



Release Notes for the Cisco 10000 Series Router for Cisco IOS Release 12.0(25)SX8

July 6, 2004

These release notes provide information about Cisco IOS software Release 12.0(25)SX8 for the Cisco 10000 series router. 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(25)SX8 is based on Cisco IOS Release 12.0(25)S. The Cisco 10000 router supports a subset of the new features in Cisco IOS Release 12.0(25)S. For more information, see the “[New Features—Cisco IOS Release 12.0\(25\)S](#)” section on page 7. This section lists the features supported on the Cisco 10000 router.

To view the release notes for the following Cisco IOS software releases, go to the following URLs:

- Cisco IOS Release 12.0 SX:

<http://www.cisco.com/univercd/cc/td/doc/product/aggr/10000/10krn/120sx/index.htm>

- Cisco IOS Release 12.0 S:

<http://www.cisco.com/univercd/cc/td/doc/product/software/ios120/relnote/xprn120s/index.htm>



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System Requirements

This release requires that you have the performance routing engine (PRE), part number ESR-PRE1 installed in the Cisco 10000 router chassis. To verify which PRE is installed in the router, use the **show version** command.

Memory Requirements

The following table lists memory requirements for the Cisco 10000 series router:

| Feature Set by Router | Image Name | Flash Memory | DRAM Memory | Runs From |
|---|---------------|--------------|-------------|-----------|
| Router | c10k-p10-mz | 40 MB | 512 MB | RAM |
| Service Provider/ Secured Shell 3DES | c10k-k4p10-mz | 40 MB | 512 MB | RAM |

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 Software Configuration Guide* located at the following URL:

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

For general information about how to upgrade to a new software release, refer to the product bulletin *Cisco IOS Upgrade Ordering Instructions* located at the following URL:

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

For information about how to order Cisco IOS software, refer to the *Cisco IOS Software Releases* located at the following URL:

<http://www.cisco.com/warp/public/cc/pd/iosw/iore/index.shtm>

Upgrading from Earlier Cisco IOS Releases

Upgrading from Cisco IOS Release 12.0(14)SL or from Earlier Releases Based on Cisco IOS Release 12.0(x)SL

If you are upgrading your software from Cisco IOS Release 12.0(14)SL or from earlier releases based on Cisco IOS Release 12.0(x)SL to Cisco IOS Release 12.0(25)SX8, save your current configuration file. If you decide to reinstall Cisco IOS Release 12.0(14)SL or an earlier release, you must also reinstall the configuration file associated with that release because some Border Gateway Protocol (BGP) configuration file entries in Cisco IOS Release 12.0(25)SX8 are not compatible with Cisco IOS Release 12.0(14)SL or earlier releases.

Upgrading Software on Redundant PREs

When you upgrade software on redundant Cisco 10000 series router performance routing engines (PREs), be sure to download the software to both the active PRE and the standby PRE before you reload both PREs. For more information, refer to the “Upgrading Software on Redundant PREs” section at the following URL. This section is in the “System Startup and Basic Configuration Tasks” chapter of the *Cisco 10000 Series Router Software Configuration Guide*.

<http://www.cisco.com/univercd/cc/td/doc/product/aggr/10000/config/10ksw/startos.htm#1035847>

The procedure included in the “Upgrading Software on Redundant PREs” section instructs you to tell the Cisco 10000 series router the location in which the new boot image resides. Be sure to specify **c10k-p10-mz** instead of the c10k-p6-mz image name indicated in the documentation.

New Features—Cisco IOS Release 12.0(25)SX8

Cisco IOS Release 12.0(25)SX8 contains no new features, but includes all of the new features and performance enhancements introduced in Cisco IOS Release 12.0(25)SX1 and Cisco IOS Release 12.0(25)SX, which is based on Cisco IOS Release 12.0(25)S.

For more information, see the following sections in this document:

- [New Features—Cisco IOS Release 12.0\(25\)SX1, page 4](#)
- [New Features—Cisco IOS Release 12.0\(25\)SX, page 5](#)
- [New Features—Cisco IOS Release 12.0\(25\)S, page 7](#)

New Features—Cisco IOS Release 12.0(25)SX1

Cisco IOS Release 12.0(25)SX1 provides the following performance enhancements, but contains no new features.

VTMS Link Utilization

This release improves the performance of the VTMS Link Utilization feature. The default queue size is based on link bandwidth instead of queue bandwidth as in previous releases.

QA Error Recovery

The QA Error Recovery feature enables the router to recover quickly from problems known as QAERRORs, which can be caused by hardware or software issues. When a QAERROR occurs, the router might stop responding while it tries to recover from the problem. QA error recovery reduces the router down time to as little as one second. Previously, a fully loaded router might be down for up to five minutes (300 seconds).

The QA error recovery feature is enabled by default. To disable the feature, issue the following command:

```
no hw-module main-cpu qaerror-recovery-enable
```

When QA error recovery is successful, the router displays a console message indicating success. In addition, the **show controllers cbus** command indicates the number of QAERROR recoveries.

The following sample console messages show an occurrence of a QAERROR and the router's recovery from the error. The router might display additional messages during error recovery (which can help service technicians diagnose the cause of the problem).

```
%QA-3-DIAG:Trying to recover from QA ERROR.
%QA-3-DIAG:Removing buffer header 0xE360 from all queues
%QA-3-DIAG:Buffer 0xE360 is element 155 on queue 0x2E
%QA-3-DIAG:Queue 0x2E (48000170) has 154 elements
%QA-3-DIAG:Buffer 0xE360 is element 1 on queue 0x340
%QA-3-DIAG:Queue 0x340 (48001A00) has 0 elements
%QA-3-DIAG:At least one QA queue is broken
%QA-3-DIAG:Recovered from QA ERROR
```

The following example shows QA error recovery information in **show controllers cbus** command output:

```
Router# show controllers cbus
MEMD at E0000000, 8388608 bytes (unused 1565056, recarves 5, lost/qaerror recoveries 0/0)
.
.
.
Router#
```

New Features—Cisco IOS Release 12.0(25)SX

Cisco IOS Release 12.0(25)SX introduces support on the Cisco 10000 series router for the following features:

Policy-Map Scaling

The Policy-Map Scaling feature increases the system-wide number of quality of service (QoS) policy maps that you can configure. In Cisco IOS Release 12.0(25)SX, the Cisco 10000 series router supports up to 4,096 policy maps. Each **policy-map** command counts as one policy map. The **policy-map** command syntax is unchanged. The maximum number of classes that you can configure in a policy is 32 classes.

Percent-Based Policing

The Percent-Based Policing feature enables you to specify the police rate as a percentage of the bandwidth of the network interface on which policing is applied. To specify the police rate as a percentage, use the **percent percent** option of the **police** command:

```
police [cir] percent {percent} [normal-burst-in-ms ms [max-burst-in-ms ms [conform-action {action} [exceed-action {action} [violate-action {action}]]]]]
```

The *percent* argument is a value from 1 to 100 and is required when you use the **percent** keyword.

When you use a percent-based **police** command within a nested policy, the police percent is based on the policy's topmost, class-default, shape rate. Otherwise, the police percent is based on the bandwidth of the network interface on which the **police** command is applied.

For more information, refer to the “Defining QoS Policies” section of the “Creating Service Policies” chapter in the *Cisco 10000 Series Router Quality of Service Configuration Guide*.

Random Early Detection with Queue-Limit

The Random Early Detection (RED) with Queue-Limit feature expands your ability to customize the size of a RED queue. In Cisco IOS Release 12.0(25)SX, you can simultaneously use the **queue-limit** and **random-detect** commands in the same class of a policy.

For more information, refer to the “Defining QoS Policies” section of the “Creating Service Policies” chapter in the *Cisco 10000 Series Router Quality of Service Configuration Guide*.

Enhanced RED Statistics

The Enhanced RED Statistics feature maintains RED drop statistics for each IP precedence or differentiated services code point (DSCP) value.



Note

In releases earlier than Cisco 12.0(25)SX, RED drop counts were maintained only for each class.

For more information, refer to the “Displaying Enhanced RED Statistics” section of the “Monitoring and Maintaining Quality of Service” chapter in the *Cisco 10000 Series Router Quality of Service Configuration Guide*.

3-Level Policies

The 3-Level Policies feature increases the hierarchical levels of a nested QoS policy from two to three levels. A 3-level policy is typically used to define the transmission capacity of a virtual circuit in the top level, class-based queuing at the middle level, and marking or metering in the bottom level.

The **service-policy** command configured inside a policy map is used to define a hierarchical policy. The syntax of the command is unchanged. You can use the **service-policy** command in the top and middle levels of a 3-level policy.

For more information, refer to the “Defining QoS Policies” section of the “Creating Service Policies” chapter in the *Cisco 10000 Series Router Quality of Service Configuration Guide*.

Virtual Circuit Oversubscription

The Virtual Circuit (VC) Oversubscription feature enables service providers to improve network utilization of otherwise underutilized shared networks by leveraging statistical multiplexing on ATM, Frame Relay, and IEEE 802.1Q networks. Instead of supporting only unconditional reservation of network bandwidth to VCs, the Cisco 10000 Cisco 10000 series router offers VC oversubscription to statistically guarantee bandwidth to VCs.

To configure VC oversubscription for Frame Relay and IEEE 802.1Q, use the **service-policy** command. You can optionally use the **service-policy** class configuration command, creating a nested policy to manage traffic within a virtual circuit. For this reason, the term Nested Policy-Map Oversubscription is sometimes used to refer to VC Oversubscription.

To enable oversubscription of ATM VCs, you must configure the following interface configuration command in service-internal mode:

```
atm over-subscription-factor {1-10}
```



Note

You do not need to use the **service-policy** command to specify the ATM VC oversubscription, because a variable bit rate (VBR) ATM VC uses sustained cell rate (SCR) to define the VC’s average transmission rate.

For more information, refer to the “Defining QoS Policies” section of the “Creating Service Policies” chapter in the *Cisco 10000 Series Router Quality of Service Configuration Guide*.

External Border Gateway Protocol Label Distribution

The External Border Gateway Protocol (EBGP) Label Distribution feature enables you to configure a carrier supporting carrier network that uses BGP to distribute routes and MPLS labels between the provider edge (PE) and customer edge (CE) routers of a backbone carrier and a customer carrier. The backbone carrier offers BGP and MPLS VPN services. The customer carrier can be one of the following:

- An Internet service provider (ISP) with an IP core
- An MPLS service provider with or without VPN services

For information on how to use BGP to distribute MPLS labels and routes for both types of customer carrier, refer to the *MPLS VPN Carrier Supporting Carrier—IPv4 BGP Label Distribution, Release 12.0(21)ST feature module* and the *Inter-Autonomous Systems for MPLS VPNs, Release 12.1(5)T feature module*.

New Features—Cisco IOS Release 12.0(25)S

The following is a brief list of the new features in Cisco IOS Release 12.0(25)S on which Cisco IOS Release 12.0(25)SX is based. Only new features that are supported by the Cisco 10000 Cisco 10000 series router are listed here. New features for other platforms (such as the Cisco 12000 series router) are not listed.

Link Fragmentation and Interleaving

Introduced on the Cisco 10000 Cisco 10000 series router in Cisco IOS Release 12.0(23)SX, the Link Fragmentation and Interleaving (LFI) feature reduces delay and jitter on slower-speed links by breaking up large datagrams and interleaving low-delay traffic packets (such as voice) with the smaller packets resulting from the fragmented datagram. The feature supports Frame Relay (FRF.12) end-to-end and Multilink PPP (MLPPP).

Single Rate 3-Color Marker for Traffic Policing

Introduced on the Cisco 10000 Cisco 10000 series router in Cisco IOS Release 12.0(23)SX, the single rate 3-Color Marker feature meters an IP packet stream and marks its packets different colors, based on the Committed Information Rate (CIR) and two associated burst sizes: Committed Burst Size (CBS) and Excess Burst Size (EBS). This feature is useful, for example, for ingress policing of a service, where service eligibility is determined only by the burst's length, and not its peak rate.

Multicast VPN

The Multicast for Multiprotocol Label-Switching (MPLS)/Virtual Private Network (VPN) feature enables service providers to offer multicast services over their MPLS core network. This feature was introduced on the Cisco 10000 Cisco 10000 series router in Cisco IOS Release 12.0(23)SX.

OSPF Support for a Redistribution Limit of Maximum-Prefixes Imported

This feature enables you to limit the number of routes that can be redistributed into the Open Shortest Path First (OSPF) protocol. The feature helps to eliminate the potential for flooding that might occur when a large number of routes are accidentally redistributed into OSPF.

ISIS Route Redistribution Limit

This feature enables you to limit the number of routes that can be redistributed into the Intermediate System-to-Intermediate System (IS-IS) protocol. This feature helps to eliminate the potential for flooding that might occur when a large number of routes are accidentally redistributed into IS-IS.

OSPF Support for Link State Advertisement Throttling

This feature enables you to slow down the rate at which the Open Shortest Path First (OSPF) protocol sends Link State Advertisement (LSA) updates during periods of network instability. This feature uses a back-off algorithm to perform the LSA throttling.

Limitations and Restrictions

3-Level Policies

The following limitations and restrictions apply to the Cisco 10000 series router 3-Level Policies feature:

- A top-level policy must specify only the class named *class-default* with only the **shape** command specified before the **service-policy** command attaches an inner policy.
- In an inner policy, to attach a **service-policy** command to a class's bottommost policy, do not configure the **police** and **set** commands for the class. Classes without a **service-policy** command configured are not restricted from using the **police** and **set** commands.
- In a bottommost policy, configure only the **police** and **set** commands for a class.
- Define each bottommost class map to match only those packets that also match its parent class map. For example, the union of the set of packets of a bottommost class and that of its parent class must be equal to the set of packets that match the parent class.
- The nested-policy shape rate is reserved for nested-policy traffic only. Excess bandwidth is not used for other traffic.



Note The actual shape rate applied to nested-policy traffic might differ from that specified in the policy. For example, a specified shape rate of 10.5 Mbps might be mapped to 11 Mbps. Use the command **show policy-map interface** to determine the actual shape rate.

Open Caveats—Cisco IOS Release 12.0(25)SX8

Table 1 describes the caveats that are open in Cisco IOS Release 12.0(25)SX8.

Table 1 Open Caveats in Cisco IOS Release 12.0(25)SX8

| Caveat | Description |
|------------|---|
| CSCea42432 | (Duplicate of CSCea52307) If you delete a service policy from an ATM interface, a traceback message or error message may appear. Workaround: None. |
| CSCea74742 | Policing conformed packets might be less than expected when the normal burst size is set to less than two times the packet size. Workaround: Change the normal burst size to a value larger than 2 times the police frame size. |

Table 1 Open Caveats in Cisco IOS Release 12.0(25)SX8

| Caveat | Description |
|-------------------|--|
| CSCea93642 | <p>When a large number of policy maps are configured on the Cisco 10000 Cisco 10000 series router, it could take more time than expected before all the policy maps activate. Before an interface's policy map activates, the traffic on the interface receives default treatment.</p> <p>The router compiles a super access control list (ACL) for each policy map configured. On an average, the compilation of one super ACL takes approximately one-half second. When a large number of policy maps are configured, the router requires more time to compile all of the super ACLs.</p> <p>Workaround: Wait approximately 0.65 seconds for each policy-map to become operational. For more than one policy map, wait (N * 0.65) seconds for all the policy maps to become operational (where N is the number of policy maps).</p> |
| CSCeb02953 | <p>When traffic is sent through an ATM subinterface to which a QoS service policy is attached, the packet count of the output queue obtained by using the show policy-map interface command does not match the packet output count obtained by using the show interface atm-subinterface command.</p> <p>Workaround: To obtain the correct packet output count, use the show policy-map interface command. Do not use the show interface atm-subinterface command to obtain packet output counts for ATM subinterfaces.</p> |
| CSCeb27728 | <p>When microcode is reloading and traffic is running over the interface, the interface output packet and byte counters display incorrect values.</p> <p>Workaround: Clear the counters.</p> |
| CSCeb38728 | <p>Under extremely rare circumstances, when you remove a 3-level policy map attached to 4,000 VLAN interfaces, the Cisco 10000 series router stops responding.</p> <p>Workaround: None.</p> |

Resolved Caveats—Cisco IOS Release 12.0(25)SX8

This section describes caveats that were fixed in Cisco IOS Release 12.0(25)SX8.

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>

CSCdw33267

Previously, when a Multiprotocol Label Switching (MPLS) edge router performed hardware-assisted forwarding, the hardware and software MPLS forwarding tables might be inconsistent. An example of an MPLS edge router is a provider edge (PE) router in an MPLS virtual private network (VPN).

This problem occurred when you executed either of the following command sequences on the MPLS edge router:

- The **shutdown** command followed by the **no shutdown** command on one of the outgoing interfaces enabled for MPLS.
- The **no mpls ldp** command followed by the **mpls ldp** command on one of the outgoing interfaces enabled for MPLS.

CSCdx75819

Previously, the trace route did not display mpls tag switching. When you did a trace route from CE to CE in an MPLS environment, the trace route did not display tag switching. The output of trace route looked like, Tracing the route to 173.0.12.2 1 172.0.12.2 [AS 100] 0 msec 0msec 0 msec 2 * * * 3 173.0.12.1 [AS 100] 0 msec 0 msec 0 msec 4 173.0.12.2 [AS 100] 0 msec 0 msec * .

CSCea48597

Previously, under certain circumstances, SAA reported an incorrect number of out-of-sequence packets.

CSCeb32579

Previously, the object rttMonEchoAdminNumPackets could be set to values beyond the valid range which is 1 - 60000.

CSCec43678

Previously, the no **service-policy** command resulted in traceback messages. Other than the traceback messages, the router continued to work normally. This problem occurred only when the service policy contained the **queue-limit** command.

CSCed25284

Previously, executing a **show facility-alarm status** command while an ATM interface was shut lead to inaccurate output from this command. This occurred if an ATM interface was shutdown.

CSCed41422

Previously, when you changed the type of service (TOS) on packets encapsulated in a Multiprotocol Label Switching (MPLS) virtual private network (VPN) tunnel, the TOS of the interior (encapsulated) packet did not change appropriately and was classified incorrectly at the de-encapsulating router.

This problem occurred when you applied input policing to an interface, associated a virtual routing and forwarding (VRF) instance with the interface, the interface was receiving multicast traffic from the customer edge (CE) router, and the router was configured for MPLS VPN.

CSCed43829

Previously, Random Early Detection maintained an average length of the outbound queue of a class of traffic, and randomly discarded newly arriving packets when the average fell within the configured range. A Cisco 10000 series router contained an error in the average queue length computation which made Random Early Detection too sensitive to the instantaneous queue length. This problem was seen on a Cisco 10000 series routers that ran Cisco IOS Release 12.0(27)S but may also have occurred in earlier releases.

CSCed49302

Previously, under a specific configuration using multiple E1 (framed or unframed) interfaces and 1500-byte IP packets, the maximum priority queue (PQ) latency was greater than 2 times the specified maximum transmission unit (MTU) plus 6 milliseconds. The following describes the conditions under which this problem occurred.

Seven queues were configured on each (1984k) E1 interface with the following bandwidths: PQ - 98k, C1 - 256k, C2 - 256k, C3 - 256k, C4 - 256k, CD - 98k, and MGMT - 20k.

The high latency was observed with 20 interfaces configured and bidirectional traffic was being sent at the following (per interface) pps rates to each queue, respectively:

1984k: PQ - 1733, C1 - 8, C2 - 21, C3 - 21, C4 - 21, CD - 8, MGMT - 2

2048k: PQ - 1789, C1 - 9, C2 - 21, C3 - 21, C4 - 21, CD - 9, MGMT - 2

CSCed50382

Previously, when you configured class-based weighted fair queuing (CBWFQ) on a Frame Relay permanent virtual circuit (PVC), queues could drop packets even if there was no traffic on other queues on the same link and the input traffic was less than the link bandwidth. This occurred when queue bandwidth was configured as a small percentage of link bandwidth.

CSCed58828

Previously, the RX traffic rate on PQ was reduced if a policy-map, with RED enabled on some of the queues, was removed and then re-applied to an interface while traffic was running. If the user removed and re-applied a policy map on an interface while traffic was running, the RX traffic rate on the PQ may have been reduced and did not return to the level when the same policy map was originally applied to the interface. The issue only happened if the queues in the policy map had RED enabled and were in congestion (having RED drops) when the policy map was removed.

CSCed72686

Previously, an ACL applied to an ATM subinterface might not function correctly after a PRE switchover. This problem occurred in a Cisco 10008 router that was configured with a PRE2.

CSCed80196

Previously, when you configured Multiprotocol Label Switching (MPLS) over Multilink PPP (MLPPP), the parallel express forwarding (PXF) microcode reloaded. After the PXF microcode reloaded, packet forwarding resumed.

CSCed85073

Previously, for MVPN traffic, multicast traffic streams were being punted from the PXF to the route processor. Normally PXF does this when a new stream needs to be created. However in this case, PXF behaved as if the streams were not present, even if the required (S,G)/(*,G) states existed. This symptom was observed on a Cisco 10000 series when the VRF index of the VPN was higher than 255. This occurred when 255 or more VRFs were configured or when some VRFs were created and deleted many times.

CSCed85570

Previously, when a POS card was shut down, the show facility status still indicated alarms. When a line card was shut, there should have been no alarms for that card. This symptom was observed on a Cisco 10000 series.a POS line card.

CSCed86431

Previously, the parallel express forwarding (PXF) processor could drop ATM adaptation layer 5 (AAL5) Connectionless Network Service (CLNS) Intermediate System-to-Intermediate System (IS-IS) packets when the path from the PXF processor to the route processor (RP) was congested. This could occur when the RP was very busy.

CSCed86810

Previously, when the working (odd) slot was OIR'd, it took about .5 seconds for traffic to resume. This symptom was observed on a Cisco 10000 series OC3ATM card.

CSCed87232

Previously, when using a 1oc12atm-1 card in the Cisco 10000 router, 2 ATM interfaces came up even if the framing configuration was mismatched.

CSCed87455

Previously, when you deleted an access control list (ACL) used in many route maps, SuperACL process memory usage increased significantly.

CSC89745

Previously, on a Cisco 10000 router, POSOC3 and POSOC12 (according to the standard) for the PTB (Path Trace Buffer) should have been set to 16 bytes instead of 64 bytes in SDH mode. PTB was set to 64 bytes for these interfaces.

CSCed88967

Previously, when redundant Performance Routing Engines (PREs) were configured, the **write memory** command was in progress on the active PRE, an application on the standby PRE accessed standby NVRAM, and then there was a switchover to the standby PRE, an error message appeared similar to:

```
startup-config file open failed (Device or resource busy)
```

CSCed90701

Previously, when you attached a policy map to a Multilink PPP (MLPPP) interface or when links were added to an MLPPP interface and then the Cisco 10000 series router reloaded, the packet queue size on an MLPPP bundle could be larger than necessary. This could reduce scalability during the configuration of multiple MLPPP interfaces, because the system could run out of resources to allocate the packet queues. There could be substantial traffic congestion, because traffic that should have been dropped due to queue overflow was not dropped.

CSCed90731

Previously, when new links were added to a Multilink PPP (MLPPP) interface that already had a policy map with priority class attached, the priority traffic on the MLPPP interface could exceed the configured bandwidth limits. Links could be added as result of a system reload or bootup, the link going up or down, or the user configuring more links on the bundle.

CSCed90846

Previously, when network interfaces were operating at or above OC-3 speeds and a policy map class containing the **priority percent** *percentage* command was loaded at or greater than the specified rate, other classes were left with less than their fair share of the bandwidth and their bandwidth ratio was adversely affected.

CSCee01068

Previously, upon configuring or modifying the configuration for a frame-relay subinterface with a policy map applied to the interface a user may have received a traceback message: Mar 10 14:41:14.460: %C10K_QOS_GENERAL-3-EREVENT: Error @.//c10k_rp/c10k_qos.c:4024 Traceback= 6010B5E4 60111CD0 608387F0 60838DE8 60840448 60837AE4 6036FAD8 60194738 60381E84 603D8264 603D8250.

CSCee04454

Previously, the router reloaded unexpectedly as ATM VCs came up. This problem occurred when ACLs were applied on ATM interfaces, and only rarely then, on images that contain the fix for CSCed72686.

CSCee05882

Previously, the queue size may not have been set up correctly for a Cisco 10000. This symptom was observed when an MLP bundle had an output policy attached to an interface and the service policy contained WRED parameters.

CSCee07295

Previously, when a multilink bundle was congested, a traffic class with Random Early Detection (RED) failed to achieve its share of the bandwidth due to excessive RED drops. The symptom occurred on multilink bundles under certain RED configurations and heavy traffic load.

CSCee14179

Previously, when applied to a multilink PPP (bundle) interface, the **service-policy** command resulted in the following error message on the standby PRE: CEF switching is required for the **set** command. In addition, the multilink PPP interface configuration on the standby PRE indicated that there was no service policy on the interface. This symptom occurred only on multilink PPP (bundle) interfaces and only if the policy map referenced in the **service-policy** command contained a **set** command.

CSCee18090

Previously, WRED may have dropped 99 percent of the packets while there was no congestion on the link. This symptom was observed on a Cisco 10000 series with an OC-12 POS line card under the following conditions: - There was a high context utilization. - There was a high feedback rate. - A high percentage of the packet output on the OC-12 POS line card were priority packets and most packets on the priority queue of the OC-12 POS line card were smaller than 100 bytes.

CSCee21547

Previously, a class-default **shape** command stopped working when the child **service-policy** command was removed. The symptom occurred only on physical network interfaces with hierarchical policies such as, policy-map p class-default shape 1024 service-policy c An interface with a service policy p shapes its outbound traffic at 1024Kbps. When the child service policy, c, was removed, however, the interface stopped shaping.

CSCee22426

Previously, unexpected drops may have occurred before exceeding the configured class bandwidth. This symptom was observed on Cisco 10008 ESR with ESR-24CT1/E1 running IOS 12.0 (27)S1. It was not observed with IOS 12.0(23)S3b.

CSCee22450

Previously, a subinterface on a Cisco 10000 series may have dropped packets because of unicast RPF check failures, even though the interface was not configured with uRPF. This symptom was observed on an ATM interface with several subinterfaces when there was at least one subinterface that had uRPF configured. Disabling uRPF on the subinterface left uRPF enabled, even though the CLI indicates it was not enabled. This may also have occurred with Frame Relay subinterfaces.

CSCee22454

Previously, the router dropped packets when Unicast Reverse Path Forwarding (URPF) was configured on an interface. This problem occurred when the router had 2 paths (outgoing interfaces) to a destination in the FIB table and URPF was enabled on one of the outgoing interfaces.

CSCee34520

Previously, the router stopped forwarding traffic for some load balanced recursive prefixes, such as a BGP route with equal cost IGP paths to the BGP next hop. If any Multiprotocol Label Switching (MPLS) Label Distribution Protocol (LDP) adjacency on the router flapped or the router itself flapped, the hardware loadshare pointers for the recursive prefixes could point to old information because Cisco Express Forwarding (CEF) did not send updates to the Parallel Express Forwarding (PXF) processor with new label information.

CSCee38984

Previously, on ESR/10k with Cisco IOS 12.0.25SX5 the **snmp-server enable traps alarm** command was in the config by default as soon as any other snmp-server command was entered. This behavior was not the same as the 7500 with version 12.2.(6f)M1.

CSCee39853

Previously, a Cisco router that was running Cisco IOS Release 12.0(25)SX1 may have experienced CEF disabling on the standby PRE. This symptom was observed on a Cisco router that is running Cisco IOS Release 12.0(25)SX1. The symptom may also have occurred in Cisco IOS Release 12.0 S.

CSCee39873

The Cisco 10000 router when running on Cisco IOS release 12.0(25)SX1 may experience spurious memory access.

CSCee41413

Previously, if the standby PRE went down just as the chstm1 driver was trying to sync a linestate message, the active PRE may have crashed.

CSCee42973

Previously, the PXF processor may have dropped CLNS/ISIS packets when the PXF-to-RP path was congested. This can have occurred when the RP processor was heavily loaded. It affected CLNS/ISIS packets received from interfaces that were configured with HDLC encapsulation.

CSCee46019

Previously, on a Cisco 10000 router, if the PXF performed PBR on a packet and there were no output features to do (e.g. output ACL, output QoS), then the PXF netflow feature did not see the packet.

CSCee58642

Previously, on a Cisco 10000 router, the PXF processor punted packets that had IP options to the RP for processing. The PXF processor put these packets on the pak_priority queue, but they should have been put on the default queue. This occurred with a Cisco 100000 router with a PRE-1 routing engine.

CSCee69396

Previously, a Cisco 10000 router running Cisco IOS version 12.0(25)SX6 noticed a large increase of at least 15% in the CPU usage in the "BGP Router" process when upgraded from Cisco IOS 12.0(23)SX5. Under certain condition where there were a very large number of BGP neighbors in a PE-CE scenario, and the during steady state after BGP router convergence, there needed to be a constant churn in the updates with the addition/withdrawal of the routes from the neighbor BGP peers.

CSCee70127

Previously, the CPU utilization of the c10k_periodic_stats_coll process increased ten-fold after migrating from a pre-12.0(25)SX release to Cisco IOS 12.0(25)SX. The symptom was seen with a large number of QoS class-based packet queues.

CSCin74347

Previously, outbound security ACLs were not applied properly on Cisco 10000 Series routers. This problem occurred on all 12.0S images that contain the fix for CSCed72686.

CSCuk44928

Previously, when you configured redundant Performance Routing Engines (PREs) and saved the configuration first to the standby PRE and then to the active PRE, the configuration might not be saved. Additionally, an error message appeared similar to the following:

```
startup-config file open failed (Device or resource busy)
```

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EMEA: +32 2 704 55 55

USA: 1 800 553 2447

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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.

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