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.

cisco	(Optional) Uses Cisco's own encapsulation, which is a four-byte header, with two bytes to identify the DLCI and two bytes to identify the packet type. This is the default.
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.

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 be held 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* | *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	Interface type.
number	Interface unit 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*]

Use the **frame-relay interface-dlci** interface configuration command to allow use of subinterfaces in the Frame Relay network. To remove this feature, use the **no** form of this command.

dlci   A DLCI number to be used on the specified subinterface.

option   (Optional) Broadcast or encapsulation keyword. See the options table for this command in the *Router Products Command Reference* publication.

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. The default is DTE.

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

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

> *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*

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

> *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*

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

    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*

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

    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*

Use the **frame-relay lmi-n393dce** interface configuration command to set the DCE and NNI monitored events count. Use the **no** form of this command to remove the current setting.

    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*

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

    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*

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

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

frame-relay lmi-type {**cisco** | **ansi** | **q933a**}

Use the **frame-relay lmi-type** interface configuration command to select the Local Management Interface (LMI) type. Use the **no** form of this command to return to the default LMI type.

> **cisco**   LMI type defined jointly by Cisco and three other companies. This is the default.
>
> **ansi**   Annex D defined by ANSI standard T1.617.
>
> **q933a**   International Telecommunication Union Telecommunication Standardization Sector (ITU-T, formerly called CCITT) Q.933 Annex A.

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

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

> *number*   Local (source) DLCI number to be used

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 protocols: **appletalk**, **decnet**, **ip**, **xns**, **ipx**, and **vines**.
protocol-address	Address for the protocol.
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).
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 to this address 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.

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 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 unit 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 unit number.

    dlci   (Optional) Specific DLCI number. 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