

Traffic Mirroring Commands

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 4.0.0	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/RSP0/CPU0:router(config)# monitor-session tm_example
RP/0/RSP0/CPU0:router(config)# ethernet-services access-list tm_filter
RP/0/RSP0/CPU0:router(config-es-acl)# 10 deny 0000.1234.5678 0000.abcd.abcd any capture
RP/0/RSP0/CPU0:router(config-es-acl)# exit
RP/0/RSP0/CPU0:router(config)# interface GigabitEthernet0/2/0/0
RP/0/RSP0/CPU0:router(config-if)# monitor-session tm_example direction rx-only
RP/0/RSP0/CPU0:router(config-if)# acl
RP/0/RSP0/CPU0:router(config-if)# l2transport
RP/0/RSP0/CPU0:router(config-if-l2)# exit
RP/0/RSP0/CPU0:router(config-if)# ethernet-services access-group tm_filter ingress
RP/0/RSP0/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 EXEC mode .

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

Syntax Description

interface	Identifies the interface for which the counters are to be cleared.
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.
session-name	Name of the monitor session to clear.
ipv4	Specifies an ipv4 address.

Command Default

All stored statistics for all interfaces are cleared.

Command Modes

EXEC mode

Command History

Release	Modification
Release 3.9.1	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/RSP0/CPU0:routerclear 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 3.9.1	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, or 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
```

This example shows how to configure a bundle interface for a traffic mirroring session:

```
Router# configure
Router(config)# monitor-session ms1
```

```
Router(config-mon)# destination interface bundle-ether1
Router(config-mon)# commit
```

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 4.0.0	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
```

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 7.1.2	This command was introduced.

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*

Syntax Description

bytes	Number of bytes mirrored. The mirrored packet length value can range from 65 to 128.

Command Default

The entire packet is mirrored.

Command Modes

Monitor session configuration

Command History

Release	Modification
Release 4.0.0	This command was introduced.

Usage Guidelines

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/RSP0/CPU0:router(config)# interface gigabitethernet0/0/0/11
RP/0/RSP0/CPU0:router(config-if)# monitor-session mon1
RP/0/RSP0/CPU0:router(config-if-mon)# mirror first 100
```

Related Commands

Command	Description
monitor-session, on page 10	Defines a traffic mirroring session and enter monitor session configuration mode.

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

Release	Modification
Release 4.0.0	This command was introduced.

Examples

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

```
RP/0/RSP0/CPU0:router(config)# interface gigabitethernet0/0/0/11
RP/0/RSP0/CPU0:router(config-if)# monitor-session mon1
RP/0/RSP0/CPU0:router(config-if-mon)# mirror first 100
RP/0/RSP0/CPU0:router(config-if-mon)# mirror interval 512
```

Related Commands

Command	Description
monitor-session, on page 10	Defines a traffic mirroring session and enter monitor session configuration mode.

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.
ipv4	Specifies an ipv4 address as destination.
ipv6	Specifies an ipv6 address as destination.
destination	Configures the destination port. A destination port can be a ethernet physical port, EFP, pseudowire, or a bundle interface. The pseudowire carries only mirrored traffic, this traffic is generally unidirectional.
interface<*Interface*>	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.

Command Default

No default behavior or values

Command Modes

Global configuration

Command History

Release	Modification
Release 3.9.1	This command was introduced.
Release 4.3.0	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 ASR 9000 Series Aggregation Services Router Interface and Hardware Component Configuration Guide*.

Examples

This example shows how to enter monitor session configuration mode:

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

This example shows how to enter monitor session configuration mode for a bundle interface:

```
Router(config)# monitor-session ms1
Router(config-mon)#
```

Related Commands

Command	Description
destination interface, on page 4	Associates a destination interface with a traffic mirroring session.

monitor-session (interface-dynamic-template-BNG)

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

session-name	Name of the monitor session to configure.
direction	Specifies that traffic replication is in only one direction.
rx-only	Specifies that only ingress traffic is replicated.
tx-only	Specifies that only egress traffic is replicated.

Command Default

Replicates both ingress and egress traffic.

Command Modes

Interface configuration

Dynamic template configuration (for BNG)

Command History

Release	Modification
Release 3.9.1	This command was introduced.
Release 4.0.0	The **acl** and **mirror first** keywords were added.
Release 5.1	The support for this command under dynamic-template configuration mode was added for BNG.

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 9000 Series Aggregation Services Router Interface and Hardware Component Configuration Guide*.

Task ID

Task ID	Operations
interface	read, write
config-services	read, write

Examples

This example shows how to enter monitor session configuration mode:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface gigabitethernet0/0/0/11
RP/0/RSP0/CPU0:router(config-if)# l2transport
RP/0/RSP0/CPU0:router(config-if-l2)# monitor-session mon1
RP/0/RSP0/CPU0:router(config-if-mon)#
```

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

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# dynamic-template type ppp ppp_template
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# monitor-session mon1 direction rx-only

RP/0/RSP0/CPU0:router(config-dynamic-template-type)# acl
RP/0/RSP0/CPU0:router(config-dynamic-template-type)# mirror first 100
```

monitor-session destination file

This command configures a file destination for the current session. To create a monitor-session with the specified name and class, use the `monitor-session <name> [ethernet|ipv4|ipv6|mpls-ipv4|mpls-ipv6]` part of the command. To add a new `file` option to the existing destination, use the `destination file [size <kbytes>] [buffer-type linear]` part of the command.

monitor-session *name* { **ethernet** | **ipv4** | **ipv6** | **mpls-ipv4** | **mpls-ipv6** } **destination file [size <kbytes>] [buffer-type linear]**

Syntax Description

monitor-session *name*	Name of the monitor session to configure.
destination file [size *kbytes*]	Size of the destination file in kbytes. The size is specified by platform.
buffer-type linear	Buffer type is linear or circular. **Note** Circular is the default buffer-type.

Command Default

Size: Specified by platform.

Buffer-type: Circular

File format: PCAP

Command Modes

Monitor session configuration submode

Command History

Release	Modification
Release 7.1.2	This command was introduced.

Example

This example shows how to configure a file destination for the current monitor session:

```
monitor-session mon1 ethernet
          destination file size 230000 buffer-type circular
          !
          monitor-session mon3 ethernet
         destination file size 1000 buffer-type linear
         !
```

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

session-name	Name of the monitor session to configure.
detail	Displays the full error string for any errors.
errors	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

EXEC

Command History

Release	Modification
Release 3.9.1	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/RSP0/CPU0:router# show monitor-session status

Monitor-session foo
Destination interface GigabitEthernet 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 counters

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

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

Syntax Description

session-name	Name of the monitor session to configure.

Command Default

No default behavior or values

Command Modes

EXEC

Command History

Release	Modification
Release 3.9.1	This command was introduced.
Release 4.3.0	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/RSP0/CPU0:router show monitor-session 2 counters

Monitor session 2
  GigabitEthernet 0/3/0/0.100:
    Rx Replicated: 100 Packets 8000 Bytes
    Tx Replicated: 2 Packets 3000 Bytes
    Non Replicated: 0 Packets 0 Bytes
```