interfaces subinterfaces.
- CSCeg07002
 

The **sh run** command stops working when traffic is sent at 141,000 packets/second on unopened VC's. This problem occurs when trying to test that infinite range VCs are not created when the interface is not configured with 'create on-demand'.

There are no known workarounds.

- CSCeg09143  
On a Cisco 10000 series router running Cisco IOS Release 12.3(7)XI, when member links of an MLPPP bundle flap, some links can fail to join the bundle afterwards and therefore stay in down/down state. This problem occurs only when there are over 1,000 multilink interfaces configured on the router and all flap at the same time.  
There are no known workarounds.
- CSCeg09602  
On a Cisco 10000 series router running Cisco IOS Release 12.3(7)XI1 and subsequent releases, QoS shaping may not shape to the desired value when used inside a child policy map. This problem occurs only for certain shape values and traffic rates.  
There are no known workarounds.
- CSCeg10311  
A Cisco 10008 router can crash reporting a software forced crash (memory corruption). The problem occurs in Cisco IOS Release 12.3(7)XI1 and seems related to AAA.  
There are no known workarounds.
- CSCeg10588  
On a Cisco 10000 series router running Cisco IOS Release 12.3(7)XI2, the index for oamLoopbackPingCompleted in the oamLoopbackPingCompletion trap is incorrect.  
There are no known workarounds.
- CSCeg10833  
The CPU stays at 99 percent for quite some time while the CLI command does not return to the prompt. This problem occurs when 16,000 AutoVCs are configured on 16 multipoint interfaces with 1,000 VCs configured in one VC range on every interface. The same VC class is attached to every range. The modification of the queue depth within the VC class causes the CPU hog.  
There are no known workarounds.
- CSCeg12977  
The Cisco 10000 series router is configured as an L2TP multi-hop router. The AAA authorization does not use the method list and instead uses the default. The tunnel does not get established. This problem occurs only if "aaa authorization default" is configured along with a method list.  
Workaround: Configure a method list or configure the default authorization. Configuring both at the same time can cause this problem.
- CSCeg14502  
The router ignores the output policy map on a multilink bundle interface for MLPPP-encapsulated packets originating at the router. This problem applies only to locally-originated MLPPP traffic transiting a multilink bundle interface.  
There are no known workarounds.
- CSCeg15184  
The following errors display when setting up PPPoA sessions under stress:  

```
Oct 25 15:37:09.815: %IDMGR-3-INVALID_ID: bad id in id_to_ptr
```

  
There are no known workarounds.

- CSCeg16612  
Invalid authentication requests packet sent out by PRE2 under stress. The invalid packets appear when the CPU is running at 99 percent and approximately 22,000 Active PPPoA sessions.  
There are no known workarounds.
- CSCeg16629  
The PRE2 is not able to bring up additional PPPoA sessions when the CPU is running under stress.  
There are no known workarounds.
- CSCeg16800  
Traffic is not received after an MR-APS switchover from the Protect router back to the Working router. Traffic does not resume on the output side of the Working router, after MR-APS switchover from the Protect router to the Working router.  
There are no known workarounds.
- CSCeg17057  
Changing the queue depth on more than 28,762 VBR PVCs uses all the VCCIs. This problem occurs when traffic is flowing on 30,000 VBR PVCs and the queue depth is changed. This causes the VCCI count to increase and reach the maximum value.  
There are no known workarounds.
- CSCeg17829  
Ordinary PVCs in a range don't get created after reload. In a PVC range, if the first and last PVCs in range are create on demand and the rest of the PVCs are ordinary PVCs, then on reload the ordinary PVCs don't get created.  
There are no known workarounds.
- CSCeg19192  
A traceback message displays when you run out of VCCIs while establishing 32,000 PPPoA sessions.  
There are no known workarounds.
- CSCeg20293  
Packet classification based on the DSCP IP field (or other matching criteria) may not operate as expected in a MPLS VPN configuration with an output service policy applied on an ATM PVC. This problem occurs when packets with a DSCP value set to 'ef' (101110) are transmitted in the downstream direction over a VC onto which an output policy is applied. The DSCP value should trigger the classification in the priority class. Instead, packets get classified in class-default.  
Workaround: Toggle the ATM interface by performing a shut/no shut on the interface.
- CSCeg56821  
The link should be DOWN between UUT & HP37718 for Frame format pcm31 & crc4.  
The test involoves three sub tests.  
(1) Valid Frame Format Combinations -- CRC4(E1) or SF(T1)  
(2) Valid Frame Format Combinations -- NO CRC4 (E1) or ESF (T1)  
(3) Invalid Frame Format Combinations -- pcm31 crc4  
The first two sub tests passed. Only third sub test is failed. In the third sub test, invalid frame combinations are configured, and the link should be down once it is configured. But here the link is up.

- There are no known workarounds.
- CSCeg71194  
PRE2 is not able to bring up additional PPPoA sessions when CPU running under stress.  
This issue occurs when the CPU is running under stress.  
There are no known workarounds.
  - CSCeh06824  
C10K: PRE2 PXF may unexpectedly reload with “PXF DMA TBB Length Error”.  
There are no known workarounds.
  - CSCin74068  
When **aaa authen login def enable** and **aaa author exec def gr radius** are configured for a new telnet connection, authentication succeeds (with getting a username) on entering the correct enable password, but an access-request is sent to the RADIUS with NULL username for authorization. Authorization should be suppressed when the username is not known and a RADIUS access- request should not be sent with a null username.  
There are no known workarounds.
  - CSCin74698  
Two accounting stop records are seen when an "rsh" session is established to the router. This problem occurs when **aaa accounting send stop-record authentication failure** command is configured.  
Workaround: Disable **aaa accounting send stop-record authentication failure** command if it's not needed.
  - CSCin78805  
When Auto VCs are configured as part of a range on a point-to-point subinterface, the VCs are made inactive.  
There are no known workarounds.
  - CSCsa57481  
CLP bit is not set.  
This issue occurs in ATM traffic with CLP bit set.  
There are no known workarounds.
  - CSCsa62204  
Label switching might fail for VPN routes.  
This issue has been observed on Cisco 10000 series routers running Cisco IOS Release 12.2.16BX and having E3 card.  
There are no known workarounds.

## Resolved Caveats—Cisco IOS Release 12.3(7)X14

This section describes caveats that were fixed in Cisco IOS Release 12.3(7)X14.

For information about caveats fixed in other Cisco IOS releases, refer to the appropriate Release Note document at the following URL:

<http://www.cisco.com/univercd/cc/td/doc/product/aggr/10000/10krn/index.htm>

- CSCdy08253

The **banner** command cannot be synced over to the standby RP. The input text string of the **banner** command is not synced over, so command-specific special handling is required.

```
banner <login | motd | exec> <input text string>
```

There are no known workarounds.

- CSCee36192

A Cisco 3640 router running Cisco IOS Release 12.3(6) - image c3640-IK903S-M and after configuring **no snmp-server enable traps tty** and doing **write mem**, after viewing the configuration after a reload, the **snmp-server enable traps tty** command is present once more in the running configuration, although it is absent from the startup configuration.

Workaround: Configure **no snmp-server enable traps tty** again after a router reload.

- CSCee38984

On a Cisco 10000 series router running Cisco IOS Release 12.0.25SX5, the **snmp-server enable traps alarm** command is in the configuration by default as soon as any other snmp-server command is entered. This behavior is not the same as on the Cisco 7500 series router running Cisco IOS Release 12.2.(6f)M1.

There are no known workarounds.

- CSCeg11575

When a MiniACL is used as an interface 'access-group' type ACL, the output of the **show access-list** command does not report that the ACL is type 'PXF security'.

This is a cosmetic reporting issue only and has no impact on the operation of the MiniACL.

There are no known workarounds.

- CSCeh42902

A subinterface configured under a 4chstm1-1 SONET protect interface shows up/up status on a Cisco 10000 series router running Cisco IOS Release 12.3(7)X12. This problem occurs during normal operation. There is no identifiable trigger.

Workaround: Failover protect circuit temporarily clears the condition for a few hours.

- CSCsa54608

The Cisco IOS Firewall Authentication Proxy for FTP and/or Telnet Sessions feature in specific versions of Cisco IOS software is vulnerable to a remotely-exploitable buffer overflow condition.

Devices that do not support, or are not configured for Firewall Authentication Proxy for FTP and/or Telnet Services are not affected.

Devices configured with only Authentication Proxy for HTTP and/or HTTPS are not affected.

Only devices running certain versions of Cisco IOS are affected.

Cisco has made free software available to address this vulnerability. There are workarounds available to mitigate the effects of the vulnerability.

This advisory will be posted at

[http://www.cisco.com/warp/public/707/cisco-sa-20050907-auth\\_proxy.shtml](http://www.cisco.com/warp/public/707/cisco-sa-20050907-auth_proxy.shtml)

- CSCsa63140

Spurious memory access is reported after a Cisco 10000 series router has reset due to CSCsa62939. There are no known workarounds.

- CSCsa65113

An IP routed VC with a static ATM map fails to get a valid cached CEF adjacency. Instead, traffic is punted to next slow path, in this case fastswitching. This problem occurs when an IP routed VC is configured in conjunction with an aal5autopp VC on the same subinterface. See the following sample configuration.

```
interface ATM4/0/0.100 multipoint
ip address 10.10.10.11 255.255.255.0
pvc 100/100
protocol ip 10.10.10.10
ubr 10000

pvc 100/200
ubr 10000
encapsulation aal5autopp Virtual-Template1.
```

- Workaround: Avoid using aal5autopp on any other VCs sharing the same multipoint subinterface.

## Obtaining Documentation

Cisco documentation and additional literature are available on Cisco.com. Cisco also provides several ways to obtain technical assistance and other technical resources. These sections explain how to obtain technical information from Cisco Systems.

### Cisco.com

You can access the most current Cisco documentation at this URL:

<http://www.cisco.com/univercd/home/home.htm>

You can access the Cisco website at this URL:

<http://www.cisco.com>

You can access international Cisco websites at this URL:

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

### Documentation DVD

Cisco documentation and additional literature are available in a Documentation DVD package, which may have shipped with your product. The Documentation DVD is updated regularly and may be more current than printed documentation. The Documentation DVD package is available as a single unit.

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

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- Nonregistered Cisco.com users can order documentation through a local account representative by calling Cisco Systems Corporate Headquarters (California, USA) at 408 526-7208 or, elsewhere in North America, by calling 1 800 553-NETS (6387).

## Documentation Feedback

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Cisco Systems  
Attn: Customer Document Ordering  
170 West Tasman Drive  
San Jose, CA 95134-9883

We appreciate your comments.

## Cisco Product Security Overview

Cisco provides a free online Security Vulnerability Policy portal at this URL:

[http://www.cisco.com/en/US/products/products\\_security\\_vulnerability\\_policy.html](http://www.cisco.com/en/US/products/products_security_vulnerability_policy.html)

From this site, you can perform these tasks:

- Report security vulnerabilities in Cisco products.
- Obtain assistance with security incidents that involve Cisco products.
- Register to receive security information from Cisco.

A current list of security advisories and notices for Cisco products is available at this URL:

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

If you prefer to see advisories and notices as they are updated in real time, you can access a Product Security Incident Response Team Really Simple Syndication (PSIRT RSS) feed from this URL:

[http://www.cisco.com/en/US/products/products\\_psirt\\_rss\\_feed.html](http://www.cisco.com/en/US/products/products_psirt_rss_feed.html)

## Reporting Security Problems in Cisco Products

Cisco is committed to delivering secure products. We test our products internally before we release them, and we strive to correct all vulnerabilities quickly. If you think that you might have identified a vulnerability in a Cisco product, contact PSIRT:

- Emergencies—[security-alert@cisco.com](mailto:security-alert@cisco.com)
- Nonemergencies—[psirt@cisco.com](mailto:psirt@cisco.com)



Tip

We encourage you to use Pretty Good Privacy (PGP) or a compatible product to encrypt any sensitive information that you send to Cisco. PSIRT can work from encrypted information that is compatible with PGP versions 2.x through 8.x.

Never use a revoked or an expired encryption key. The correct public key to use in your correspondence with PSIRT is the one that has the most recent creation date in this public key server list:

<http://pgp.mit.edu:11371/pks/lookup?search=psirt%40cisco.com&op=index&exact=on>

In an emergency, you can also reach PSIRT by telephone:

- 1 877 228-7302
- 1 408 525-6532

## Obtaining Technical Assistance

For all customers, partners, resellers, and distributors who hold valid Cisco service contracts, Cisco Technical Support provides 24-hour-a-day, award-winning technical assistance. The Cisco Technical Support Website on Cisco.com features extensive online support resources. In addition, Cisco Technical Assistance Center (TAC) engineers provide telephone support. If you do not hold a valid Cisco service contract, contact your reseller.

### Cisco Technical Support Website

The Cisco Technical Support Website provides online documents and tools for troubleshooting and resolving technical issues with Cisco products and technologies. The website is available 24 hours a day, 365 days a year, at this URL:

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

Access to all tools on the Cisco Technical Support Website requires a Cisco.com user ID and password. If you have a valid service contract but do not have a user ID or password, you can register at this URL:

<http://tools.cisco.com/RPF/register/register.do>

**Note**

Use the Cisco Product Identification (CPI) tool to locate your product serial number before submitting a web or phone request for service. You can access the CPI tool from the Cisco Technical Support Website by clicking the **Tools & Resources** link under Documentation & Tools. Choose **Cisco Product Identification Tool** from the Alphabetical Index drop-down list, or click the **Cisco Product Identification Tool** link under Alerts & RMAs. The CPI tool offers three search options: by product ID or model name; by tree view; or for certain products, by copying and pasting **show** command output. Search results show an illustration of your product with the serial number label location highlighted. Locate the serial number label on your product and record the information before placing a service call.

## Submitting a Service Request

Using the online TAC Service Request Tool is the fastest way to open S3 and S4 service requests. (S3 and S4 service requests are those in which your network is minimally impaired or for which you require product information.) After you describe your situation, the TAC Service Request Tool provides recommended solutions. If your issue is not resolved using the recommended resources, your service request is assigned to a Cisco TAC engineer. The TAC Service Request Tool is located at this URL:

<http://www.cisco.com/techsupport/servicerequest>

For S1 or S2 service requests or if you do not have Internet access, contact the Cisco TAC by telephone. (S1 or S2 service requests are those in which your production network is down or severely degraded.) Cisco TAC engineers are assigned immediately to S1 and S2 service requests to help keep your business operations running smoothly.

To open a service request by telephone, use one of the following numbers:

Asia-Pacific: +61 2 8446 7411 (Australia: 1 800 805 227)

EMEA: +32 2 704 55 55

USA: 1 800 553-2447

For a complete list of Cisco TAC contacts, go to this URL:

<http://www.cisco.com/techsupport/contacts>

## Definitions of Service Request Severity

To ensure that all service requests are reported in a standard format, Cisco has established severity definitions.

Severity 1 (S1)—Your network is “down,” or there is a critical impact to your business operations. You and Cisco will commit all necessary resources around the clock to resolve the situation.

Severity 2 (S2)—Operation of an existing network is severely degraded, or significant aspects of your business operation are negatively affected by inadequate performance of Cisco products. You and Cisco will commit full-time resources during normal business hours to resolve the situation.

Severity 3 (S3)—Operational performance of your network is impaired, but most business operations remain functional. You and Cisco will commit resources during normal business hours to restore service to satisfactory levels.

Severity 4 (S4)—You require information or assistance with Cisco product capabilities, installation, or configuration. There is little or no effect on your business operations.

# Obtaining Additional Publications and Information

Information about Cisco products, technologies, and network solutions is available from various online and printed sources.

- Cisco Marketplace provides a variety of Cisco books, reference guides, and logo merchandise. Visit Cisco Marketplace, the company store, at this URL:

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

- *Cisco Press* publishes a wide range of general networking, training and certification titles. Both new and experienced users will benefit from these publications. For current Cisco Press titles and other information, go to Cisco Press at this URL:

<http://www.ciscopress.com>

- *Packet* magazine is the Cisco Systems technical user magazine for maximizing Internet and networking investments. Each quarter, Packet delivers coverage of the latest industry trends, technology breakthroughs, and Cisco products and solutions, as well as network deployment and troubleshooting tips, configuration examples, customer case studies, certification and training information, and links to scores of in-depth online resources. You can access Packet magazine at this URL:

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

- *iQ Magazine* is the quarterly publication from Cisco Systems designed to help growing companies learn how they can use technology to increase revenue, streamline their business, and expand services. The publication identifies the challenges facing these companies and the technologies to help solve them, using real-world case studies and business strategies to help readers make sound technology investment decisions. You can access iQ Magazine at this URL:

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

- *Internet Protocol Journal* is a quarterly journal published by Cisco Systems for engineering professionals involved in designing, developing, and operating public and private internets and intranets. You can access the Internet Protocol Journal at this URL:

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