

MAC Address Accounting and Precedence Accounting

Feature Summary

The MAC address accounting feature provides accounting information for IP traffic based on the source and destination MAC addresses on LAN interfaces. This feature calculates the total packet and byte counts for a LAN interface that receives or sends IP packets to or from a unique MAC address. It also records a timestamp for the last packet received or sent. For example, with this feature you can determine how much traffic is being sent to and/or received from various peers at NAPS/peering points. This feature is currently supported on Ethernet, FastEthernet, and FDDI interfaces and supports Cisco Express Forwarding (CEF), distributed CEF (dCEF), flow, and optimum switching.

The precedence accounting feature provides accounting information for IP traffic based on the precedence on any interface. This feature calculates the total packet and byte counts for an interface that receives or sends IP packets and sorts the results based on IP precedence. This feature is supported on the main interface and supports CEF, dCEF, flow, and optimum switching.

Document Conventions

Command descriptions use these conventions:

- **Boldface** indicates commands and keywords that are entered literally as shown.
- *Italics* indicate arguments for which you supply values; in contexts that do not allow italics, arguments are enclosed in angle brackets (>).
- Square brackets ([]) indicate optional elements.
- Braces ({ }) group required choices, and vertical bars (|) separate alternative elements.
- Braces and vertical bars within square brackets ({ | }) indicate a required choice within an optional element.

Platforms

This feature is supported on these platforms:

- Cisco 7200 series
- Cisco 7500 series
- Cisco 7000 series routers with the RSP7000 and RSP7000CI

Supported MIBs and RFCs

This feature supports the Cisco IP Statistics MIB (CISCO-IP-STAT-MIB.my). For descriptions of supported MIBs and how to use MIBs, see Cisco's MIB website on CCO at the following URL:

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

No RFCs are supported by this feature.

Configuration Tasks

The following sections describe how to configure IP accounting on an interface based on the MAC address and based on IP precedence.

Configure IP MAC Accounting on an Interface

This section assumes you have already configured the interface and are adding the IP accounting feature.

To configure the interface for IP accounting based on the MAC address, perform the following steps beginning in global configuration mode:

Task	Command
Step 1 Specify the main interface and enter interface configuration mode.	interface <i>type number</i>
Step 2 Configure IP accounting based on the MAC address of received (input) or transmitted (output) packets.	ip accounting mac-address {input output}
Step 3 Exit configuration mode.	end
Step 4 Verify the configuration.	show running-config

To remove IP accounting based on the MAC address from the interface, use the **no ip accounting mac-address** command.

Configure IP Precedence Accounting on an Interface

This section assumes you have already configured the interface and are adding the IP accounting feature.

To configure the interface for IP accounting based on IP precedence, perform the following steps beginning in global configuration mode:

Task	Command
Step 1 Specify the main interface and enter interface configuration mode.	interface <i>type number</i>
Step 2 Configure IP accounting based on the precedence of received (input) or transmitted (output) packets.	ip accounting precedence {input output}
Step 3 Exit configuration mode.	end
Step 4 Verify the configuration.	show running-config

To remove IP accounting based on IP precedence from the interface, use the **no ip accounting precedence** command.

Configuration Examples

The following example enables IP accounting based on the source and destination MAC address and based on IP precedence for received and transmitted packets.

```
router# configure terminal
router(config)# interface ethernet 4/0/0
router(config-if)# ip accounting mac-address input
router(config-if)# ip accounting mac-address output
router(config-if)# ip accounting precedence input
router(config-if)# ip accounting precedence output
router(config-if)# end
router#
```

Command Reference

This section documents new or modified commands. All other commands used with this feature are documented in the Cisco IOS Release 11.1 command references.

- **ip accounting mac-address**
- **ip accounting precedence**
- **show interfaces mac**
- **show interface precedence**

ip accounting mac-address

To enable IP accounting on a LAN interface based on the source and destination MAC address, use the **ip accounting mac-address** interface configuration command. To disable IP accounting based on the source and destination MAC address, use the **no** form of this command.

```
ip accounting mac-address {input | output}  
no ip accounting mac-address {input | output}
```

Syntax Description

input	Perform accounting based on the source MAC address on received packets.
output	Perform accounting based on the destination MAC address on transmitted packets.

Default

Disabled

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1 CC.

This feature is supported on Ethernet, FastEthernet, and FDDI interfaces.

To display the MAC accounting information, use the **show interface mac EXEC** command.

The MAC address accounting feature provides accounting information for IP traffic based on the source and destination MAC address on LAN interfaces. This feature calculates the total packet and byte counts for a LAN interface that receives or sends IP packets to or from a unique MAC address. It also records a timestamp for the last packet received or sent. With this feature you can determine how much traffic is being sent to and/or received from various peers at NAPS/peering points.

Examples

The following example enables IP accounting based on the source and destination MAC address for received and transmitted packets:

```
router# configure terminal  
router(config)# interface ethernet 4/0/0  
router(config-if)# ip accounting mac-address input  
router(config-if)# ip accounting mac-address output  
router(config-if)# end  
router#
```

Related Commands

show interfaces mac

ip accounting precedence

To enable IP accounting on any interface based on IP precedence, use the **ip accounting precedence** interface configuration command. To disable IP accounting based on IP precedence, use the **no** form of this command.

```
ip accounting precedence {input | output}  
no ip accounting precedence {input | output}
```

Syntax Description

input	Perform accounting based on IP precedence on received packets.
output	Perform accounting based on IP precedence on transmitted packets.

Default

Disabled

Command Mode

Interface configuration

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1 CC.

To display IP precedence accounting information, use the **show interface precedence EXEC** command.

The precedence accounting feature provides accounting information for IP traffic, summarized by IP precedence value(s). This feature calculates the total packet and byte counts for an interface that receives or sends IP packets and sorts the results based on IP precedence. This feature is supported on main interfaces and supports CEF, dCEF, flow, and optimum switching.

Examples

The following example enables IP accounting based on IP precedence for received and transmitted packets:

```
router# configure terminal  
router(config)# interface ethernet 4/0/0  
router(config-if)# ip accounting precedence input  
router(config-if)# ip accounting precedence output  
router(config-if)# end  
router#
```

Related Commands

show interface precedence

show interfaces mac

To display MAC accounting information for interfaces configured for MAC accounting, use the **show interfaces mac** EXEC command.

show interface [*type number*] **mac**

Syntax Description

<i>type</i>	Interface type (for example, Ethernet, FastEthernet) supported on your router.
<i>number</i>	Port number of the interface. The syntax varies depending on the type of router. For example, on a Cisco 7500 series router the syntax is 0/0/0, where 0 represents the slot, port adapter, and port number (the slash is required). Refer to the appropriate hardware manual for numbering information.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1 CC.

The **show interface mac** command displays information for all interfaces configured for MAC accounting. To display information for a single interface, use the **show interface type number mac** command.

For incoming packets on the interface, the accounting statistics are gathered before the CAR/DCAR feature is performed on the packet. For outgoing packets on the interface, the accounting statistics are gathered after output CAR, before output DCAR or DWRED or DWFQ feature is performed on the packet. Therefore, if you are using DCAR or DWRED on the interface and packets are dropped, the dropped packets are still counted in the **show interface mac** command because the calculations are done prior to the features.

The maximum number of MAC addresses that can be stored for the input address is 512 and the maximum number of MAC address that can be stored for the output address is 512. After the maximum is reached, subsequent MAC addresses are ignored.

To clear the accounting statistics, use the **clear counter** EXEC command.

To configure an interface for IP accounting based on the MAC address, use the **ip accounting mac-address** interface configuration command.

Sample Display

The following is sample output from the **show interface mac** command. This feature calculates the total packet and byte counts for the interface that receives (input) or sends (output) IP packets to or from a unique MAC address. It also records a timestamp for the last packet received or sent.

```
Router# show interface ethernet 0/1/1 mac
Ethernet0/1/1
  Input (511 free)
    0007.f618.4449(228): 4 packets, 456 bytes, last: 2684ms ago
                    Total: 4 packets, 456 bytes
  Output (511 free)
    0007.f618.4449(228): 4 packets, 456 bytes, last: 2692ms ago
                    Total: 4 packets, 456 bytes
```

Related Commands

ip accounting mac-address

show interface precedence

To display precedence accounting information for an interface configured for precedence accounting, use the **show interfaces precedence** EXEC command.

show interface *type number* **precedence**

Syntax Description

<i>type</i>	Interface type (for example, ethernet, fastethernet) supported on your router.
<i>number</i>	Port number of the interface. The syntax varies depending on the type of router. For example, on a Cisco 7500 series router the syntax is 0/0/0, where 0 represents the slot, port adapter, and port number (the slash is required). Refer to the appropriate hardware manual for numbering information.

Command Mode

EXEC

Usage Guidelines

This command first appeared in Cisco IOS Release 11.1 CC.

The **show interface precedence** command displays information for all interfaces configured for IP precedence accounting. To display information for a single interface, use the **show interface type number precedence** command.

For incoming packets on the interface, the accounting statistics are gathered before input CAR/DCAR is performed on the packet. Therefore, if CAR/DCAR changes the precedence on the packet, it is counted based on the old precedence setting with the **show interface precedence** command.

For outgoing packets on the interface, the accounting statistics are gathered after output DCAR or DWRED or DWFQ feature is performed on the packet.

To clear the accounting statistics, use the **clear counter** EXEC command.

To configure an interface for IP accounting based on IP precedence, use the **ip accounting precedence** interface configuration command.

Sample Display

The following is sample output from the **show interface precedence** command. This feature calculates the total packet and byte counts for an interface that receives (input) or sends (output) IP packets and sorts the results based on IP precedence.

```
Router# show interface ethernet 0/1/1 precedence
Ethernet0/1/1
  Input
    Precedence 0:  4 packets, 456 bytes
  Output
    Precedence 0:  4 packets, 456 bytes
```

Related Commands

ip accounting precedence