



CHAPTER 7

Frame Relay “FR”

This chapter describes the level of support that Cisco ANA provides for FR, as follows:

- [Technology Description, page 7-1](#)
- [Inventory and Information Model Objects \(IMOs\), page 7-1](#)
- [Network Topology, page 7-4](#)
- [Service Alarms, page 7-4](#)

Technology Description

Frame Relay

Frame Relay (FR) is a high performance variable length packets switching with statistical multiplexing Data Link (Layer 2) WAN protocol, which Although originally designed for use across Integrated Services Digital Network (ISDN) interface, today it is used over a variety of other network interfaces as well.

FR networks consist of FR switches interconnected by point-to-point FR links or Interfaces and are fundamentally connection-oriented, which means that a virtual channel (VC) must be set up across the FR network prior to any data transfer.

Inventory and Information Model Objects (IMOs)

This section includes the following tables:

- [Frame Relay Interface \(IFrameRelay/IFrTrunk\)](#)
- [Frame Relay Virtual Connection \(IFrVc\)](#)
- [Frame Relay Traffic Descriptor \(IFRTrafficDescriptor\)](#)
- [Frame Relay Logical Interface \(IFrameRelayLogicalPort/Trunk\)](#)
- [Frame Relay Trunk Virtual Connection \(IFrTrunkVc\)](#)

Frame Relay Interface

The following Data Link layer [Frame Relay Interface](#) object aggregates multiple [Frame Relay Virtual Connections](#), which it is bound to by its VC Table attributes. It is bound by its Containing Termination Points attribute to a Physical Layer Interface, and is primarily being accessed by Data Link layer [VC Multiplexer](#), bound by its Contained Connection Termination Points attribute. It is also being accessed by [Virtual Connection Switching Entity](#).

Table 7-1 *Frame Relay Interface (IFrameRelay/IFrTrunk)*

Attribute Name	Attribute Description
Address Format	Frame relay address format (<i>Unknown, q921, q922March90, q922November90, q922</i>)
Maximum Supported VCs	Maximum supported virtual connections
Protocol Type	Frame relay protocol type (<i>Unknown, Frame Relay, FR FUNI, Frame Forward</i>)
VC Table	Array of Frame Relay Virtual Connections
Cross Connect Table	Array of Virtual Cross Connections
IANA Type	IANA type of the sub/layer
Containing Termination Points	Underlying termination points (connection or physical)
Contained Connection Termination Points	Bound Connection Termination Points

Frame Relay Virtual Connection

The following Data Link layer [Frame Relay Virtual Connection](#) object, is bound by its Containing Termination Points attribute to a Data Link layer [Frame Relay Interface](#) object, and is primarily accessed by the [Virtual Cross Connection](#) and Data Link layer [VC Encapsulation](#), however it is not bound to any of them by any of its attributes.

Table 7-2 *Frame Relay Virtual Connection (IFrVc)*

Attribute Name	Attribute Description
Data Link Connection Identifier	Data Link Connection Identifier (DLCI)
Traffic Descriptor	Traffic descriptor (Frame Relay Traffic Descriptor)
Discarded and Received Input Data Counters	Discarded and received input octets and packets counters
Dropped and Forward Output Data Counters	Dropped and forward output octets and packets counters
Ingress Traffic Descriptor	Ingress traffic descriptor (Frame Relay Traffic Descriptor)
Egress Traffic Descriptor	Egress traffic descriptor (Frame Relay Traffic Descriptor)
Administrative Status	Administrative status (<i>Unknown, Up, Down</i>)
Operational Status	Operational status (<i>Unknown, Up, Down</i>)
IANA Type	IANA type of the sub/layer

Table 7-2 **Frame Relay Virtual Connection (IFrVc) (continued)**

Attribute Name	Attribute Description
Containing Termination Points	Underlying termination points (connection or physical)
Contained Connection Termination Points	Bound Connection Termination Points

Frame Relay Traffic Descriptor

The following [Frame Relay Traffic Descriptor](#) object describes the traffic of a single [Frame Relay Virtual Connection](#) is being aggregated by a [Traffic Descriptor Container](#) object (see [Common \(Shared by Several\)](#)).

Table 7-3 **Frame Relay Traffic Descriptor (IFRTrafficDescriptor)**

Attribute Name	Attribute Description
Committed Rate	Committed burst rate
Excess Burst Rate	Excess burst rate
Name	Traffic descriptor name
Index	Traffic descriptor index

Frame Relay Logical Interface

The following Data Link layer [Frame Relay Logical Interface](#) object aggregates multiple [Frame Relay Virtual Connections](#), which it is bound to by its VC Table attributes. It is bound by its Containing Termination Points attribute to a Physical Layer Interface, and is primarily accessed by the [Virtual Connection Switching Entity](#) and Data Link layer [VC Encapsulation](#) bound by its Contained Connection Termination Points attribute.

Table 7-4 **Frame Relay Logical Interface (IFrameRelayLogicalPort/Trunk)**

Attribute Name	Attribute Description
Administrative Status	Administrative status (<i>Null, Up, Down, Testing</i>)
Operational Status	Operational status (<i>Null, Up, Down, Testing, Unknown, Dormant, Not Present</i>)
Same as Frame Relay Interface (<i>IFrameRelay/IFrTrunk</i>)	

Frame Relay Trunk Virtual Connection

The following Data Link layer [Frame Relay Trunk Virtual Connection](#) object, is bound by its Containing Termination Points attribute to a [Frame Relay Interface](#) object, and is primarily accessed by the [Virtual Cross Connection](#) and Data Link layer [VC Encapsulation](#), however it is not bound to any of them by any of its attributes.

Table 7-5 *Frame Relay Trunk Virtual Connection (IFrTrunkVc)*

Attribute Name	Attribute Description
Destination Description	Destination party description
Same as Frame Relay Virtual Connection (IFrVc)	

Network Topology

The discovery of Frame Relay (FR) Data Link layer topology is unsupported and is manually (statically) configured by the system administrator.

Service Alarms

The following alarms are supported for this technology:

- Cloud Problem
- Discard Input Packets/Normal Discard Input Packets
- Dropped Output Packets/Normal Dropped Output Packets
- Link Down/Link Up
- Port Down/Port Up
- Receive Utilization/Receive Utilization Normal
- Transmit Utilization/Transmit Utilization Normal

**Note**

Note that these alarms, apart from the Cloud Problem, are related to the underlying Physical Interface (Common section).

**Note**

For a detailed description of these alarms and for information about correlation see the *Cisco Active Network Abstraction Fault Management User Guide, 3.6*.