Frame Relay 64-Bit Counters

Feature History

Release	Modification
12.0(17)S	This feature was introduced on the Cisco 12000 series.
12.2(4)T	This feature was integrated into Cisco IOS Release 12.2(4)T.
12.2(4)T3	Support for the Cisco 7500 series routers was added.
12.0(21)S	The **frame-relay ifmib-counter64** command was introduced.
12.3(10)	The **frame-relay ifmib-counter64** command was integrated into Cisco IOS Release 12.3(10).
12.3(11)T	The **frame-relay ifmib-counter64** command was integrated into Cisco IOS Release 12.3(11)T.
12.2(18)SXE	The **frame-relay ifmib-counter64** command was integrated into Cisco IOS Release 12.2(18)SXE.

This document describes the Frame Relay 64-Bit Counters feature in Cisco IOS Release 12.2(4)T. It includes the following sections:

Feature Overview

The Frame Relay 64-Bit Counters feature provides 64-bit counter support on Frame Relay interfaces and subinterfaces. This feature enables the gathering of statistics through Simple Network Management Protocol (SNMP) for faster interfaces operating at OC-3, OC-12, and OC-48 speeds.

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The following counters are supported by this feature: Bytes In, Bytes Out, Packets In, and Packets Out.

The **show frame-relay pvc** command has been modified to display the 64-bit counters.

Benefits

The values in 32-bit counters sometime wrap because the field is too small. Wrapping causes the values in these fields to become meaningless. The 64-bit counters support the reliable gathering of statistics by SNMP by preventing the wrapping of counter values.

Restrictions

SNMP cannot retrieve 64-bit virtual-circuit (VC) counters.

Related Documents

For information on configuring Frame Relay using Cisco IOS software, refer to the following documents:

- The chapter "*Configuring Frame Relay*" in the *Cisco IOS Wide-Area Networking Configuration Guide*, Release 12.2
- The chapter "*Frame Relay Commands*" in the *Cisco IOS Wide-Area Networking Command Reference*, Release 12.2

For information on configuring SNMP using Cisco IOS software, see the following documents:

- The chapter "*Configuring Simple Network Management Protocol*" in the *Cisco IOS Configuration Fundamentals Configuration Guide*, Release 12.2
- The chapter "*SNMP Commands*" in the *Cisco IOS Configuration Fundamentals Command Reference*, Release 12.2

Supported Platforms

- Cisco 7200 series
- Cisco 7500 series (Cisco IOS Release 12.2(4)T3 and later)

Platform Support Through Feature Navigator

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

Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image.

To access 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 at http://www.cisco.com/register.

Feature Navigator is updated when major Cisco IOS software releases and technology releases occur. As of May 2001, Feature Navigator supports M, T, E, S, and ST releases. You can access Feature Navigator at the following URL:

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

Supported Standards and MIBs and RFCs

Standards

No new or modified standards are supported by this feature.

MIBs

The **frame-relay ifmib-counter64** command modifies the interface MIB (IF-MIB) by allowing slower Frame Relay interfaces and subinterfaces to be included in the 64-bit interface MIB counters.

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

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

RFCs

No new or modified RFCs are supported by this feature.

Prerequisites

This document assumes that you know how to configure Frame Relay and SNMP support using Cisco IOS software.

Configuration Tasks

- Enabling Frame Relay Interfaces for 64-Bit Interface MIB Counters

Enabling Frame Relay Interfaces for 64-Bit Interface MIB Counters

Note This task is supported in Cisco IOS releases 12.0(21)S, 12.3(10), 12.3(11)T, 12.2(18)SXE, and later releases.

Frame Relay interfaces and subinterfaces that have a line speed greater than 20 Mbps are included in the 64-bit interface MIB counters by default. Perform this task to enable Frame Relay interfaces and subinterfaces that have a line speed of less than 20 Mbps to be included in the 64-bit interface MIB counters.

	Command	Purpose
Step 1	`Router> `**`enable`**	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	`Router# `**`configure terminal`**	Enters global configuration mode.
Step 3	`Router(config)# `**`interface serial`** `interface-number`	Specifies an interface to be configured and enters interface configuration mode.
Step 4	`Router(config-if)#` **`encapsulation frame-relay`**	Enables Frame Relay encapsulation.

Step 5	`Router(config-if)#` **`frame-relay ifmib-counter64`** [**`if`** | **`subif`**]	Enables Frame Relay interfaces and subinterfaces that have a line speed of less than 20 Mbps to be included in 64-bit interface MIB counters.
		
		 • This command allows Frame Relay interfaces and subinterfaces that have a line speed of less than 20 Mbps to be included in the following 64-bit interface MIB counters:
		  – ifHCinOctets
		  – ifHCOutOctets
		  – ifHCinUcastPkts
		  – ifHCOutUcastPkts

Monitoring and Maintaining Frame Relay 64-Bit Counters

To view the values of the Frame Relay 64-bit counters, use the following command in EXEC mode:

Command	Purpose
`Router# `**`show frame-relay pvc 64-bit`** [**`interface`** `interface`] [`dlci`]	Displays statistics about permanent virtual circuits (PVCs) for Frame Relay interfaces.

Configuration Examples

- Enabling Slower Frame Relay Interfaces and Subinterfaces for 64-Bit Interface MIB Counters: Example
- Enabling Only Slower Frame Relay Subinterfaces for 64-Bit Interface MIB Counters: Example

Enabling Slower Frame Relay Interfaces and Subinterfaces for 64-Bit Interface MIB Counters: Example

In the following example, the **frame-relay ifmib-counter64** command is used with the **if** keyword to enable serial interfaces 6/0/1:0, 6/0/2:0, and 6/0/3:0 and related subinterfaces to be included in the 64-bit interface MIB counters. The example also shows corresponding output for the **show frame-relay pvc** command and the corresponding statistics for the 64-bit interface MIB counters.

```
interface Serial6/0/1:0
 ip address 1.1.1.1 255.255.255.0
 encapsulation frame-relay
 no ip route-cache cef
 no ip route-cache
 frame-relay interface-dlci 101
 no frame-relay inverse-arp
 frame-relay ifmib-counter64 if

interface Serial6/0/2:0
 no ip address
 encapsulation frame-relay
 no ip route-cache cef
 no ip route-cache
 no frame-relay inverse-arp
 frame-relay ifmib-counter64 if
!
interface Serial6/0/2:0.1 point-to-point
 ip address 2.1.1.1 255.255.255.0
 no ip route-cache
 frame-relay interface-dlci 201
!
interface Serial6/0/3:0
 ip address 3.1.1.1 255.255.255.0
 encapsulation frame-relay
 frame-relay interface-dlci 301
 no frame-relay inverse-arp
 frame-relay ifmib-counter64 if

interface Serial6/0/3:0.1 point-to-point
 ip address 3.1.2.1 255.255.255.0
 frame-relay interface-dlci 302
```

The following example shows corresponding sample output for the **show frame-relay pvc** command with the **64-bit** keyword. Note that the **frame-relay ifmib-counter64** command does not affect the output of the **show frame-relay pvc** command.

```
Router# show frame-relay pvc 101 64-bit

DLCI = 101, INTERFACE = Serial6/0/1:0
  input pkts 231                     output pkts 228
  in bytes 23604                     out bytes 23502
Router#
Router# show frame-relay pvc 201 64-bit

DLCI = 201, INTERFACE = Serial6/0/2:0.1
  input pkts 1453                    output pkts 1408
  in bytes 335024                    out bytes 327272
Router#
Router# show frame-relay pvc 301 64-bit

DLCI = 301, INTERFACE = Serial6/0/3:0
  input pkts 510                     output pkts 508
  in bytes 52690                     out bytes 52622
Router#
Router# show frame-relay pvc 302 64-bit

DLCI = 302, INTERFACE = Serial6/0/3:0.1
  input pkts 957                     output pkts 912
  in bytes 283246                    out bytes 275493
Router#
```

The following output from an SNMP inquiry shows that the 64-bit interface MIB counters include the interfaces configured above:

```
ifHCInOctets.5 = 0x000000000
ifHCInOctets.16 = 0x000000000
ifHCInOctets.17 = 0x003360d33
ifHCInOctets.18 = 0x000000000
ifHCInOctets.19 = 0x000000000
ifHCInOctets.20 = 0x000000000
ifHCInOctets.24 = 0x000000000
ifHCInOctets.25 = 0x000000000
ifHCInOctets.26 = 0x0001a7afc !! This is serial interface 6/0/1:0
ifHCInOctets.28 = 0x0001a7370 !! This is serial interface 6/0/2:0
ifHCInOctets.34 = 0x00006a45a !! This is serial interface 6/0/3:0
ifHCInOctets.36 = 0x000051cb0 !! This is serial subinterface 6/0/2:0.1
ifHCInOctets.37 = 0x00004526e !! This is serial subinterface 6/0/3:0.1
```

Enabling Only Slower Frame Relay Subinterfaces for 64-Bit Interface MIB Counters: Example

In the following example, the **frame-relay ifmib-counter64** command is used with the **subif** keyword to enable subinterfaces that are associated with serial interfaces 6/0/1:0, 6/0/2:0, and 6/0/3:0 to be included in the 64-bit interface MIB counters. Slower main interfaces are not included. The example also shows the corresponding statistics for the 64-bit interface MIB counters.

```
interface Serial6/0/1:0
 ip address 1.1.1.1 255.255.255.0
 encapsulation frame-relay
 no ip route-cache cef
 no ip route-cache
 frame-relay interface-dlci 101
 no frame-relay inverse-arp
 frame-relay ifmib-counter64 subif

interface Serial6/0/2:0
 no ip address
 encapsulation frame-relay
 no ip route-cache cef
 no ip route-cache
 no frame-relay inverse-arp
 frame-relay ifmib-counter64 subif

interface Serial6/0/2:0.1 point-to-point
 ip address 2.1.1.1 255.255.255.0
 no ip route-cache
 frame-relay interface-dlci 201
!
interface Serial6/0/3:0
 ip address 3.1.1.1 255.255.255.0
 encapsulation frame-relay
 frame-relay interface-dlci 301
 no frame-relay inverse-arp
 frame-relay ifmib-counter64 subif

interface Serial6/0/3:0.1 point-to-point
 ip address 3.1.2.1 255.255.255.0
 frame-relay interface-dlci 302
```

The following example shows corresponding sample output for the **show frame-relay pvc** command with the **64-bit** keyword. Note that the **frame-relay ifmib-counter64** command does not affect the output of the **show frame-relay pvc** command.

```
Router# show frame-relay pvc 101 64-bit

DLCI = 101, INTERFACE = Serial6/0/1:0
  input pkts 231                    output pkts 228
  in bytes 23604                    out bytes 23502
Router#
Router# show frame-relay pvc 201 64-bit

DLCI = 201, INTERFACE = Serial6/0/2:0.1
  input pkts 1453                   output pkts 1408
  in bytes 335024                   out bytes 327272
Router#
Router# show frame-relay pvc 301 64-bit

DLCI = 301, INTERFACE = Serial6/0/3:0
  input pkts 510                    output pkts 508
  in bytes 52690                    out bytes 52622
Router#
Router# show frame-relay pvc 302 64-bit

DLCI = 302, INTERFACE = Serial6/0/3:0.1
  input pkts 957                    output pkts 912
  in bytes 283246                   out bytes 275493
```

The following output from an SNMP inquiry shows that the 64-bit interface MIB counters include the subinterfaces configured above:

```
ifHCInOctets.5 = 0x000000000
ifHCInOctets.16 = 0x000000000
ifHCInOctets.17 = 0x00337a158
ifHCInOctets.18 = 0x000000000
ifHCInOctets.19 = 0x000000000
ifHCInOctets.20 = 0x000000000
ifHCInOctets.24 = 0x000000000
ifHCInOctets.25 = 0x000000000
ifHCInOctets.36 = 0x000051cb0 !! This is serial subinterface 6/0/2:0.1
ifHCInOctets.37 = 0x00004526e !! This is serial subinterface 6/0/3:0.1
```