



# Traffic Mirroring Commands

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

To use commands of this module, 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 any command, contact your AAA administrator for assistance.

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# acl

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.

## acl

**Syntax Description** This command has no keywords or arguments.

**Command Default** No default behavior or values

**Command Modes** Monitor session configuration

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.0.12 | This command was introduced. |

**Usage Guidelines** 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 HundredGigabitEthernet0/2/0/0
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-l2)# exit
RP/0/RP0/CPU0:router(config-if)# ethernet-services access-group tm_filter ingress
RP/0/RP0/CPU0:router(config-if)# end
```

## Related Commands

| Command                       | Description   |
|-------------------------------|---|
| ethernet-services access-list | Defines an Ethernet services (Layer 2) access list by name. |
| ipv4 access-list              | Defines an IPv4 access list by name.                        |

# clear monitor-session counters

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

**clear monitor-session counters** [**interface** *type interface-path-id*]

## Syntax Description

|                          |  |
|--------------------------|--|
| <b>interface</b>         | Identifies the interface for which the counters are to be cleared.   |
| <i>type</i>              | Interface type. For more information, use the question mark (?) online help function.                      |
| <i>interface-path-id</i> | Physical interface or virtual interface.   |
| <b>Note</b>              | Use the <b>show interfaces</b> command to see a list of all interfaces currently configured on the router. |
|                          | For more information about the syntax for the router, use the question mark (?) online help function.      |
| <i>session-name</i>      | Name of the monitor session to clear.  |

## Command Default

All stored statistics for all interfaces are cleared.

## Command Modes

XR EXEC mode

## Command History

| Release        | Modification                 |
|----------------|------------------------------|
| Release 7.0.12 | This command was introduced. |

## Usage Guidelines

No specific guidelines impact the use of this command.

## Task ID

| Task ID   | Operations |
|-----------|------------|
| interface | read       |

## Examples

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

```
RP/0/RP0/CPU0:router#clear monitor-session mon1 ipv6 counters
```

# destination interface

To associate a destination interface with a traffic mirroring session, use the **destination interface** command in monitor session configuration mode. To remove the designated destination, use the **no** form of this command.

**destination interface** *type interface-path-id*

## Syntax Description

*type* Interface type. For more information, use the question mark (?) online help function.

*interface-path-id* Physical interface or virtual interface.

**Note** Use the **show interfaces** command to see a list of all interfaces currently configured on the router.

For more information about the syntax for the router, use the question mark (?) online help function.

## Command Default

No default behavior or values

## Command Modes

Monitor sessions configuration

## Command History

| Release        | Modification                 |
|----------------|------------------------------|
| Release 7.0.12 | This command was introduced. |

## Usage Guidelines

Use the **destination interface** command to assign a traffic monitoring session to a specific destination interface. This is the port to which a network analyzer is connected. This is generally called the monitoring port.

A destination port has these characteristics:

- A destination port must reside on the same switch as the source port.
- A destination port can be any Ethernet physical port, nV Satellite ICL port or EFP, but not a bundle interface. Also, the ICL must not be a bundle interface.
- At any one time a destination port can participate in only one traffic mirroring session. A destination port in one traffic mirroring session cannot be a destination port for a second traffic mirroring session. In other words, no two monitor sessions can have the same destination port.
- A destination port cannot also be a source port.

## Examples

This example shows how to configure a monitoring port for a traffic mirroring session:

```
RP/0/RP0/CPU0:router(config)# monitor-session mon1
RP/0/RSP0/CPU0:router(config-mon)# destination interface gigabitethernet0/0/0/15
```

# destination pseudowire

To direct mirrored traffic to a pseudowire, use the **destination pseudowire** command in monitor session configuration mode. To remove the pseudowire designation, use the **no** form of this command.

## **destination pseudowire**

**Syntax Description** This command has no keywords or arguments.

**Command Default** No default behavior or values

**Command Modes** Monitor session configuration

| Command History | Release           | Modification                 |
|-----------------|-------------------|------------------------------|
|                 | Release<br>7.0.12 | This command was introduced. |

**Usage Guidelines** Use the **destination pseudowire** command to direct the mirrored traffic to a pseudowire. A network analyzer in a central location can then be used to monitor the traffic. Use the monitor session command to define the exact pseudowire to which the monitored traffic should be replicated.

## **Examples**

This example shows how to configure a monitoring port for a traffic mirroring session:

```
RP/0/RP0/CPU0:router(config)# monitor-session mon1
RP/0/RSP0/CPU0:router(config-mon)# destination pseudowire
```

# forward-drop rx

To mirror forward-drop packets at the ingress of a router to a configured destination, use the **forward-drop rx** command in XR Config mode.

## forward-drop rx

|                           |  |                              |
|---------------------------|--|------------------------------|
| <b>Syntax Description</b> | This command has no keywords or arguments.                                   |                              |
| <b>Command Default</b>    | Mirroring forward-drop packets is disabled.                                  |                              |
| <b>Command Modes</b>      | XR Config mode   |                              |
| <b>Command History</b>    | <b>Release</b>   | <b>Modification</b>          |
|                           | Release 7.5.4  | This command was introduced. |
| <b>Usage Guidelines</b>   | The <b>forward-drop rx</b> command is not available on management interface. |                              |
| <b>Task ID</b>            | <b>Task ID</b>   | <b>Operation</b>             |
|                           | ethernet-services  | read,<br>write               |

## Example

This example shows how to configure a global traffic mirroring session for forward-drop packets.

```
Router(config)# interface tunnel-ip 2
Router(config-if)# tunnel mode gre ipv4
Router(config-if)# tunnel source 20.20.20.20
Router(config-if)# tunnel destination 192.1.1.3
Router(config-if)!
Router(config)# monitor-session mon2 ethernet
Router(config-mon)#destination interface tunnel-ip2
Router(config-mon)#forward-drop rx
Router(config-mon)#!
```

# mirror enable

To copy files or directories automatically from `/harddisk:/mirror` location in active RP to `/harddisk:/mirror` location in standby RP or RSP without user intervention or EEM scripts, use `mirror enable` command. The `mirror enable checksum` command enables MD5 checksum across active to standby RP to check integrity of the files. This command is optional. A slight delay is observed in `show mirror` command output when mirror checksum configuration is enabled.

## mirror enable

### Command Default

The `/harddisk:/mirror` directory is created by default, but file mirroring functionality is only enabled by executing the `mirror enable` command from configuration terminal.

### Command Modes

Monitor configuration

### Command History

| Release        | Modification                 |
|----------------|------------------------------|
| Release 7.2.1  | This command was introduced. |
| Release 7.0.14 |                              |

File mirroring has to be enabled explicitly on the router. It is not enabled by default.

```
RP/0/RSP0/CPU0:router#show run mirror
Thu Jun 25 10:12:17.303 UTC
mirror enable
mirror checksum
```

# 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*

|                           |   |
|---------------------------|---|
| <b>Syntax Description</b> | <i>bytes</i> Number of bytes mirrored. The mirrored packet length value can range from 65 to 128. |
|---------------------------|---|

|                        |                                |
|------------------------|--------------------------------|
| <b>Command Default</b> | The entire packet is mirrored. |
|------------------------|--------------------------------|

|                      |                               |
|----------------------|-------------------------------|
| <b>Command Modes</b> | Monitor session configuration |
|----------------------|-------------------------------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 7.0.12 | This command was introduced. |

|                         |  |
|-------------------------|--|
| <b>Usage Guidelines</b> | Use the <b>mirror first</b> 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. |
|-------------------------|--|

|                 |   |
|-----------------|---|
| <b>Examples</b> | This example shows how to mirror the first 100 bytes of the packet: |
|-----------------|---|

```
RP/0/RP0/CPU0:router(config)# interface hundredgigabitethernet0/0/0/11
RP/0/RP0/CPU0:router(config-if)# monitor-session mon1
RP/0/RP0/CPU0:router(config-if-mon)# mirror first 100
```



# 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*

## Syntax Description

*session-name* Name of the monitor session to configure.

## Command Default

No default behavior or values

## Command Modes

Global configuration

## Command History

| Release        | Modification                 |
|----------------|------------------------------|
| Release 7.0.12 | This command was introduced. |

## 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.

For more information about monitoring a session, see *Configuring Traffic Monitoring* chapter in *Cisco 8000 Series Router Interface and Hardware Component Configuration Guide*.

## 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

| Command  | Description  |
|--|--|
| <a href="#">destination interface, on page 4</a> | Associates a destination interface with a traffic mirroring session. |

## monitor-session (interface)

To associate a traffic mirroring session with a specific interface, use the **monitor-session** command in interface configuration mode or dynamic-template 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* [**direction** {**rx-only** | **tx-only**}] [**port-level**]

### Syntax Description

|                     |  |
|---------------------|--|
| <i>session-name</i> | Name of the monitor session to configure.  |
| <b>direction</b>    | Specifies that traffic replication is in only one direction.   |
| <b>rx-only</b>      | Specifies that only ingress traffic is replicated.   |
| <b>tx-only</b>      | Specifies that only egress traffic is replicated.  |
| <b>ethernet</b>     | Specifies ethernet interface as destination.   |
| <b>ipv4</b>         | Indicates that Ipv4 traffic needs to be monitored.   |
| <b>ipv6</b>         | Indicates that Ipv6 traffic needs to be monitored.   |
| <b>port-level</b>   | Specifies the configuration at port level.   |
| <b>Note</b>         | <ul style="list-style-type: none"> <li>port-level mirroring is only supported in the ingress direction.</li> <li>port-level mirroring is only supported in sampling mode with a minimal sampling rate of 1:512.</li> </ul> |

### Command Default

Replicates both ingress and egress traffic.

### Command Modes

Interface configuration

Dynamic template configuration (for BNG)

| Command History | Release        | Modification                 |
|-----------------|----------------|------------------------------|
|                 | Release 7.0.12 | This command was introduced. |

### Usage Guidelines

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 or dynamic template configuration command to associate this session with a specific source interface. For BNG sessions, the subscriber is attached to the monitor session, only when the dynamic template is applied to the subscriber. 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
```

For more information about monitoring a session, see *Configuring Traffic Monitoring* chapter in *Cisco ASR 8000 Series Router Interface and Hardware Component Configuration Guide*.

| Task ID | Task ID         | Operations     |
|---------|-----------------|----------------|
|         | interface       | read,<br>write |
|         | config-services | read,<br>write |

### Examples

This example shows how to enter monitor session configuration mode:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# interface hundredgigabitethernet0/0/0/11
RP/0/RP0/CPU0:router(config-if)# monitor-session mon1
RP/0/RP0/CPU0:router(config-if-mon)#
```

This example shows how to configure **monitor-session** command in the dynamic-template configuration mode for BNG:

```
RP/0/RP0/CPU0:router# configure
RP/0/RP0/CPU0:router(config)# dynamic-template type ppp ppp_template
RP/0/RP0/CPU0:router(config-dynamic-template-type)# monitor-session mon1 direction rx-only
```

```
RP/0/RP0/CPU0:router(config-dynamic-template-type)# acl  
RP/0/RP0/CPU0:router(config-dynamic-template-type)# mirror first 100
```

# show monitor-session status

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

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

## Syntax Description

|                     |   |
|---------------------|---|
| <i>session-name</i> | Name of the monitor session to configure.   |
| <b>detail</b>       | Displays the full error string for any errors.  |
| <b>errors</b>       | Displays all sessions, but only source interfaces with errors are displayed (if no source interfaces have errors, then 'No errors' is displayed). |

## Command Default

No default behavior or values

## Command Modes

XR EXEC

## Command History

| Release        | Modification                 |
|----------------|------------------------------|
| Release 7.0.12 | This command was introduced. |

## Usage Guidelines

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 sample output from the **show monitor-session status** command:

```
RP/0/RP0/CPU0:router# show monitor-session status
```

```
Monitor-session foo
Destination interface HundredGigabitEthernet 0/0/0/0
```

```
=====
Source Interface      Dir      Status
-----
Gi0/1/0/0.10         Both    Operational
Gi0/1/0/0.11         Rx      Operational
Gi0/1/0/0.12         Tx      Operational
```

# show monitor-session status internal

To display information about monitoring session statistics, use the `show monitor-session status internal` command in XR EXEC mode.

## show monitor-session status internal

|                        |                               |
|------------------------|-------------------------------|
| <b>Command Default</b> | No default behavior or values |
|------------------------|-------------------------------|

|                      |         |
|----------------------|---------|
| <b>Command Modes</b> | XR EXEC |
|----------------------|---------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | 7.2.12         | This command was introduced. |

## Example

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

```
RP/0/RP0/CPU0:router#show monitor-session status internal
Thu Aug 13 20:05:23.478 UTC
Information from SPAN Manager and MA on all nodes:
Monitor-session mon1 (ID 0x00000001) (Ethernet)
SPAN Mgr: Destination interface HundredGigE0/1/0/0 (0x00800190)
Last error: Success
0/1/CPU0: Destination interface HundredGigE0/1/0/0 (0x00800190)
0/RP0/CPU0: Destination interface HundredGigE0/1/0/0 (0x00800190)
Information from SPAN EA on all nodes:
Monitor-session 0x00000001 (Ethernet)
0/1/CPU0: Name 'mon1', destination interface HundredGigE0/1/0/0 (0x00800190)
Platform, 0/1/CPU0:
Monitor Session ID: 1
Monitor Session Packets: 32
Monitor Session Bytes: 4024
0/2/CPU0: Name 'mon1', destination interface HundredGigE0/1/0/0 (0x00800190)
Platform, 0/2/CPU0:
Monitor Session ID: 1
Monitor Session Packets: 0
Monitor Session Bytes: 0
```

# show monitor-session counters

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

**show monitor-session** [*session-name*] **counters**

|                           |   |
|---------------------------|---|
| <b>Syntax Description</b> | <i>session-name</i> Name of the monitor session to configure. |
|---------------------------|---|

|                        |                               |
|------------------------|-------------------------------|
| <b>Command Default</b> | No default behavior or values |
|------------------------|-------------------------------|

|                      |         |
|----------------------|---------|
| <b>Command Modes</b> | XR EXEC |
|----------------------|---------|

| <b>Command History</b> | <b>Release</b> | <b>Modification</b>          |
|------------------------|----------------|------------------------------|
|                        | Release 7.0.12 | This command was introduced. |

**Usage Guidelines** 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
Monitor session 2
HundredGigabitEthernet 0/3/0/0.100:
  Rx Replicated: 100 Packets 8000 Bytes
  Tx Replicated: 2 Packets 3000 Bytes
  Non Replicated: 0 Packets 0 Bytes
```

■ show monitor-session counters