Frame Relay Commands

This chapter describes the function and displays the syntax of each Frame Relay command. For more information about defaults and usage guidelines, see the corresponding chapter of the *Router Products Command Reference* publication.

clear frame-relay-inarp

To clear dynamically created Frame Relay maps, which are created by the use of Inverse ARP, use the **clear frame-relay-inarp** EXEC command.

[**no**] encapsulation frame-relay [**cisco** | **ietf**]

Use the **encapsulation frame-relay** interface configuration command to enable Frame Relay encapsulation. The **no** form of this command disables Frame Relay. If the **ietf** keyword is not specified, this command defaults to using Cisco's encapsulation, which is a four-byte header, with two bytes for the DLCI and two bytes to identify the packet type.

ietf	(Optional) Sets the encapsulation method to comply with the IETF standard (RFC 1294). Use this keyword when connecting to another vendor's equipment across a Frame Relay network.
ietf	(Optional) Sets the encapsulation method to comply with the IETF standard (RFCs 1294 and 1490). Use this keyword when connecting to another vendor's equipment across a Frame Relay network.

frame-relay broadcast-queue *size byte-rate packet-rate*

To create a special queue for a specified interface to hold broadcast traffic that has been replicated for transmission on multiple DLCIs, use the **frame-relay broadcast-queue** interface configuration command.

size	Number of packets to hold in the broadcast queue. The default is 64 packets.
byte-rate	Maximum number of bytes to be transmitted per second. The default is 256000 bytes per second.
packet-rate	Maximum number of packets to be transmitted per second. The default is 36 packets per second.

frame-relay de-group *group-number dlci*
no frame-relay de-group [*group-number*] [*dlci*]

To specify the discard eligibility (DE) group number to be used for a specified DLCI, use the **frame-relay de-group** interface configuration command. To disable a previously defined group number assigned to a specified DLCI, use the **no** form of this command with the relevant keyword and arguments.

group-number	DE group number to apply to the specified DLCI number, in the range from 1 through 10.
dlci	DLCI number.

[**no**] **frame-relay de-list** *list-number* {**protocol** *protocol* | **interface** *type number*} *characteristic*

To define a discard eligibility (DE) list specifying which packets will have the DE bit set and thus will be eligible for discarding when congestion is experienced on the Frame Relay switch, use the **frame-relay de-list** global configuration command. To delete a portion of a previously defined DE list, use the **no** form of this command.

list-number	Number of the DE list.

protocol	One of the following keywords corresponding to a supported protocol or device: **arp**—Address Resolution Protocol. **apollo**—Apollo Domain. **appletalk**—AppleTalk. **bridge**—bridging device. **clns**—ISO Connectionless Network Service. **clns_es**—CLNS end systems. **clns_is**—CLNS intermediate systems. **compressedtcp**—Compressed TCP. **decnet**—DECnet. **decnet_node**—DECnet end node. **decnet_router-L1**—DECnet Level 1 (intra-area) router. **decnet_router-L2**—DECnet Level 2 (interarea) router. **ip**—Internet Protocol. **ipx**—Novell Internet Packet Exchange. **vines**—Banyan VINES. **xns**—Xerox Network Systems.
type	One of the following interface types: **serial**, **null**, or **ethernet**.
number	Interface number.
characteristic	You must supply one of the following: **fragments**—Classify fragmented IP packets. **tcp** *port*—TCP packets to or from a specified port. **udp** *port*—UDP packets to or from a specified port. **list** *access-list-number*—Previously defined access list number. **gt** *bytes*—Packets larger than the specified number of bytes will have the DE bit set. **lt** *bytes*—Packets smaller than the specified number of bytes will have the DE bit set.

[**no**] **frame-relay interface-dlci** *dlci* [*option*]

frame-relay interface-dlci *dlci* [**protocol ip** *ip-address*]

To assign a DLCI to a specified Frame Relay subinterface on the router, use the **frame-relay interface-dlci** interface configuration command. To remove this feature, use the **no** form of this command.

dlci	DLCI number to be used on the specified subinterface.
option	(Optional) Broadcast or encapsulation keyword, as defined in the "Frame Relay Interface-DLCI Option Keywords" table in the *Router Products Command Reference* publication.
protocol ip *ip-address*	Indicates the IP address of the serial interface of a new router onto which a router configuration file is to be autoinstalled over a Frame Relay network. Use this option only when this router will act as the BOOTP server for autoinstallation over Frame Relay.

frame-relay intf-type [**dce** | **dte** | **nni**]
no frame-relay intf-type [**dce** | **dte**]

Use the **frame-relay intf-type** interface configuration command to configure a Frame Relay switch type. Use the **no** form of this command to disable the switch.

dce	(Optional) Router functions as a switch connected to a router.
dte	(Optional) Router is connected to a Frame Relay network. This is the default.
nni	(Optional) Router functions as a switch connected to a switch (supports NNI connections).

[**no**] **frame-relay inverse-arp** *protocol dlci*

Use the **frame-relay inverse-arp** interface configuration command to enable the Inverse Address Resolution Protocol (Inverse ARP) on the router configured for Frame Relay. Use the **no** form of this command to disable this feature.

protocol	Supported protocols: **appletalk**, **decnet, ip**, **ipx**, **vines**, and **xns**.
dlci	A DLCI number used on the interface. Acceptable numbers are integers in the range 16 to 1007.

frame-relay ip tcp header-compression [**passive**]
no frame-relay ip tcp header-compression

To configure an interface to ensure that the associated PVC will always carry outgoing TCP/IP headers in compressed form, use the **frame-relay ip tcp header-compression** interface configuration command. To disable compression of TCP/IP packet headers on the interface, use the **no** form of this command.

passive	(Optional) Compresses the outgoing TCP/IP packet header only if an incoming packet had a compressed header.

frame-relay keepalive *number*
no frame-relay keepalive

To enable the Local Management Interface (LMI) mechanism for serial lines using Frame Relay encapsulation, use the **frame-relay keepalive** interface configuration command. To disable this capability, use the **no** form of this command.

number	An integer that defines the keepalive interval. The interval must be set and must be less than the interval set on the switch; see the **frame-relay lmi-t392dce** command description. The default is 10 seconds.

[**no**] **frame-relay lmi-n391dte** *keep-exchanges*

To set a full status polling interval, use the **frame-relay lmi-n391dte** interface configuration command. To restore the default interval value, assuming an LMI has been configured, use the **no** form of this command.

keep-exchanges	Number of keep exchanges to be done before requesting a full status message. Acceptable value is a positive integer in the range 1 through 255. The default is 6.

[**no**] **frame-relay lmi-n392dce** *threshold*

To set the DCE and NNI error threshold, use the **frame-relay lmi-n392dce** interface configuration command. To remove the current setting, use the **no** form of this command.

threshold	Error threshold value. Acceptable value is a positive integer in the range 1 through 10. The default is 2.

[**no**] **frame-relay lmi-n392dte** *threshold*

To set the error threshold on a DTE or NNI interface, use the **frame-relay lmi-n392dte** interface configuration command. To remove the current setting, use the **no** form of this command.

threshold	Error threshold value. Acceptable value is a positive integer in the range 1 through 10. The default is 2.

[**no**] **frame-relay lmi-n393dce** *events*

To set the DCE and NNI monitored events coun, use the **frame-relay lmi-n393dce** interface configuration commandt. To remove the current setting, use the **no** form of this command.

events	Monitored events count value. Acceptable value is a positive integer in the range 1 through 10. The default is 2.

[**no**] **frame-relay lmi-n393dte** *events*

To set the monitored event count on a DTE or NNI interface, use the **frame-relay lmi-n393dte** interface configuration command. To remove the current setting, use the **no** form of this command.

events	Monitored event count value. Acceptable value is a positive integer in the range 1 through 10. The default is 2.

[**no**] **frame-relay lmi-t392dce** *timer*

To set the polling verification timer on a DCE or NNI interface, use the **frame-relay lmi-t392dce** interface configuration command. To remove the current setting, use the **no** form of this command.

timer	Polling verification timer value. Acceptable value is a positive integer in the range 5 through 30. The default is 15 seconds.

[**no**] **frame-relay lmi-type** { **ansi** | **cisco** | **q933a**}

To select the Local Management Interface (LMI) type, use the **frame-relay lmi-type** interface configuration command. Use the **no** form of this command to remove a previously selected LMI type.

ansi	Annex D defined by ANSI standard T1.617.
cisco	LMI type defined jointly by Cisco and three other companies. This is the default.
q933a	ITU-T Q.933 Annex A.

frame-relay local-dlci *number*
no frame-relay local-dlci

To set the source DLCI for use when the LMI is not supported, use the **frame-relay local-dlci** interface configuration command . To remove the DLCI number, use the **no** form of this command.

number	Local (source) data link connection identifier (DLCI) number for the interface.

frame-relay map *protocol protocol-address dlci* [**broadcast**] [**ietf** | **cisco**]
no frame-relay map *protocol protocol-address*

Use the **frame-relay map** interface configuration command to define the mapping between an address and the DLCI used to connect to the address. Use the **no frame-relay map** command to delete the map entry.

protocol	Supported protocol, bridging, or logical link control keywords: **appletalk**, **decnet**, **ip**, **ipx**, **llc2**, **rsrb**, **vines** and **xns**.
protocol-address	Destination protocol address.
dlci	DLCI number used to connect to the specified protocol address on the interface.
broadcast	(Optional) Broadcasts should be forwarded to this address when multicast is not enabled (see the **frame-relay multicast-dlci** command for more information about multicasts). This keyword also simplifies the configuration of OSPF (see the "Usage Guidelines" section for this command in the *Router Products CommandReference* publication).
ietf	(Optional) IETF form of Frame Relay encapsulation. Use when the router is connected to another vendor's equipment across a Frame Relay network.
cisco	(Optional) Cisco encapsulation method.

frame-relay map bridge *dlci* [**broadcast**]
no frame-relay map bridge *dlci*

Use the **frame-relay map bridge** interface configuration command to specify that broadcasts should be forwarded when bridging. Use the **no** form of this command to delete the map entry.

dlci	DLCI number to be used for bridging on the specified interface or subinterface.
broadcast	(Optional) Broadcasts should be forwarded to this address when multicast is not enabled.

frame-relay map clns *dlci* [**broadcast**]
no frame-relay map clns *dlci*

Use the **frame-relay map clns** interface configuration command to specify that broadcasts should be forwarded when routing using ISO CLNS. Use the **no** form of this command to delete the map entry.

dlci	DLCI number to which CLNS broadcasts should be forwarded on the specified interface.
broadcast	(Optional) Broadcasts should be forwarded when multicast is not enabled.

frame-relay map ip *ip-address dlci* [**broadcast**] [**cisco** | **ietf**]
[**nocompress**] **tcp header-compression** {**active** | **passive**}
no frame-relay map ip *ip-address dlci*

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. To remove the IP map, use the **no** form of this command. To disable TCP/IP header compression on the IP map, use the **nocompress** form of this command.

ip-address	IP address.
dlci	DLCI number.

broadcast	(Optional) Forwards broadcasts to the specified IP address.
cisco	(Optional) Uses Cisco's proprietary encapsulation. This is the default.
ietf	(Optional) Uses RFC 1294 encapsulation. No TCP/IP header compression is done if IETF encapsulation is chosen for the IP map or the associated interface.
nocompress	(Optional) Disables TCP/IP header compression for this map.
active	Compresses the header of every outgoing TCP/IP packet.
passive	Compresses the header of an outgoing TCP/IP packet only if an incoming TCP/IP packet had a compressed header.

frame-relay multicast-dlci *number*
no frame-relay multicast-dlci

Use the **frame-relay multicast-dlci** interface configuration command to define the DLCI to be used for multicasts. Use the **no** form of this command to remove the multicast group.

Note The **frame-relay multicast-dlci** command is provided mainly to allow testing of the Frame Relay encapsulation in a setting where two servers are connected back to back. This command is not required in a live Frame Relay network.

number	Multicast DLCI. (Note that this is *not* the multicast group number, which is an entirely different value.)

[**no**] **frame-relay route** *in-dlci out-interface out-dlci*

Use the **frame-relay route** interface configuration command to specify the static route for PVC switching. Use the **no** form of this command to remove a static route.

in-dlci	DLCI on which the packet is received on the interface.
out-interface	Interface the router uses to transmit the packet.
out-dlci	DLCI the router uses to transmit the packet over the specified *out-interface*.

[**no**] **frame-relay short-status**

To instruct the network server to request the short status message from the switch (see Version 2.3 of the joint *Frame Relay Interface* specification), use the **frame-relay short-status** interface configuration command. Use the **no** form of this command to override the default

[**no**] **frame-relay switching**

Use the **frame-relay switching** global configuration command to enable PVC switching on a Frame Relay DCE or an NNI. Use the **no** form of this command to disable switching.

show frame-relay ip tcp header-compression

To display statistics and TCP/IP header compression information for the interface, use the **show frame-relay ip tcp header-compression** EXEC command.

show frame-relay lmi [*type number*]

Use the **show frame-relay lmi** EXEC command to display statistics about the Local Management Interface (LMI).

type	(Optional) Interface type; serial only.
number	(Optional) Interface number.

show frame-relay map

To display the current map entries and information about the connections, use the **show frame-relay map** EXEC command.

show frame-relay pvc [*type number* [*dlci*]]

To display statistics about PVCs for Frame Relay interfaces, use the **show frame-relay pvc** EXEC command.

type	(Optional) Interface type.
number	(Optional) Interface number.
dlci	(Optional) One of the specific DLCI numbers used on the interface. Statistics for the specified PVC display when a DLCI is also specified.

show frame-relay route

Use the **show frame-relay route** EXEC command to display all configured Frame Relay routes, along with their status.

show frame-relay traffic

Use the **show frame-relay traffic** EXEC command to display the router's global Frame Relay statistics since the last reload.

show interfaces serial *number*

Use the **show interfaces serial** EXEC command to display information about a serial interface. When using the Frame Relay encapsulation, use the **show interfaces serial** command to display information about the multicast DLCI, the DLCI of the interface, and the LMI DLCI used for the Local Management Interface. The status information is taken from the LMI, when active.

number	Interface number.