



Frame Relay Header Compression Compatibility Enhancements

This document describes the new and modified commands used to specify the maximum number of compressed connections when using IP header compression over Frame Relay links.

Overview

Before Cisco IOS Release 12.1(2)T, the maximum number of IP header compression connections was fixed at 256 connections for Cisco IOS Release 12.0(7)T and later releases and at 16 or 32 connections for earlier releases. The inability to specify the number of connections sometimes resulted in compatibility conflicts.

With Cisco IOS Release 12.1(2)T, the following commands were introduced or modified to enable a user to specify the maximum number of compressed connections when using Real-Time Transport Protocol (RTP) or TCP header compression over a Frame Relay link:

- **frame-relay ip rtp compression-connections**
- **frame-relay ip tcp compression-connections**
- **frame-relay map ip compress**
- **frame-relay map ip nocompress**
- **frame-relay map ip rtp header-compression**
- **frame-relay map ip tcp header-compression**

Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.1 command reference publications.

frame-relay ip rtp compression-connections

To specify the maximum number of Real-Time Transport Protocol (RTP) header compression connections that can exist on a Frame Relay interface, use the **frame-relay ip rtp compression-connections** interface configuration command. To restore the default, use the **no** form of this command.

frame-relay ip rtp compression-connections *number*

no frame-relay ip rtp compression-connections

Syntax Description	<i>number</i>	Maximum number of RTP header compression connections. The range is from 3 to 256.
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Defaults	No default behavior or values.
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Command Modes	Interface configuration
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Command History	Release	Modification
	12.1(2)T	This command was introduced.

Usage Guidelines	<p>Before you can configure the maximum number of connections, RTP header compression must be configured on the interface using the frame-relay ip rtp header-compression command.</p> <p>The number of RTP header compression connections must be set to the same value at each end of the connection.</p>
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Examples	<p>The following example shows the configuration of a maximum of 150 RTP header compression connections on serial interface 0:</p>
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```
interface serial 0
 encapsulation frame-relay
 frame-relay ip rtp header-compression
 frame-relay 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 compress	Enables both RTP and TCP header compression on a link.

Command	Description
frame-relay map ip rtp header-compression	Enables RTP header compression per DLCI.
show frame-relay ip rtp header-compression	Displays RTP header compression statistics for Frame Relay.

frame-relay ip tcp compression-connections

To specify the maximum number of TCP header compression connections that can exist on a Frame Relay interface, use the **frame-relay ip tcp compression-connections** interface configuration command. To restore the default, use the **no** form of this command.

frame-relay ip tcp compression-connections *number*

no frame-relay ip tcp compression-connections

Syntax Description	<i>number</i>	Maximum number of TCP header compression connections. The range is from 3 to 256.
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Defaults No default behavior or values.

Command Modes Interface configuration

Command History	Release	Modification
	12.1(2)T	This command was introduced.

Usage Guidelines Before you can configure the maximum number of connections, TCP header compression must be configured on the interface using the **frame-relay ip tcp header-compression** command.

The number of TCP header compression connections must be set to the same value at each end of the connection.

Examples The following example shows the configuration of a maximum of 150 TCP header compression connections on serial interface 0:

```
interface serial 0
 encapsulation frame-relay
 frame-relay ip tcp header-compression
 frame-relay ip tcp compression-connections 150
```

Related Commands	Command	Description
	frame-relay ip tcp header-compression	Enables TCP header compression for all Frame Relay maps on a physical interface.
	frame-relay map ip compress	Enables both RTP and TCP header compression on a link.

Command	Description
frame-relay map ip tcp header-compression	Assigns header compression characteristics to an IP map that differ from the compression characteristics of the interface with which the IP map is associated.
show frame-relay ip tcp header-compression	Displays statistics and TCP/IP header compression information for the interface.

frame-relay map ip compress

To enable both Real-Time Transport Protocol (RTP) and TCP header compression on a link, use the **frame-relay map ip compress** interface configuration command.

```
frame-relay map ip ip-address dci [broadcast] compress [active | passive]
[connections number]
```

Syntax Description		
	<i>ip-address</i>	IP address of the destination or next hop.
	<i>dci</i>	Data-link connection identifier (DLCI) number.
	broadcast	(Optional) Forwards broadcasts to the specified IP address.
	active	(Optional) Compresses all outgoing RTP and TCP packets. This is the default.
	passive	(Optional) Compresses the outgoing RTP and TCP header only if an incoming packet had a compressed header.
	connections <i>number</i>	(Optional) Specifies the maximum number of RTP and TCP header compression connections. The range is from 3 to 256.

Defaults

Disabled.

The default maximum number of header compression connections is 256.

Command Modes

Interface configuration

Command History

Release	Modification
11.3	This command was introduced.
12.1(2)T	This command was modified to enable the configuration of the maximum number of header compression connections.

Examples

The following example enables both RTP and TCP header compression on serial interface 1 and sets the maximum number of RTP and TCP header connections at 16:

```
interface serial 1
 encapsulation frame-relay
 ip address 10.108.175.110 255.255.255.0
 frame-relay map ip 10.108.175.220 180 compress connections 16
```

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 ip tcp header-compression	Enables TCP header compression for all Frame Relay maps on a physical interface.
frame-relay map ip nocompress	Disables RTP and TCP header compression on a link.
show frame-relay ip rtp header-compression	Displays RTP header compression statistics for Frame Relay.
show frame-relay ip tcp header-compression	Displays statistics and TCP/IP header compression information for the interface.

frame-relay map ip nocompress

To disable both Real-Time Transport Protocol (RTP) and TCP header compression on a link, use the **frame-relay map ip nocompress** interface configuration command.

frame-relay map ip *ip-address* *dci* [**broadcast**] **nocompress**

Syntax Description		
	<i>ip-address</i>	IP address of the destination or next hop.
	<i>dci</i>	Data-link connection identifier (DLCI) number.
	broadcast	(Optional) Forwards broadcasts to the specified IP address.

Defaults No default behaviors or values.

Command Modes Interface configuration

Command History	Release	Modification
	11.3	This command was introduced.

Examples The following example disables RTP and TCP header compression on DLCI 180:

```
interface serial 1
 encapsulation frame-relay
 frame-relay map ip 10.108.175.220 180 nocompress
```

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 ip tcp header-compression	Enables TCP header compression for all Frame Relay maps on a physical interface.
	frame-relay map ip compress	Enables RTP and TCP header compression on a link.
	show frame-relay ip rtp header-compression	Displays RTP header compression statistics for Frame Relay.
	show frame-relay ip tcp header-compression	Displays statistics and TCP/IP header compression information for the interface.

frame-relay map ip rtp header-compression

To enable Real-Time Transport Protocol (RTP) header compression per data-link connection identifier (DLCI), use the **frame-relay map ip rtp header-compression** interface configuration command.

```
frame-relay map ip ip-address dlc [broadcast] rtp header-compression [active | passive]
[connections number]
```

Syntax Description		
<i>ip-address</i>		IP address of the destination or next hop.
<i>dlci</i>		Data-link connection identifier (DLCI) number.
broadcast		(Optional) Forwards broadcasts to the specified IP address.
active		(Optional) Compresses outgoing RTP packets. This is the default.
passive		(Optional) Compresses the outgoing RTP/UDP/IP header only if an incoming packet had a compressed header.
connections <i>number</i>		(Optional) Specifies the maximum number of RTP header compression connections. The range is from 3 to 256.

Defaults

Disabled.

If the command is configured, **active** is the default keyword.

The default maximum number of header compression connections is 256.

Command Modes

Interface configuration

Command History

Release	Modification
11.3	This command was introduced.
12.1(2)T	This command was modified to enable the configuration of the maximum number of header compression connections.

Usage Guidelines

When this command is configured, the specified maps inherit RTP header compression. You can have multiple Frame Relay maps, with and without RTP header compression. If you do not specify the number of RTP header compression connections, the map will inherit the current value from the interface.

Examples

The following example enables RTP header compression on serial interface 1 and sets the maximum number of RTP header compression connections at 64:

```
interface serial 1
 encapsulation frame-relay
 ip address 10.108.175.110 255.255.255.0
 frame-relay map ip 10.108.175.220 180 rtp header-compression connections 64
```

Related Commands	Command	Description
	frame-relay ip rtp compression-connections	Specifies the maximum number of RTP header compression connections that can exist on a Frame Relay interface.
	frame-relay ip rtp header-compression	Enables RTP header compression for all Frame Relay maps on a physical interface.
	frame-relay map ip compress	Enables both RTP and TCP header compression on a link.
	show frame-relay ip rtp header-compression	Displays RTP header compression statistics for Frame Relay.

frame-relay map ip tcp header-compression

To assign header compression characteristics to an IP map that differ from the compression characteristics of the interface with which the IP map is associated, use the **frame-relay map ip tcp header-compression** interface configuration command.

```
frame-relay map ip ip-address dlc [broadcast] tcp header-compression [active | passive]
[connections number]
```

Syntax Description	
<i>ip-address</i>	IP address of the destination or next hop.
<i>dlci</i>	Data-link connection identifier (DLCI) number.
broadcast	(Optional) Forwards broadcasts to the specified IP address.
active	(Optional) Compresses the header of every outgoing TCP/IP packet.
passive	(Optional) Compresses the header of an outgoing TCP/IP packet only if an incoming TCP/IP packet had a compressed header.
connections <i>number</i>	(Optional) Specifies the maximum number of TCP header compression connections. The range is 3 to 256.

Defaults The default maximum number of header compression connections is 256.

Command Modes Interface configuration

Command History	Release	Modification
	10.0	This command was introduced.
	12.1(2)T	This command was modified to enable the configuration of the maximum number of header compression connections.

Usage Guidelines If you do not specify the number of TCP header compression connections, the map will inherit the current value from the interface.

IP maps inherit the compression characteristics of the associated interface unless this command is used to provide different characteristics. This command can also reconfigure an IP map that existed before TCP header compression was configured on the associated interface.

When IP maps at both ends of a connection inherit passive compression, the connection will never transfer compressed traffic because neither side will generate a packet with a compressed header.

If you change the encapsulation characteristics of the interface to Internet Engineering Task Force (IETF) encapsulation, you lose the TCP header compression configuration of the associated IP map.

The **frame-relay map ip** *ip-address dlc* **tcp header-compression active** command can also be entered as **frame-relay map ip** *ip-address dlc* **active tcp header-compression**.

We recommend that you shut down the interface before changing encapsulation types. Although this is not required, shutting down the interface ensures that the interface is reset for the new encapsulation.

Examples

The following example illustrates a command sequence for configuring an IP map associated with serial interface 1 to enable active TCP/IP header compression:

```
interface serial 1
encapsulation frame-relay
ip address 10.108.177.170 255.255.255.0
 frame-relay map ip 10.108.177.180 190 tcp header-compression active
```

Related Commands

Command	Description
frame-relay ip tcp compression-connections	Specifies the maximum number of TCP header compression connections that can exist on a Frame Relay interface.
frame-relay ip tcp header-compression	Enables TCP header compression for all Frame Relay maps on a physical interface.
frame-relay map ip compress	Enables both RTP and TCP header compression on a link.
show frame-relay ip tcp header-compression	Displays statistics and TCP/IP header compression information for the interface.