Traffic Mirroring Commands on the Cisco IOS XR Software

This module describes the commands used to configure and monitor traffic mirroring.

- acl, page 2
- clear monitor-session counters, page 4
- destination next-hop, page 6
- mirror first, page 7
- mirror interval, page 8
- monitor-session, page 9
- monitor-session (interface), page 11
- show monitor-session status, page 13
- show monitor-session counters, page 15
To configure ACL-based traffic mirroring, use the `acl` command in monitor session configuration mode. To stop ACL-based traffic mirroring, use the `no` form of this command.

**Syntax Description**

This command has no keywords or arguments.

**Command Default**

No default behavior or values

**Command Modes**

Monitor session configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release 4.3.0</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

If you use the `acl` command, traffic is mirrored according to the definition of the global interface access list (ACL) defined in one of the following commands: `ipv4 access-list`, `ipv6 access-list`, `ethernet-services access-list`.

Even when the `acl` command is configured on the source mirroring port, if the ACL configuration command does not use the `capture` keyword, no traffic gets mirrored.

If the ACL configuration uses the `capture` keyword, but the `acl` command is not configured on the source port, although traffic is mirrored, no access list configuration is applied.

**Examples**

This example shows how to configure ACL-based traffic mirroring on the interface:

```
RP/0/RP0/CPU0:router(config)# monitor-session tm_example
RP/0/RP0/CPU0:router(config)# ethernet-services access-list tm_filter
RP/0/RP0/CPU0:router(config-es-acl)# 10 deny 0000.1234.5678 0000.abcd.abcd any capture
RP/0/RP0/CPU0:router(config-es-acl)# exit
RP/0/RP0/CPU0:router(config)# interface GigabitEthernet0/2/0/0
RP/0/RP0/CPU0:router(config-if)# monitor-session tm_example direction rx-only
RP/0/RP0/CPU0:router(config-if)# acl
RP/0/RP0/CPU0:router(config-if)# l2transport
RP/0/RP0/CPU0:router(config-if)# exit
RP/0/RP0/CPU0:router(config-if)# ethernet-services access-group tm_filter ingress
RP/0/RP0/CPU0:router(config-if)# end
```
<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethernet-services access-list</td>
<td>Defines an Ethernet services (Layer 2) access list by name.</td>
</tr>
<tr>
<td>ipv4 access-list</td>
<td>Defines an IPv4 access list by name.</td>
</tr>
<tr>
<td>ipv6 access-list</td>
<td>Defines an IPv6 access list by name.</td>
</tr>
</tbody>
</table>
clear monitor-session counters

To clear the traffic mirroring session statistics, use the `clear monitor-session counters` command in EXEC mode.

`clear monitor-session counters [ session-name ][ipv4|ipv6]`

**Syntax Description**

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>interface</code></td>
<td>Identifies the interface for which the counters are to be cleared.</td>
</tr>
<tr>
<td><code>type</code></td>
<td>Interface type. For more information, use the question mark (?) online help function.</td>
</tr>
<tr>
<td><code>interface-path-id</code></td>
<td>Physical interface or virtual interface.</td>
</tr>
<tr>
<td><code>session-name</code></td>
<td>Name of the monitor session to clear.</td>
</tr>
<tr>
<td><code>ipv4</code></td>
<td>Specifies an ipv4 address.</td>
</tr>
<tr>
<td><code>ipv6</code></td>
<td>Specifies an ipv6 address.</td>
</tr>
</tbody>
</table>

**Command Default**

All stored statistics for all interfaces are cleared.

**Command Modes**

EXEC

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release 4.3.0</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

**Task ID**

<table>
<thead>
<tr>
<th>Task ID</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>interface</td>
<td>read</td>
</tr>
</tbody>
</table>
Examples

This example shows how to clear the traffic mirroring statistic counters:

RP/0/RP0/CPU0:router clear monitor-session mon1 ipv6 counters
To configure the destination address for the monitor-session, use the `destination next-hop` command in the monitor session configuration mode.

```
destination next-hop ip address
```

**Syntax Description**

- `ip address`: Specifies a valid IPv4 or IPv6 address and configures the destination for the current monitor-session to be a next-hop IP address (whose type matches that of the monitor-session).

**Command Default**

No default behavior or values

**Command Modes**

Monitor session configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release 4.3.0</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

This may only be specified for ipv4 and ipv6 monitor-sessions. A monitor session can be either for IPv4 or for IPv6. It cannot support both together.

**Task ID**

<table>
<thead>
<tr>
<th>Task ID</th>
<th>Operation</th>
</tr>
</thead>
<tbody>
<tr>
<td>ethernet-services</td>
<td>read, write</td>
</tr>
</tbody>
</table>

**Examples**

This example shows how to execute the `destination next-hop` command:

```
RP/0/RP0/CPU0:router(config) # configure
RP/0/RP0/CPU0:router(config)# destination next-hop ipv4 254.23.24.5
```
mirror first

To configure partial traffic mirroring, use the `mirror first` command in monitor session configuration mode. To stop mirroring a portion of the packet, use the `no` form of this command.

`mirror first bytes`

**Syntax Description**

<table>
<thead>
<tr>
<th>Argument</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>bytes</code></td>
<td>Number of bytes mirrored. The mirrored packet length value can range from 65 to 128.</td>
</tr>
</tbody>
</table>

**Command Default**

The entire packet is mirrored.

**Command Modes**

Monitor session configuration

**Command History**

<table>
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<tr>
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</thead>
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<tr>
<td>Release 4.3.0</td>
<td>This command was introduced.</td>
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</tbody>
</table>

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Use the `mirror first` command to mirror the first 64 to 128 bytes of the packet. The actual mirrored packet is the configured partial packet monitoring size plus the 4-byte trailing CRC.

**Examples**

This example shows how to mirror the first 100 bytes of the packet:

```
RP/0/RP0/CPU0:router(config)# interface gigabitethernet0/0/0/11
RP/0/RP0/CPU0:router(config-if)# monitor-session mon1
RP/0/RP0/CPU0:router(config-if-mon)# mirror first 100
```

**Related Commands**

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>monitor-session, on page 9</td>
<td>Defines a traffic mirroring session and enter monitor session configuration mode.</td>
</tr>
</tbody>
</table>
mirror interval

To configure mirror interval for a specified number of packets in traffic mirroring, use the `mirror interval` command in monitor session configuration mode. To stop mirroring the packet in the interval, use the `no` form of this command.

`mirror interval {512| 1k| 2k| 4k| 8k| 16k}`

Syntax Description

- `interval` Number of packets per mirror interval. The interval can be configured for every 512, 1k, 2k, 4k, 8k, or 16k packets.

Note

- port-level mirroring is only supported in the ingress direction.
- port-level mirroring is only supported in sampling mode with a minimal sampling rate of 1:512

Command Default

The mirror interval is set as per the specified packet count.

Command Modes

Monitor session configuration

Command History

<table>
<thead>
<tr>
<th>Release</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Release 4.3.0</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Examples

This example shows how to set the mirror interval for every 512 packets:

```
RP/0/RP0/CPU0:router(config)# interface gigabitethernet0/0/11
RP/0/RP0/CPU0:router(config-if)# monitor-session mon1
RP/0/RP0/CPU0:router(config-if-mon)# mirror first 100
RP/0/RP0/CPU0:router(config-if-mon)# mirror interval 512
```

Related Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>monitor-session, on page 9</td>
<td>Defines a traffic mirroring session and enter monitor session configuration mode.</td>
</tr>
</tbody>
</table>
**monitor-session**

To define a traffic mirroring session and enter monitor session configuration mode, use the `monitor-session` command in global configuration mode. To remove the traffic mirroring session, use the `no` form of this command.

```
monitor-session session-name[ethernet|ipv4|ipv6] destination(interface <Interface> slot/port)
no monitor-session session-name
```

**Syntax Description**

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>session-name</td>
<td>Name of the monitor session to configure.</td>
</tr>
<tr>
<td>ethernet</td>
<td>Specifies ethernet interface as destination.</td>
</tr>
<tr>
<td>ipv4</td>
<td>Specifies an ipv4 address as destination.</td>
</tr>
<tr>
<td>ipv6</td>
<td>Specifies an ipv6 address as destination.</td>
</tr>
<tr>
<td>destination</td>
<td>Configures the destination port. A destination port can be a ethernet physical port, EFP, pseudowire, but not a bundle interface. The pseudowire carries only mirrored traffic, this traffic is generally unidirectional.</td>
</tr>
<tr>
<td>interface&lt;Interface&gt;</td>
<td>Specifies the interface name from where the packets are sent. The interface can be a local interface, a pseudo-wire interface or a next-hop IP address.</td>
</tr>
</tbody>
</table>

**Command Default**

No default behavior or values

**Command Modes**

Global configuration

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release 4.3.0</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

**Usage Guidelines**

Before you can assign a monitor session to a specific interface, you must configure it using the `monitor-session` command. The `session-name` should not be the same as any interface name.

In monitor session configuration mode, you should define the destination interface to be used in the traffic mirroring session using the `destination` command.

This commands triggers entry in to the monitor-session sub-mode and creates the session. The session will be non-operable until a destination is configured for the session. The destination can be either IPv4 or IPv6.
Examples

This example shows how to enter monitor session configuration mode:

```
RP/0/RP0/CPU0:router(config)# monitor-session mon1
RP/0/RP0/CPU0:router(config-mon)#
```

Related Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>destination next-hop, on page 6</td>
<td>Configures the destination for the current monitor-session.</td>
</tr>
</tbody>
</table>
**monitor-session (interface)**

To associate a traffic mirroring session with a specific interface, use the `monitor-session` command in interface configuration mode. To remove the association between a traffic mirroring session and an interface, use the `no` form of this command.

```
monitor-session session-name [ethernet|ipv4|ipv6][direction {rx-only}] [port-level]
no monitor-session session-name [ethernet|ipv4|ipv6][direction {rx-only}] [port-level]
```

<table>
<thead>
<tr>
<th>Syntax Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>session-name</code></td>
<td>Name of the monitor session to configure.</td>
</tr>
<tr>
<td><code>direction</code></td>
<td>Specifies that traffic replication is in only one direction.</td>
</tr>
<tr>
<td><code>rx-only</code></td>
<td>Specifies that only ingress traffic is replicated.</td>
</tr>
<tr>
<td><code>ethernet</code></td>
<td>Specifies ethernet interface as destination.</td>
</tr>
<tr>
<td><code>ipv4</code></td>
<td>Indicates that IPv4 traffic needs to be monitored.</td>
</tr>
<tr>
<td><code>ipv6</code></td>
<td>Indicates that IPv6 traffic needs to be monitored.</td>
</tr>
<tr>
<td><code>port-level</code></td>
<td>Specifies the configuration at port level.</td>
</tr>
</tbody>
</table>

**Note**
- Port-level mirroring is only supported in the ingress direction.
- Port-level mirroring is only supported in sampling mode with a minimal sampling rate of 1:512.

**Command Default**
Replicates both ingress and egress traffic.

**Command Modes**
Interface configuration
Command History

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release 4.3.0</td>
<td>This command was introduced.</td>
</tr>
</tbody>
</table>

Usage Guidelines

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

Before you can associate a traffic mirroring session to a specific interface, you must define it using the `monitor-session` global configuration command. After the traffic mirroring session is defined, use the `monitor-session` interface configuration command to associate this session with a specific source interface. When the session is associated, all specified traffic on the interface is then replicated to the destination location defined in the monitor session configuration.

The `monitor-session` interface configuration command also enters monitor session configuration mode for you to configure additional features of the mirroring session.

If a physical interface is configured for Layer 3, then the traffic mirroring session can be associated on physical interfaces. Example:

```
interface TenGigE0/1/0/0
ipv4 address 10.0.0.1 255.255.255.0
```

If a physical interface has sub-interfaces configured for Layer 3, then the traffic mirroring session must be associated on each sub-interface. Example:

```
interface TenGigE0/1/0/1.601
ipv4 address 10.0.1.1 255.255.255.0
encapsulation dot1q 601
```

Task ID

<table>
<thead>
<tr>
<th>Task ID</th>
<th>Operations</th>
</tr>
</thead>
<tbody>
<tr>
<td>interface</td>
<td>read, write</td>
</tr>
</tbody>
</table>

Examples

This example shows a sample configuration of the `monitor-session` command in the interface configuration mode:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# interface gigabitethernet0/2/0/0
RP/0/RP0/CPU0:router(config-if)# monitor-session test ipv4 rx-only
RP/0/RP0/CPU0:router(config-if)# acl
```

Related Commands

<table>
<thead>
<tr>
<th>Command</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>monitor-session</code></td>
<td>Defines a traffic mirroring session and enter monitor session configuration mode.</td>
</tr>
</tbody>
</table>
show monitor-session status

To display status information about configured traffic mirroring sessions, use the show monitor-session status command in EXEC mode.

show monitor-session [ session-name ] status [detail] [errors]

**Syntax Description**

<table>
<thead>
<tr>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>session-name</td>
<td>Name of the monitor session to configure.</td>
</tr>
<tr>
<td>detail</td>
<td>Displays the full error string for any errors.</td>
</tr>
<tr>
<td>errors</td>
<td>Displays all sessions, but only source interfaces with errors are displayed (if no source interfaces have errors, then 'No errors' is displayed).</td>
</tr>
</tbody>
</table>

**Command Default**

No default behavior or values

**Command Modes**

EXEC

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Release 4.3.0</td>
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</tr>
</tbody>
</table>

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The show monitor-sessions status command displays the following information:

- Destination information for the session (including the name of the interface).
- Destination status (interface state).
- List of source interfaces.
- Any other status information that may be pertinent, such as a software or hardware error that would stop sessions operating correctly. If an error is returned from interactions with another component, then the full error string is only displayed in detail output; standard tabular output reports that there has been an error but refers the user to the detailed output.

**Examples**

This example shows the sample output for the show monitor-session status detail command:

```
RP/0/RP0/CPU0:router show monitor-session status detail
```
Monitor-session foo
  Destination interface GigabitEthernet 0/0/0/0
  Source Interfaces
  --------------------
  GigabitEthernet 0/1/0/0.100:
    Direction: Both
    Status: Operating
  GigabitEthernet 0/2/0/0.200:
    Direction: Rx
    Status: Error: <blah>

Monitor session bar
  No destination configured
  Source Interfaces
  --------------------
  GigabitEthernet 0/3/0/0.100:
    Direction: Rx
    Status: Not operational (no destination interface)
show monitor-session counters

To display statistics regarding traffic mirroring sessions, use the `show monitor-session counters` command in EXEC mode.

```
show monitor-session [ session-name ] [ ipv4|ipv6 ] counters
```

**Syntax Description**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>session-name</td>
<td>Name of the monitor session to configure.</td>
</tr>
<tr>
<td>ipv4</td>
<td>Specifies the counters of next-hop ipv4 address associated with a monitor-session.</td>
</tr>
<tr>
<td>ipv6</td>
<td>Specifies the counters of next-hop ipv6 address associated with a monitor-session.</td>
</tr>
</tbody>
</table>

**Command Default**

If you do not specify an address, the IPv4 counters are displayed.

**Command Modes**

EXEC

**Command History**

<table>
<thead>
<tr>
<th>Release</th>
<th>Modification</th>
</tr>
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<tbody>
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<td>Release 4.3.0</td>
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</tr>
</tbody>
</table>

**Usage Guidelines**

To use this command, you must be in a user group associated with a task group that includes appropriate task IDs. If the user group assignment is preventing you from using a command, contact your AAA administrator for assistance.

The `show monitor-sessions counters` command displays a list of all source interfaces, and the replicated packet statistics for each interface. The full set of statistics displayed for each interface is:

- Ingress replicated packets and octets
- Egress replicated packets and octets
- Non-replicated packets and octets

**Examples**

This example shows sample output from the `show monitor-session counters` command:

```
RP/0/RP0/CPU0:router show monitor-session 2 counters
Global Non Replicated : 100 Packets 8000 Bytes
Monitor session test1 ipv4
   Next Hop : 20.1.1.1
   Rx Replicated: 100 Packets 8000 Bytes
Monitor session test2
   Next Hop : 30.1.1.1
```
show monitor-session counters

Rx Replicated: 200 Packets 16000 Bytes