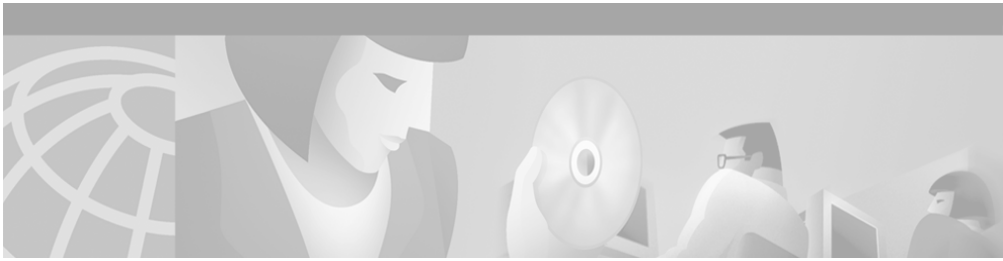

Release Notes for the Cisco 10000 Series ESR for Cisco IOS Release 12.0(15)SL

March 26, 2001

These release notes provide information about Cisco IOS Release 12.0(15)SL, which runs on the Cisco 10000 Series Edge Services Router (ESR).

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 IOS Release 12.0(15)SL is based on these previous releases:

- Cisco IOS Release 12.0(14)SL
- Cisco 12.0ST features synchronized with Cisco IOS Release 12.0S

For a list of the software caveats that apply to Cisco IOS Release 12.0(15)SL, see the "Caveats" section on page 8 and the release notes for Cisco IOS Release 12.0(S).

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To review the release notes for Cisco IOS Release 12.0S, go to www.cisco.com and click Technical Documents > Cisco Product Documentation > Cisco IOS Software Configuration > Cisco IOS Release 12.0 > Release Notes > Cisco 12000 Series Router > *Cisco 7000 Family and 12000 Series – Release Notes for Release 12.0(S)*.

Use these release notes in conjunction with the cross-platform *Release Notes for Cisco IOS Release 12.0*.

Contents

Upgrading to a New Software Release

For specific information about upgrading your Cisco 10000 Series ESR to a new software release, see the *Cisco 10000 Series ESR Software Configuration Guide*.

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

http://www.cisco.com/warp/public/cc/pd/iosw/prodlit/957_pp.htm

For additional information about ordering Cisco IOS software, refer to the Cisco IOS Software Releases URL:

http://www.cisco.com/warp/public/cc/pd/iosw/iore/index.shtml

Upgrading the Cisco 10000 from Cisco IOS 12.0(x)SL to 12.0(15)SL

Caution If you are upgrading your Cisco 10000 from Cisco IOS 12.(14)SL or earlier 12.0(x)SL-based releases, read this section.

Save your current configuration file before upgrading to Cisco IOS Release 12.0(15)SL. If you decide to reinstall Release 12.0(14)SL or earlier, you must also reinstall the configuration file associated with that release. This is because some BGP configuration-file entries in 12.0(15)SL are not compatible with 12.0(14)SL or earlier.

System Requirements

We recommend that you use 512 MB of memory on the Performance Routing Engine (PRE). New PREs are shipped with 512 MB of memory. In a redundant setup, both PREs should have the same amount of memory.

New Features

Cisco IOS Release 12.0(15)SL supports the following new features:

Hardware

- Cisco 10005 ESR 5-slot chassis
- Cisco 10000 4-port STM-1 line card

Software

- Multiprotocol Label Switching Virtual Private Network (MPLS/VPN) edge services
- Route Processing Redundancy Plus (RPR+)

Cisco 10000 Series ESR Software Features

Table 1 lists the features supported in the Cisco 10000 Series ESR.

Table 1 Principal Software Features

Administration	Cisco Discovery Protocol (CDP)
	Simple Network Management Protocol (SNMP)
Availability	SONET 1+1 Automatic Protection Switching (APS)
	Route Processing Redundancy Plus (RPR+)
Encapsulations	Ethernet
	High-Level Data Link Control (HDLC)
	Frame Relay
	Point-to-Point (PPP)
	Multilink Point-to-Point (MLP)
Multiprotocol Label Switching	Multiprotocol Label Switching (MPLS_ edge services
	Multiprotocol Label Switching Virtual Private Network (MPLS/VPN) edge services
Multicast Features	Multicast Static Routes
	Multicast Routing Monitor (MRM)
Multicast Services	Internet Group Management Protocol (IGMP)
	Protocol-Independent Multicast (PIM)
	Distance Vector Multicast Routing Protocol (DVMRP)
	Cisco Group Management Protocol (CGMP)
	Unidirectional Link Routing (UDLR)
	Session Directory Protocol (SDP)
	Multicast Source Discovery Protocol (MSDP)
	Border Gateway Protocol (BGP)

Table 1 Principal Software Features (continued)

Quality of Service	Committed Access Rate (CAR)
	Weighted Random Early Detection (WRED)
	QoS Policy Propagation on BGP (QPPB)
	Marking packets by using IP header precedence and differentiated service code point (DSCP)
Routing Protocols	Border Gateway Protocol (BGP)
	Intermediate System-to-Intermediate System (IS-IS)
	Open Shortest Path First (OSPF)
	Interior Gateway Routing Protocol (IGRP)
	Enhanced Interior Gateway Routing Protocol (EIGRP)
	Routing Information Protocol (RIP)
Security Features	Standard and extended access lists
	Authentication, Authorization, and Accounting (AAA)
	Kerberos authentication and client support on Telnet
	Radius authentication
	Terminal Access Controller Access Control System Plus (TACACS+)

Limitations and Restrictions

This section describes any limitations and restrictions that you should review before you use the Cisco 10000 Series ESR.

Automatic Protection Switching Support

Automatic protection switching is supported on the OC-12 Packet Over SONET (POS) and Channelized OC-12 (ChOC-12) line cards, with the following limitation.

For APS to work properly, you must always have the OC-12 POS or ChOC-12 line card installed in the lower-numbered (odd) slot.

The system receives clocking information from the line card in the odd slot. If you remove the odd-numbered card (or if the clocking mechanism on that card fails), the clocking is lost and the data path is shut down. (Caveat CSCdr81416)

To manage this APS behavior, we recommend the following:

1. For the card pair, fully configure the lower-numbered card, and leave the higher-numbered card set to its default configuration.
2. Before you remove a card from the odd slot, run the **no associate** command and shut down the card. The following is an example of disabling APS for cards in slots 3 and 4:

   ```
   Router(config)# redundancy
   Router(config-r)# no associate 3 4
   Router(config-r-a-sl)# exit
   Router(config)# interface pos 3/0/0
   Router(config-if)# shutdown
   ```

   You can now remove the card in slot 3.
3. Move the card located in the even slot to the odd slot and enter the **no shutdown** command. Traffic flow resumes. Insert a new card into the even slot and reconfigure the pair for redundancy.

Important Notes

This section contains issues that you should be aware of with Cisco IOS Release 12.0(15)SL.

Frame Relay and PPP Sessions

You can run up to 4200 Frame Relay sessions or 1300 PPP sessions, and you can configure up to 800 BGP peers on the Cisco 10000 Series ESR. The router also supports up to 512 Multilink Point-to-Point (MLP) protocol sessions.

Note Each T1 interface in an MLP bundle represents a single PPP session. Thus, if you configure 130 MLP bundles of 10 T1 interfaces, each results in 1300 PPP sessions (which is the maximum number of PPP sessions that are supported on the Cisco 10000 Series ESR).

Cisco Discovery Protocol

Starting with this release, the Cisco Discovery Protocol (CDP) is disabled by default. You can enable CDP on an interface using the **cdp enable** command.

Caveats

This section describes the caveats for the Cisco 10000 Series ESR running under Cisco IOS Release 12.0(15)SL.

CSCdp96265	If you configure a DS3 BERT pattern 2^20-O153 on any unchannelized DS3 (by using the **bert pattern 2^20-O153 interval** *1-14400* command), and you then connect the line card to T-Bird 310 test set, the pattern does not synchronize with T-Bird 310. Workaround: Use a different BERT pattern.
CSCdr19206	If you preconfigure a line card using the **card** command, this significantly degrades PRE performance. Workaround: Do not use the **card** command to preconfigure line cards. Instead, use the **no card** command to remove references to cards that are not in the chassis.
CSCdr25441	The router sends out DHCP INFORM and DISCOVER messages containing an incorrect Ethernet address. Workaround: No workaround is necessary. This caveat is harmless because these DHCP messages are not used to acquire IP addresses. They are used to gather environmental data such as the domain name server address.
CSCdr32279	When you enter the **hw-module** *slot_number* **reset** command, the event sequence appears in a different order than that shown by the **reload** command if the logging console is configured to informational. Workaround: There is currently no workaround. You only encounter this problem if you change the default logging (critical) to informational.
CSCdr36564	When you use the Frame Relay autosense feature, the Cisco 10000 Series ESR sends all three LMI status message types immediately after the interface starts responding. However, sometimes the switch at the other end is not ready to receive messages and as a result, misses one or two messages that were sent. LMI autosense waits until the next scheduled interval (default is 1 minute) to send the messages again. This problem primarily affects clear channel CT3 interfaces. Workaround: There is currently no workaround.

CSCdr37991	If you configure an STS-1 on a ChOC-12 line card as unchannelized and then configure the remote side to send idle-character marks (namely, 0xFF), the T3 line stops responding and transmits a Remote Alarm Indication (RAI). Workaround: When you use unchannelized T3 mode, configure the remote side to send idle-character flags (0x7E). To set this value, use the interface configuration mode **idle-character** command.
CSCdr43835	When you send large numbers of packets from the Gigabit Ethernet line card to the PRE in the Cisco 10000 Series ESR, you may lose a small number of packets. This only occurs for some packet sizes at very high bandwidths, with loss rates of a few parts per million. Workaround: There is currently no workaround.
CSCdr47500	During periods of heavy traffic (approaching interface line rate), some interfaces may experience inconsistent performance between interfaces of the same type. Workaround: There is currently no workaround.
CSCdr52081 and CSCdj94209	The PRE may crash if you repeatedly change a port back and forth from channelized to unchannelized. Repeated conversions of a T3 port from channelized mode to unchannelized mode and back, with intervening assignments of IP addresses to the interfaces and ping testing, may cause the PRE crash. Workaround: Reload the chassis.
CSCdr62013	If large MLP configurations are in use, and you attempt to copy the configuration from a TFTP server directly into the running config, the copy may fail. Failures may include interfaces not appearing or IPCP or LCP states not opening correctly. Workaround: These failures are far less likely to occur if the configuration is copied to bootflash, and then from bootflash to the running config. Copy the configuration file to the startup config and then reload the router.
CSCdr72007	The number of VPNs that can be created on gigabit Ethernet subinterfaces is limited to under 100. **Note** Gigabit Ethernet subinterfaces are not yet supported on the Cisco 10000 Series ESR. Workaround: Only configure MPLS VPNs on the CT-3 line card.

CSCdr81416	Limited support for APS. For detailed information, refer to the "Automatic Protection Switching Support" section on page 6.
CSCdr81671	On rare occasions, the system may not be able to retrieve remote performance data if you are using a ChOC-12 line card that has its T1s configured with ANSI FDL enabled. Workaround: There is currently no workaround.
CSCdr82363	When the encapsulation mode is changed from PPP to HDLC or vice-versa, the system drops about 3 of the next 10 packets transmitted. After that, the packets are transmitted normally. Workaround: There is currently no workaround.
CSCdr82579	When a ChOC-12 line card is reconfigured from a channelized T3 configuration to an unchannelized T3 configuration or vice-versa, the initial packets are not forwarded. Workaround: Save the configuration and then remove and reinsert the ChOC-12 line card. When the card restarts, it does not drop the initial packets.
CSCdr84775	WRED does not drop outbound packets correctly on the Channelized T3 line card (CT3) with the default WRED configuration. Workaround: Change the WRED policy to a non-default value.
CSCdr92058	Large multicast groups may cause CPU hog issues with PIM. Workaround: There is currently no workaround.
CSCdr98341	The Flash disk can fall into the chassis when you insert the disk into the empty space to the right of the slot B in the PRE flash assembly. Workaround: Pay extra attention when inserting a flash disk into the PRE flash assembly. Do not insert the disk in the empty space to the right of the slot B—*if you insert a card in that space, it will fall into the chassis*.

CSCds01233	If you send a large number of small packets in large multicast groups, this may cause the following debug messages to appear on the console:
	`### ASSERTION FAILURE in ../src-4k-c10k/c10k_isr_ct3.c, line 548 <idb invalid on vc 0x624FA974, slot 12 port 0 chan 104 dh 05E0001F 680100FF> 60044EB4 60016E48 60017238 601F2C9C 601D0404`
	`### ASSERTION FAILURE in ../src-4k-c10k/c10k_isr_ct3.c, line 535 <port 7 invalid> 60044CEC 60016E48 60017238 601F2C9C 601D0404`
	Workaround: Decrease the number of small packets.

CSCds04367	When older CT3 line cards are powered on with live DS3 signals present at the receive BNC connector, the receive line interface device on the board may lock up, preventing the controller from running. You can verify this symptom by using the **show controller t3** command, which shows that the controller is down, the Receiver has Loss of Frame, and the Line Code Violations counter is counting errors at a rapid rate. Workaround: Replace the CT3 line card with an upgraded line card. CT3 line cards with Version 800-05547-04 Revision A0 or later contain a hardware design change to avoid this problem. On older cards, you can work around the problem by removing the receive signal momentarily after the line card is powered on. For example, remove and reinsert the coaxial cable on the associated RX BNC connector on the rear of the chassis.
CSCds06423	Some MPLS packets are CEF switched when they should be label switched. This condition occurs if the Cisco 10000 ESR has two interfaces configured for label switching. Workaround: Configure only one interface for label switching.

CSCds18665	If the interface between a PE (PE1) and CE router goes down, MPLS labels disappear at the far end provider edge peer (PE2) MPLS interface.
	`Down Labels Lost Here`
	`CE>-------->PE1>----->MPLS_CORE>--------->PE2`
	Workaround: Restart the CE interface. When the interface shows an up state, enter the **clear bgp *** and **clear ip route *** commands.

CSCds25069	The default logging parameter (logging rate-limit console all 10 except critical) sets console logging to disabled. Workaround: Enter the **logging console critical** command to view the most important events such as card up/down and toaster failure events.
CSCds36117	If you enter the **clear ip mroute** command on a system with large multicast groups, CPU hog issues may arise that cause problems of moderate severity (such as losing keepalives). Workaround: Do not use the **clear ip mroute** command in large multicast groups.
CSCds36324	Mass configuration (which occurs during boot/reload and can occur during link state changes) takes a long period of time (for example, over 40 minutes for 2000 VCs associated with a main interface) with large numbers of PVCs (100s to 1000s). This problem occurs when you attempt to configure large numbers of PVCs on the main interface (or multipoint subinterfaces) with static maps on each PVC. Workaround: Do not configure more than 500 PVCs on a single OC-12 ATM line card or more than 900 PVCs on a Cisco 10000 Series ESR.

CSCds40839	Occasionally an alarm LED comes up as active even though no alarms are indicated after entering the **show controller** command.
	
	Workaround: Perform a **shut/no shut** configuration on the SONET controller. For example:
	
	`conf t`
	`controller sonet 7/0/0`
	`shut`
	`no shut`
	`end`

CSCds41791	If you reload a Cisco 10000, some initialization messages are logged to the console before the startup-config is loaded. These initialization messages are transitional and may report an incorrect state, especially for the FastEthernet interface.
	`00:00:15: Downloading Microcode: file=system:pxf/ucode_file, version=2.0(21.4), description=Nightly Build Software created Wed 13-Sep-00 00:38`
	`00:00:21: %LINK-3-UPDOWN: Interface Ethernet0/0/0, changed state to up`
	`00:00:21: %LINK-5-CHANGED: Interface FastEthernet0/0/0, changed state to reset`
	`00:00:23: %LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet0/0/0, changed state to up`
	`0:00:23: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0/0, changed state to down`
	These messages do not appear in the buffered log.
	Workaround: Ignore these messages.

CSCds43837

The **show atm pvc** command displays "Unexpected QoS type" for its traffic parameters. This occurs when a PVC was previously configured with only an ATM vc-class, and then the vc-class was subsequently deleted.

For example:

```
 sw-apollo-3(config)#vc-class atm test
 sw-apollo-3(config-vc-class)#vbr-nrt 1000 1000 10
 sw-apollo-3(config-vc-class)#exit
 sw-apollo-3(config)#int atm 3/0/0
 sw-apollo-3(config-if)#pvc 200
 sw-apollo-3(config-if-atm-vc)#class-vc test
 sw-apollo-3(config-if-atm-vc)#end
 sw-apollo-3#sh atm vc
                VCD /                                        Peak Avg/Min
Burst
Interface     Name   VPI   VCI  Type   Encaps     Kbps   Kbps  Cells Sts
 3/0/0         1       0   200   PVC    SNAP       1000   1000   10   UP
 sw-apollo-3#

 Now delete the vc-class :

 sw-apollo-3#conf t
 sw-apollo-3(config)#no vc-class atm test
 sw-apollo-3(config)#end
 sw-apollo-3#sh atm vc
                VCD /                                        Peak Avg/Min
Burst
Interface     Name   VPI   VCI  Type   Encaps     Kbps   Kbps  Cells Sts
3/0/0          1      0    200   PVC    SNAP    %Unexpected qos type UP
```

Workaround: Configure the vc directly using conventional means (non ATM vc-classes), or remove the vc and re-create it with a new ATM vc-class.

CSCds48362

The **show interface** output occasionally displays an extremely large number of configured VCs which do not really exist.

Workaround: There is currently no workaround.

CSCds49222

When a segment on a MPLS traffic engineered path is disabled, the PXF engine reloads, temporarily causing all forwarding to stop.

Workaround: There is currently no workaround.

CSCds49948	With multiple PVP tunnels, if the aggregate traffic received by one or more of the PVPs is heavily oversubscribed (starting at about 110% of the tunnel's PCR rate), the traffic on companion PVP tunnels on that interface may experience throughput that is lower than expected. Workaround: There is currently no workaround.

CSCds49957	When you boot the Cisco 10000, the system may display the following messages:
	
	`*Oct 17 12:32:48.287: %SNMP-3-TRAPBLOCK: Attempt to generate SNMP trap from a process with blocking disabled`
	`-Traceback= 60565064 606A6B34 60678238 60678438 6067AD88 6067AF30 602FCBDC 6024817C 60248168`
	
	Workaround: Ignore the messages.

CSCds50249	If incoming multicast packets match an input access list that has the log option enabled, the output of the **show log** command and **show access-list** commands display double the number of matches. Workaround: There is currently no workaround.
CSCds51102	If you perform an SNMP walk or view entries in the if table, cef-layer internal interfaces appear in the interface table. Workaround: Ignore interfaces whose descriptor contains the string 0-cef layer.
CSCds55667	Kentrox DS3 subrate mode does not work when you set it to full bandwidth (45.2 Mbps on Kentrox CSU, 44210 kbps on a Cisco 10000 Series ESR). Workaround: Set the subrate mode on the ChOC-12 board to Digital Link mode, bandwidth = 44210. This fix works with and without scrambling.
CSCds63025	Line Protocol on one or two T1s may not come up when you perform a reload with a large configuration (for example, 1008 T1s with PPP encap or 504 MLPPPs). Workaround: Reload the line card using the command **hw slot slot_number reset**.
CSCds63387	When a redundant power supply is removed or a line card is OIRed, SNMP traps are generated by the syslog mib. There is a request to generate these traps using the env, mon, and entity mibs respectively. Workaround: Filter the SNMP traps using the syslog mib.
CSCds64134	Occasionally, after you reload routers (with background traffic load equal to no_drop rate), the throughput is some 3 to 400 pps below the expected rate. Workaround: The rate does not recover until the traffic is stopped and restarted.

CSCds65431	On rare occasions, after a single reload while under load, the Gigabit Ethernet line card is up but drops nearly all packets on the output queue. Workaround: Reset the line card from the console with the **hw-module slot** *n* **reset** command.
CSCds67459	When a serial interface is configured to be part of a MPLS/VPN, if you enter the **no channelized** command on the T3 controller, this clears the interface. However, the **sh ip vrf** *vrf_name* continues to show the interface as part of the vrf. Workaround: The only way to eliminate unwanted interfaces in the vrf table is to reload the box.
CSCds68294	In the unlikely event of a total failure of the cooling fan tray, or any other scenario resulting in high-temperature operation, the Cisco 10000 continues running, and does not power off. Workaround: If you observe fan failure or over-temperature alarms or log messages, immediately power off the chassis until the problem is corrected.
CSCds69465	Ping traffic does not resume after switching from an explicit path to a dynamic path. Workaround: There is currently no workaround.
CSCds74846	When MPLS TE is configured and the logging console is turned on, the following error message appears repeatedly on the window: `"00:58:10: %TFIB-7-SCANSABORTED:  TFIB scan not completing. MAC string updated."` Workaround: Leave the logging console turned off.
CSCds86293	If you issue the **dir** or **show slot0:** or **show slot1:** command, the router reports Open device slot0 failed (Device not ready). Workaround: Use the **dir disk0:** and **dir disk1:** commands.
CSCds86646	ISIS adjacencies recalculated with 65-85MB of tcp traffic to rtr. Workaround: Because this problem is caused by hackers, we recommend that you use access lists to block out hackers. Access lists prevent packets from punting to the RP and taking down the router.
CSCds86767	A Cisco 10000 router running Release 12.0(10)SL may experience a buffer leak when interfaces are down but not administratively down. Workaround: Administratively shut down the interfaces.

CSCds89640	If large OIDs (1024.1 fields) are sent to the router, the Cisco 10000 stops responding. Workaround: There is currently no workaround.
CSCds91966	If you delete a T1/E1, IP routes associated with subinterfaces are not removed. Workaround: Manually issue a **no ip route** *ip_address*.
CSCdt00312	The flash file delete function may choose the wrong default device when you request deletion of a file from flash storage. The incorrect default used is slot0:. Workaround: Prefix the filename with disk0: when specifying the filename.
CSCdt04686	During the reloading process, the **match input-interface Serial3/0/0/1:0** configuration statement is not recognized and disappears from the configuration files after the Cisco 10000 is reloaded. Workaround: Reenter the **match input-interface Serial3/0/0/1:0** command.
CSCdt08501	PVCs in the down state can still pass traffic. When a PVP is created with associated F4 OAM VCs and those F4 OAM VCs do not come up (for instance, because there is no VP at the far end or the VP at the far end did not create F4 OAM VCs), traffic can still be passed on the PVCs associated with the PVP in question. When the F4 OAM loopback cells are not returned, Cisco IOS declares all PVP associated PVCs to be down. IOS does not, however, notify the forwarding engine or the line card. This allows traffic routed over the PVCs in question to pass. Workaround: There is currently no workaround.
CSCdt11390	On a Cisco 10000 system with channelized OC-12 line cards, the output of the **show controllers** command is incomplete and incorrect: • The output does not show any information about SONET controllers. • The output shows information on data structures which are not relevant to the Cisco 10000 system. • The output mixes the information between paths configured in T3 mode and those configured in VT mode (which has not yet been released). Workaround: Issue **show controller** commands for each controller individually. The aggregated command does not work.
CSCdt12602	If in a Frame-Relay environment a handful of interfaces are flapping continuously, the interface statistics report input errors (overruns) on the flapping interfaces. Workaround: There is currently no workaround.

CSCdt19582	Following a reload of the Cisco IOS software, the Gigabit Ethernet interface does not always come back up. The interface remains in the "GigabitEthernet1/0/0 is down, line protocol is down" state. Workaround: Perform a shut/no shut to the interface to restore communications.
CSCdt21254	When the ACL is downloaded from the tftp server, the CPU advances to 100% utilization and several line cards lost IPC with the PRE and are reset. Workaround: Do not configure all 8000 lines of ACL. Split the ACL into several smaller ACLs and download them separately.
CSCdt25901	During a reload, if the router continuously receives IP packets, CPUHOG messages may appear in the log, and the router may take longer to come up. The problem only occurs during initialization. Workaround: There is currently no workaround. After the interfaces and PVCs are all up and functional, you do not see the CPUHOG messages in the log.
CSCdt28191	After you reload line cards under background traffic load, one or more interfaces may not come up. Workaround: Reset the line card again.
CSCdt28444	In a chassis using TACACS security and running redundant PREs, you can access the console while the secondary PRE is cutting over to primary PRE. If no action is taken on the console for the length of the session timeout period, TACACS engages on the console. If the user does access the console during the cutover, the user enters exec mode (not enable mode). Workaround: To help control security, set a short session timeout on the console port, and keep tight control of the enable password.
CSCdt31691	When a large number of VBR-nrt VCs are configured (200 and above) and the link transitions DOWN the host software running on the OC-12 ATM line card may take a SW Watchdog timeout, forcing the line card firmware to reload. This is caused by excessive flowbit allocation processing. Workaround: There is currently no workaround

CSCdt33623	If you issue a **write erase** command on the primary PRE followed by an **erase sec-nvram:** command, and then reload both PREs simultaneously, some line cards may not be recognized correctly on reboot. Workaround: Issue a **hw-module slot x reset** command to any line card that is not properly recognized, immediately followed by a **no card** command for that same card. Also, it may be possible to avoid the problem by not reloading both PREs simultaneously.
CSCdt34428	If you perform OIR on a line card configured for 768 PPP sessions with traffic running on all interfaces, some interfaces fail to come up. The **show interface** command displays the IPCP state as "Listen". Workaround: Use the **ppp timeout retry 30** command to increase the ppp timeout to 30 seconds on all PPP interfaces.
CSCdt38819	MALLOCFAIL with multicast traffic if a high rate of multicast traffic is sent out before multicast routing entries are updated. Workaround: None. After the routing entries are updated, this problem disappears.
CSCdt40511	The Cisco 10000 crashed after several hours of testing with 500 CT3 ds0 interfaces configured for Frame Relay that were receiving multicast traffic at a rate of 10 pps of 260-byte packets. Workaround: There is currently no workaround for this problem.
CSCdt41680	**ip address negotiate** sends dhcp requests out all serial line interfaces. Workaround: If you are not going to use the FastEthernet interface, configure it with **no ip address**.
CSCdt42890	On rare occasions, line cards may not be recognized when you perform an OIR of multiple cards on a new system, or in a system in which the configuration was erased (for example, using **write erase**). Workaround: Use the **hw-mod slot x reset** command on the affected slot and immediately enter config mode and perform a **no card** for the slot. When the line card comes back up, it registers normally.
CSCdt47342	TFIB table failure. Workaround: Currently none, but if you wait long enough the table updates.

CSCdt50540	Sometimes a traceback message is generated during an RPR+ switch over to the new primary PRE. A message similar to the following appears: `00:03:07: %IPC-5-INVALID: Sequence Structure port index=0x3 -Traceback= 60321EC0 60322868 60806A54 603348C8 60359924 60025B94 602828CC 602828B8` Workaround: This message is harmless. Ignore the message.
CSCdt50591	In some test instances, Frame Relay interfaces did not correctly join a multicast group when it should have. The result is that multicast packets destined for those interfaces will be punted to the route processor. Enough packets cause the cpu usages on the route processor to run at a high usage. Workaround: Try executing the command **clear ip mroute *** to correct the issue.
CSCdt53363	On rare occasions, when a large number of ds0 interfaces is configured on a CT3 line card, buffer with corrupt pool pointer error messages may appear. Workaround: There is currently no workaround for this problem.
CSCdt54684	On rare occasions, if a large number of ds0 interfaces are configured on a CT3 line card, spurious memory error messages may appear. Workaround: There is currently no workaround for this problem.
CSCdt55873	On rare occasions in which relatively high rates of bursty traffic are received on the OC-12 ATM line card, some packets may be dropped but not counted by the software. Workaround: There is currently no workaround.
CSCdt57432	If you use snmpwalk or other similar tool to display the value of the different objects associated with a Cisco 10000, you can see that when an unchannelized DS3 controller has been created in a ChOC-12 line card, the configuration values of the DS3 MIB are not correct. If subsequent configuration commands are issued, the values displayed are correct. This problem probably exists in a channelized STM-1 line card as well, when in unchannelized DS3 mode. Workaround: Rely on the outcome of the **show controller t3** and **show interface serial** commands.
CSCdt57555	Verilink-hibit mode does not work on the Cisco 10000 with ChOC-12 line cards whose paths are configured in unchannelized DS3 mode. When the Verilink-hibit mode is chosen by the network administrator, Verilink-lowbit mode is programmed in the hardware instead. Workaround: There is currently no workaround for this problem. You must use Verilink-lowbit mode.

CSCdt63446	If an access-list with logging option enabled is attached to an interface, and you send traffic through the interface, this brings down all of the interfaces. Workaround: Do not configure access-lists with logging enabled.
CSCdt63838	Bad file magic number - cannot load bootflash. Workaround: Perform the following: **a.** copy bootflash:<file> to disk0:<file> **b.** delete bootflash:<file> and squeeze bootflash: **c.** copy disk0:<file> bootflash:<file>
CSCdt63854	Under rare conditions in which scripts of VC creates and VC deletes are executed in turn, some VBR-nrt VCs are not created. Workaround: Manually create the missing VCs
CSCdt64787	At the end of the line in the **show run** command output, 0.0.0.0 is appended randomly. Workaround: Make sure that 0.0.0.0 is not in the running-config when saving it and then reusing it.
CSCdt65387	ChOC-12 DS3 subrate does not work in Kentrox mode at full bandwidth. Workaround: Set the ChOC-12 interface to Digital Link mode and full bandwidth (no dsu bandwidth). This works the same as the Kentrox CSU/DSU when set to full bandwidth, and will work with scrambling enabled or disabled (set the same value at both ends).
CSCdt67315	Under circumstances where ATM VCs are created and deleted on a regular basis, the OC-12 ATM segmenter firmware can transition to a state in which it drops some packets without counting them in a data stream where packet sizes alternate from small to large. This manifests itself in lower throughput. Workaround: Reload the line card.
CSCdt70049	With 500 Frame Relay interfaces on CT3 running IP Multicast, multicast packets get punted to the RP causing IPC OIR on the CT3. This causes the line protocol on the router connected to the Cisco 10000 to go down (and remain down) on some interfaces. The interface stats show no traffic over the affected interface. On the Cisco 10000 the Frame Relay PVC corresponding to it shows as Deleted. Workaround: Perform a shut/no shut on the affected interface, or a hw-module slot reset on the line card to bring the line protocol back up.

CSCdt74932	When a TU-AIS is received at a particular TU in TUG3#3, the next TU at the T1 or E1 level contains data corruption as well. Workaround: There is currently no workaround for this problem.
CSCdt76739	If you remove an APS configuration for a ChOC-12 line card, followed by the **show controllers sonet** <high slot number, for example 2/0/0> or the **show controllers sonet** command, the Cisco 10000 crashes. Workaround: There is currently no workaround for this problem.
CSCdt76746	In some cases, ATM counters display incorrect packet input values after receiving packets from several locations (for example, the line card, IOS, and the PXF forwarding engine). Workaround: There is currently no workaround for this problem.

Resolved Problems

This section lists resolved problems in Cisco IOS Release 12.0(15)SL.

Resolved in Cisco IOS Release 12.0(15)SL

This section lists problems that are resolved in Cisco IOS Release 12.0(14)SL. For a list of problems that were resolved in previous Cisco IOS Releases, refer to the release notes for those particular versions.

CSCdr85805

Under normal (IMIX) traffic loads, the OC-12 ATM line card segmenter may not keep up with line rate. This is indicated by an increase in "output queue drops" or "output buffer failure" counts as displayed by the **show interface** command.

CSCds09403

Under rare circumstances, closure of VBR-nrt VCs fail, leaving the associated VPI/VCI value unavailable for future use.

CSCds24440

Under conditions in which the OC-12 ATM line card is reloaded while traffic is actively passing over multiple VCs, some or all of the VCs may not successfully reopen after the line card is reloaded.

CSCds36193

A PXF engine reload occurs if a TE tunnel is shut down while traffic is flowing. The PXF engine will reload automatically within a few a minutes.

CSCds45093

VPN scalability limitation in Cisco IOS Release 12.0(10)SX.

CSCds48405

Under normal (IMIX) traffic loads, the OC-12 ATM line card reassembler may inappropriately drop packets, yielding less than line rate.

CSCds57109

Possible PXF Fault on traffic destined to the Cisco10000 PRE.

CSCds63821

If multiple VBR and UBR VCs are configured together and traffic is flowing over both types of VCs, throughput on the VBR VCs may suffer (may fall noticeably below the associated Sustainable Cell Rate [SCR]) while UBR traffic appears unaffected.

CSCds65348

On rare occasions, the OC-12 ATM line card segmenter fails to respond to requests for statistics.

CSCds66332

Under some conditions, the OC-12 ATM line card reassembler may be unable to process all incoming packets and the reassembler may inaccurately count these erroneous packets as aborts.

CSCds68394

You may get a redundancy error message on cards that are not redundant.

CSCds72326

If you execute more than 126 PVP creation commands, this leads to Open Tunnel failures on the line card.

CSCdt07642

The **no pos report all** command does not work. The pos report all configuration line remains in the configuration file.

CSCdt11328

When configuring CAR on the Cisco 10000, CAR does not differentiate between user traffic and control traffic.

CSCdt14802

Exit appears two times in config mode under the policy-map class section of Cisco IOS.

CSCdt34097

Snmpwalk skips OIDs, so some interfaces are missed in the walk.

Other Resolved Caveats

This section includes caveats listed in previous release notes that are regarded as resolved because they are unreproducible or do not affect the behavior of the Cisco 10000 ESR. In the event a caveat listed in this section causes problems, please contact Cisco customer service.

For a list of unreproducible caveats in previous Cisco IOS Releases, refer to the release notes for those particular releases.

CSCds34116

For VBR-nrt VCs with low SCR values (400 kbps and below), a steady stream of small packets (for example, 64-byte packets) only achieves roughly 85% of the requested SCR.

Obtaining Documentation

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

World Wide Web

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

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

Documentation CD-ROM

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

Ordering Documentation

Cisco documentation is available in the following ways:

- Registered Cisco Direct Customers can order Cisco Product documentation from the Networking Products MarketPlace:

  http://www.cisco.com/cgi-bin/order/order_root.pl

- Registered Cisco.com users can order the Documentation CD-ROM through the online Subscription Store:

  http://www.cisco.com/go/subscription

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

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Obtaining Technical Assistance

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

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Cisco.com is the foundation of a suite of interactive, networked services that provides immediate, open access to Cisco information and resources at anytime, from anywhere in the world. This highly integrated Internet application is a powerful, easy-to-use tool for doing business with Cisco.

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

http://www.cisco.com

Technical Assistance Center

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

Contacting TAC by Using the Cisco TAC Website

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

http://www.cisco.com/tac

P3 and P4 level problems are defined as follows:

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

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

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

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

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

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

Contacting TAC by Telephone

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

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

P1 and P2 level problems are defined as follows:

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