Express RTP Header Compression

Feature History

Release	Modification
12.0(7)T	This feature was introduced.
12.1(4)E	This feature was integrated into Cisco IOS Release 12.1(4)E
12.2(14)S	This feature was integrated into Cisco IOS Release 12.2(14)S.

This document describes the Express RTP Header Compression feature in Cisco IOS Release 12.0(7)T, 12.1(4)E, and 12.2(14)S and includes the following sections:

Feature Overview

Before the introduction of the Express RTP Header Compression feature, if compression of Real-Time Transport Protocol (RTP) headers was enabled, compression was performed in the process-switching path. That meant that packets traversing interfaces that had RTP header compression enabled were queued and passed up to the process to be switched. This procedure slowed down transmission of the packet, and therefore some users preferred to fast switch uncompressed RTP packets.

Now, if RTP header compression is enabled, it occurs by default in the fast-switched path or the Cisco Express Forwarding-switched (CEF-switched) path, depending on which switching method is enabled on the interface. Furthermore, the number of RTP header compression connections has been increased to 1000 connections each.

If neither fast switching nor CEF switching is enabled, then if RTP header compression is enabled, it will occur in the process-switched path as before.

Benefits

The Express RTP Header Compression feature has the following benefits:

- It reduces network overhead.
- It speeds up transmission of RTP packets. The faster speed provides a greater benefit on slower links than faster links.

Restrictions

When RTP header compression is configured on Multilink PPP interfaces that have link fragment and interleave (LFI), RTP packets originating on or destined to the router will be process switched. Transit traffic will be fast switched.

Related Documents

- *Cisco IOS Switching Services Configuration Guide,* Release 12.2
- *Cisco IOS Switching Services Command Reference,* Release 12.2
- The chapter "Configuring IP Multicast Routing" in the *Cisco IOS IP Configuration Guide*, Release 12.2
- The chapter "IP Multicast Routing Commands" in the *Cisco IOS IP Command Reference, Volume 3 of 3: Multicas*t, Release 12.2

Supported Platforms

This feature is supported on the following platforms in Cisco IOS Release 12.0(7)T and 12.1(4)E:

- Cisco 2600
- Cisco 3600
- Cisco 4000-M
- Cisco 7100 series
- Cisco 7200 series

This feature is supported on the following platforms in Cisco IOS Release 12.2(14)S:

- Cisco 7200 series

Determining Platform Support Through Cisco Feature Navigator

Cisco IOS software is packaged in feature sets that are supported on specific platforms. To get updated information regarding platform support for this feature, access Cisco Feature Navigator. Cisco Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Cisco Feature Navigator is a web-based tool that enables you to determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image. You can search by feature or release. Under the release section, you can compare releases side by side to display both the features unique to each software release and the features in common.

To access Cisco Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

http://www.cisco.com/register

Cisco Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Cisco Feature Navigator home page at the following URL:

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

Availability of Cisco IOS Software Images

Platform support for particular Cisco IOS software releases is dependent on the availability of the software images for those platforms. Software images for some platforms may be deferred, delayed, or changed without prior notice. For updated information about platform support and availability of software images for each Cisco IOS software release, refer to the online release notes or, if supported, Cisco Feature Navigator.

Supported Standards, MIBs, and RFCs

Standards

No new or modified standards are supported by this feature

MIBs

No new or modified MIBs are supported by this feature.

To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:

http://tools.cisco.com/ITDIT/MIBS/servlet/index

If Cisco MIB Locator does not support the MIB information that you need, you can also obtain a list of supported MIBs and download MIBs from the Cisco MIBs page at the following URL:

http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

To access Cisco MIB Locator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to cco-locksmith@cisco.com. An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions found at this URL:

http://www.cisco.com/register

RFCs

This feature supports the following RFCs:

- RFC 1144, *Compressing TCP/IP Headers for Low-Speed Serial Links*
- RFC 2507, *IP Header Compression*
- RFC 2508, *Compressing IP/UDP/RTP Headers for Low-Speed Serial Links*

Prerequisites

In order for this feature to work, the following features must be in place:

- CEF switching or fast switching must be enabled on the interface.
- High-level Data Link Control (HDLC), PPP, or Frame Relay encapsulation must be configured.
- RTP header compression must be enabled.

Configuration Tasks

Assuming that the prerequisites are met, RTP header compression is performed in the CEF-switched path or fast-switched path automatically. No configuration tasks are required. The following task is required:

- Configuring Express RTP Header Compression (required)

Configuring Express RTP Header Compression

By default, for Frame Relay encapsulation, there can be 256 RTP header compression connections (128 calls for each type). The maximum value is fixed, not configurable.

The software allows 32 RTP header compression connections (16 calls). This default can be increased to a maximum of 1000 RTP header compression connections on an interface which has HDLC or PPP encapsulation configured.

To change the number of compression connections supported, use the following command in interface configuration mode:

	Command	Purpose
Step 1	`Router(config-if)# ip rtp compression-connections` *number*	Specifies the total number of RTP header compression connections supported on the interface.

Configuration Examples

This section contains the following express RTP header compression examples:

- Express RTP Header Compression with PPP Encapsulation
- Express RTP Header Compression with Frame Relay Encapsulation

Express RTP Header Compression with PPP Encapsulation

The following example shows a Cisco 7200 router configured with express RTP header compression and PPP encapsulation:

```
version 12.0
no service pad
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
```

```
hostname abc-1234
!
enable password lab
!
ip subnet-zero
no ip domain-lookup
ip host xy-tftp 172.17.249.2
clock timezone GMT 1
clock summer-time GMT recurring
ip routing
ip cef
!
!
controller E1 3/0
!
controller E1 3/1
!
!
interface Ethernet2/0
 ip address 10.0.0.0 255.255.255.0
 no ip directed-broadcast
 no ip route-cache
!
interface Ethernet2/1
 ip address 10.0.0.1 255.255.255.0
 no ip directed-broadcast
 ip route-cache
 no shutdown
!
interface Serial4/0
 ip address 10.0.0.2 255.255.255.0
 no ip directed-broadcast
 encapsulation ppp
 ip rtp header-compression iphc-format
 ip rtp compression-connections 1000
 no ip mroute-cache
 clockrate 2015232
 bandwidth 2000
 ip route-cache
 no shutdown
!
interface Serial4/1
 no ip address
 no ip directed-broadcast
 no ip route-cache
 shutdown
 clockrate 2015232
!
ip default-gateway 10.0.0.3
ip classless
ip route 0.0.0.0 0.0.0.0 9.1.72.1
!
router igrp 1
 network 10.0.0.4
!
line con 0
 exec-timeout 0 0
 transport input none
```

```
line aux 0
line vty 0 4
 password lab
 login
!
no scheduler max-task-time
end
```

Express RTP Header Compression with Frame Relay Encapsulation

The following example shows a Cisco 7200 router configured with express RTP header compression and Frame Relay encapsulation:

```
version 12.0
service timestamps debug uptime
service timestamps log uptime
no service password-encryption
!
hostname ed1-72a
!
enable password lab
!
ip subnet-zero
no ip domain-lookup
ip host xy-tftp 172.17.249.2
clock timezone GMT 1
clock summer-time GMT recurring
ip routing
ip cef
!
!
controller E1 3/0
!
controller E1 3/1
!
interface Ethernet2/0
 ip address 10.0.0.0 255.255.255.0
 no ip directed-broadcast
 no ip route-cache
 no ip mroute-cache
 ntp broadcast client
!
interface Ethernet2/1
 ip address 10.0.0.1 255.255.255.0
 no ip directed-broadcast
 ip route-cache
 no ip mroute-cache
 no shutdown
!
interface Serial4/0
 ip address 10.0.0.2 255.255.255.0
 encapsulation frame-relay
 frame-relay map ip 10.0.0.3 100 broadcast compress
 frame-relay ip rtp header-compression
no ip mroute-cache
 ip route-cache
 bandwidth 2000
 no keepalive
 no shutdown
!
interface Serial4/1
 no ip address
```

```
 no ip directed-broadcast
 no ip route-cache
 no ip mroute-cache
 shutdown
 no fair-queue
!
router igrp 1
 network 10.0.0.4
!
!
ip default-gateway 10.0.0.5
ip classless
!
map-class frame-relay frag
 frame-relay cir 64000
 frame-relay bc 1000
 frame-relay be 0
 frame-relay mincir 64000
 frame-relay adaptive-shaping becn
 frame-relay fair-queue
 frame-relay fragment 70
!
dialer-list 1 protocol ip permit
dialer-list 1 protocol ipx permit
!
line con 0
 exec-timeout 0 0
 transport input none
line aux 0
line vty 0 4
 password lab
 login
!
!
ntp clock-period 17179866
end
```

Command Reference

This section documents the modified **ip rtp compression-connections** command. All other commands used with this feature are documented in the Cisco IOS 12.2 documentation set.

ip rtp compression-connections

To specify the total number of Real-Time Transport Protocol (RTP) header compression connections that can exist on an interface, use the **ip rtp compression-connections** command in interface configuration mode. To restore the default value, use the **no** form of this command.

ip rtp compression-connections *number*

no ip rtp compression-connections

Syntax Description

number	Number of RTP header compression connections the cache supports, in the range from 3 to 1000. The default is 32 connections (16 calls).

Defaults

32 connections

Command Modes

Interface configuration

Command History

Release	Modification
11.3	This command was introduced.
12.0(7)T	For PPP and High-Level Data Link Control (HDLC) encapsulation, the maximum number of connections increased from 256 to 1000. For Frame Relay encapsulation, the maximum number of connections increased to 256. The maximum value for Frame Relay is fixed, not configurable.
12.1(4)E	This command was implemented on Cisco 7100 series routers.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.

Examples

The following example shows how to change the number of RTP header compression connections supported to 150:

```
interface serial 0
 encapsulation ppp
 ip rtp header-compression
 ip rtp compression-connections 150
```

Related Commands

Command	Description
frame-relay ip rtp header-compression	Enables RTP header compression for all Frame Relay maps on a physical interface.
frame-relay map ip rtp header-compression	Enables RTP header compression per DLCI.

Command	Description
ip rtp header-compression	Enables RTP header compression.
show ip rtp header-compression	Displays RTP header compression statistics.