NetFlow Command Reference for Cisco 8000 Series Routers

First Published: 2020-03-13

Last Modified: 2021-05-13

Americas Headquarters
Cisco Systems, Inc.
170 West Tasman Drive
San Jose, CA 95134-1706
USA
http://www.cisco.com
Tel: 408 526-4000
800 553-NETS (6387)
Fax: 408 527-0883

CONTENTS

Preface

This guide consists of information regarding the commands for NetFlow in Cisco IOS XR Software.

For more information about the NetFlow , see the *Configuring NetFlow* module in the *Netflow Configuration Guide for Cisco 8000 Series Routers*.

The preface consists of these sections:

Preface

This guide consists of information regarding the commands for NetFlow in Cisco IOS XR Software.

For more information about the NetFlow , see the *Configuring NetFlow* module in the *Netflow Configuration Guide for Cisco 8000 Series Routers*.

The preface consists of these sections:

Changes to This Document

This table lists the technical changes made to this document since it was first released.

Table 1: Changes to This Document

Date	Summary
December 2019	Initial release of this document.
October 2020	Republished for Release 7.2.12.
February 2021	Republished for Release 7.3.1.
May 2021	Republished for Release 7.3.15.
November 2021	Republished for Release 7.5.1.

Communications, Services, and Additional Information

- To receive timely, relevant information from Cisco, sign up at Cisco Profile Manager.
- To get the business impact you're looking for with the technologies that matter, visit Cisco Services.
- To submit a service request, visit Cisco Support.
- To discover and browse secure, validated enterprise-class apps, products, solutions and services, visit Cisco DevNet.
- To obtain general networking, training, and certification titles, visit Cisco Press.
- To find warranty information for a specific product or product family, access Cisco Warranty Finder.

Cisco Bug Search Tool

Cisco Bug Search Tool (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

NetFlow Commands

NetFlow Commands

This page provides the list of command line interface (CLI) commands for configuring and verifying NetFlow on the Cisco 8000 Series Routers.

To use these commands, 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.

The NetFlow commands are:

cache entries

To configure the number of entries in the monitor map flow cache, enter the **cache entries** command in flow monitor map configuration mode. To remove a configured number of entries and return the cache to the default configuration, use the **no** form of this command.

cache entries *number*

Syntax Description

number	Number of entries in the flow cache. Replace the *number* argument with the number of flow entries allowed in the flow cache. Range is from 4096 through 1000000.

Command Default

number : 65535

Command Modes

Flow monitor map configuration

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
netflow	read, write

Examples

This example shows how to configure the number of entries in the monitor map flow cache to be 10000:

```
Router# configure
Router(config)# flow monitor-map map1
Router(config-fmm)# cache entries 10000
```

cache immediate

To enable immediate aging cache type, use the **cache immediate** command in flow monitor map configuration mode. To disable, use **no** form of the command.

cache immediate

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Flow monitor map configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

Immediate Aging is a special cache type that ensures that the flows are exported as soon as they are added to the cache.

Task ID

Task ID	Operations
netflow	read, write

This example shows how to enable immediate aging cache type:

```
Router# configure
Router(config)#flow monitor-map map1
Router(config-fmm)# cache immediate
```

cache permanent

To disable the removal of entries from the monitor map flow cache, enter the **cache permanent** command in flow monitor map configuration mode. To re-enable the removal of entries from the flow cache, use the **no** form of this command.

cache permanent

Syntax Description

This command has no keywords or arguments.

Command Default

The removal of entries from the monitor map flow cache is enabled.

Command Modes

Flow monitor map configuration

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
netflow	read, write

Examples

This example shows how to disable the removal of entries from the monitor map flow cache:

```
Router# configure
Router(config)#flow monitor-map map1
Router(config-fmm)# cache permanent
```

This example shows how to re-enable the removal of entries from the monitor map flow cache:

```
Router# configure
Router(config)# flow monitor-map map1
Router(config-fmm)# no cache permanent
```

cache timeout

To configure the active, inactive, and update flow cache timeout, enter the **cache timeout** command in flow monitor map configuration mode. To remove the configured timeout value and return the cache to its default timeout value, use the **no** form of this command.

cache timeout {**active** | **inactive** | **update**} *timeout_value*

Syntax Description

active	Specifies the active flow timeout.
inactive	Specifies the inactive flow timeout.
update	Specifies the update timeout.
timeout_value	Timeout value for the specified keyword (**active** , **inactive** or **update**) in seconds. Range is from 1 through 604800.

Command Default

For active timeout, the default value is 1800 seconds.

For inactive timeout, the default value is 15 seconds.

For update timeout, the default value is 1800 seconds.

Command Modes

Flow monitor map configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

The **inactive** timeout value should be smaller than the **active** timeout value. The **update** keyword is used for permanent caches only. It specifies the timeout value that is used to export entries from permanent caches. In this case, the entries are exported but remain the cache.

Task ID

Task ID	Operations
netflow	read, write

Examples

This example shows how to set the active timeout for the monitor map cache to 200,000 seconds:

```
Router# configure
Router(config)# flow monitor-map map1
Router(config-fmm)# cache timeout active 200000
```

clear flow exporter

To export flow exporter templates to the collector or restart the flow exporter statistics collector, enter the **clear flow exporter** command in XR EXEC mode.

clear flow exporter [*fem-name*] {**restart** | **statistics**} **location** *node-id*

Syntax Description

fem-name	(Optional) Flow exporter name.
restart	Exports all of the current templates to the collector.
statistics	Clears the exporter statistics.
location *node-id*	Identifies the node whose flow exporter statistics you want to clear, or whose flow exporter statistics collector you want to restart. The *node-id* argument is expressed in the *rack/slot/module* notation.

Command Default

No default behavior or values

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
basic-services	read, write
netflow	read, write

Examples

This example exports all templates to the collector:

```
Router# clear flow exporter restart location 0/0/SP
Restart exporter all locations. Continue? [confirm]
```

This example shows how to clear flow exporter statistics on a specific node:

```
Router# clear flow exporter statistics location 0/0/CPU0
Clear statistics for all exporters on the location. Continue? [confirm]
```

clear flow monitor

To clear the flow monitor data, enter the **clear flow monitor** command in XR EXEC mode.

clear flow monitor [*name*] **cache** [**force-export** | **statistics**] **location** *node-id*

Syntax Description

name	(Optional) Identifies a specific cache you want to clear.
cache	Clears all cache related information.
force-export	(Optional) Forces the export of flow records on flushing the cache on the specified node.
statistics	(Optional) Clears cache statistics on a specific node.
location *node-id*	Node whose flow monitor you want to clear. The *node-id* argument is expressed in the *rack/slot/module* notation.

Command Default

None

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
netflow	read, write

Examples

This example shows how to clear the cache-related flow records on a specific node:

```
Router# clear flow monitor cache force-export location 0/0/CPU0

Clear cache entries for this monitor on this location. Continue? [confirm]
```

clear flow platform producer statistics location

To clear statistics collected by the NetFlow producer, use the **clear flow platform producer statistics location** command in XR EXEC mode.

clear flow platform producer statistics location *node-id*

Syntax Description

node-id	Node on which to clear statistics collected by the NetFlow producer. The *node-id* is expressed in the *rack/slot/module* notation.

Note Enter the **show platform** command to see the location of all nodes installed in the router.

Command Default

None

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
netflow	read, write

Examples

This example shows how to clear statistics collected by the NetFlow producer:

```
Router# clear flow platform producer statistics location 0/0/CPU0
```

destination

To configure the collector export destination, enter the **destination** command in flow exporter map configuration mode. To remove a configured export destination, use the **no** form of this command.

destination *hostname_or_IP_address* [**vrf** *vrf_name*]

Syntax Description

hostname_or_IP_address	Specify the export destination for the current flow exporter map. Enter the hostname or destination IP address in the *A.B.C.D* format.
vrf *vrf_name*	(Optional) Specify the name of the VRF that is used to reach export destination. This is an optional keyword. If the **vrf** keyword is specified, then the destination is searched in the VRF that is specified (*vrf_name*). If the **vrf** keyword is not specified then, the destination is searched in the default routing table.

Command Default

None

Command Modes

Flow exporter map configuration

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
netflow	read, write

Examples

This example shows how to configure the flow exporter map export destination to be a specific IP address:

```
Router# configure
Router(config)# flow exporter-map map1
Router(config-fem)# destination 172.18.189.38
```

dscp

To configure the differentiated services codepoint (DSCP) value for export packets, enter the **dscp** command in flow exporter map configuration mode. To remove a configured DSCP value, use the **no** form of this command.

dscp *dscp_value*

Syntax Description

dscp_value	Specifies the DSCP value for export packets. Replace *dscp_value* with a number. Range is from 0 through 63.

Command Default

None

Command Modes

Flow exporter map configuration

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
netflow	read, write

Examples

This example shows how to configure the DSCP value for export packets to be 30:

```
Router# configure
Router(config)# flow exporter-map map1
Router(config-fem)# dscp 30
```

exporter

To associate a flow exporter map with the current flow monitor map, enter the **exporter** command in flow monitor map configuration mode. To remove an associated flow exporter map from a flow monitor map, use the **no** form of this command.

exporter *map_name*

Syntax Description

map_name	Name of the flow exporter map you want to associate with the current flow monitor map. The exporter map name can be a maximum of 32 characters. **Note** A single flow monitor map supports up to 8 exporters.

Command Default

None

Command Modes

Flow monitor map configuration

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
netflow	read, write

Examples

This example shows how to associate a flow exporter map called “fem_1” with the current flow monitor map:

```
Router# configure
Router(config)# flow monitor-map map1
Router(config-fmm)# exporter fem_1
```

flow

To specify a flow monitor map and a sampler map for the packets on an interface, use the **flow** command in interface configuration mode. To remove a configured flow monitor map, use the **no** form of this command.

flow [**ipv4** | **ipv6** | **mpls**] **monitor** *name* **sampler** *name* {**ingress**}

Syntax Description

ipv4	Enables IPV4 NetFlow on the specified interface.
ipv6	Enables IPV6 NetFlow on the specified interface.
mpls	Enables Multiprotocol Label Switching (MPLS)-aware NetFlow on the specified interface.
monitor *name*	Specifies the name of the flow monitor map you want to specify for IPv4, IPv6, or MPLS packets.
sampler *name*	Name of the sampler map you want to apply to the flow monitor map.
ingress	Applies the flow monitor map on incoming packets.

Command Default

None

Command Modes

Interface configuration

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
netflow	read, write

Examples

This example shows how to enable IPV4 NetFlow on a HundredGigE interface, and then apply the flow monitor map, named "map1," on incoming IPv4 packets:

```
Router# configure
Router(config)# interface HundredGigE 0/3/0/0
Router(config-if)# flow ipv4 monitor map1 sampler smap1 ingress
```

This example shows how to enable MPLS NetFlow on a HundredGigE interface, and apply the flow monitor map, named "map_mpls1," on incoming MPLS packets:

```
Router# configure
Router(config)# interface HundredGigE 0/0/0/0
Router(config-if)# flow mpls monitor map_mpls1 sampler smap1 ingress
```

This example shows how to enable IPv4 NetFlow on a Bridge-group virtual interface, and then apply the flow monitor map on incoming IPv4 packets:

```
Router# configure
Router(config)# interface BVI 1
Router(config-if)# flow ipv4 monitor NMS sampler NMS ingress
```

This example shows how to enable IPv6 NetFlow on a Bridge-group virtual interface, and then apply the flow monitor map on incoming and incoming IPv6packets:

```
Router# configure
Router(config)# interface BVI 1
Router(config-if)# flow ipv6 monitor NMS sampler NMS ingress
```

flow datalinkframesection monitor

To monitor and capture information element that carries *n* octets from the data link frame (IPFIX 315) of a selected frame in the ingress direction of an interface, use **flow datalinkframesection monitor** command in interface configuration mode.

flow datalinkframesection monitor *monitor-map* **sampler** *sampler-map* **ingress**

Syntax Description

monitor *monitor-map*	Specify flow monitor map name.
sampler *sampler-map*	Specify flow sampler map name.
ingress	Specify ingress direction. The IPFIX 315 info is captured from incoming traffic on specified interface.

Command Default

None.

Command Modes

Interface configuration mode

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

When **datalinkframesection** flow type is enabled on an interface, other flows like IPv4, IPv6 and MPLS are not allowed. The option field in the frame indicates the IPFIX 315 info.

Task ID

Task ID	Operation
netflow	read, write

This sample shows how to enable flow datalinkframesection monitor on hundredGigE interface:

```
Router(config)#interface hundredGigE 0/0/0/18
Router(config-if)#flow datalinkframesection monitor ipfix-mon sampler ipfix-sam ingress
```

flow exporter-map

To create a flow exporter map and enter flow exporter map configuration mode, use the **flow exporter-map** command in XR Config mode. To remove a configured flow exporter map, use the **no** form of this command.

flow exporter-map *fem-name*

Syntax Description

fem-name	Creates a new exporter map name, or specifies the name of an existing exporter map.

Command Default

None

Command Modes

XR Config 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
netflow	read, write

Examples

This example shows how to create a flow exporter map called `map1`, and then enter the flow exporter map configuration submode for that map:

```
Router# configure
Router(config)#flow exporter-map map1
Router(config-fem)#
```

flow exporter-map transport udp source-port

To create multiple source UDP ports while configuring flow exporter map, use the **flow exporter-map***map-name***transport udp source-port** command in XR Config mode.

flow exporter-map *map-name* **transport udp** *destination-port* **source-port [** *port-number* | **multiple { first** *port-number* **count** *port-range* **}]**

Syntax Description

map-name	Creates a new exporter map name, or specifies the name of an existing exporter map.
transport	Specify the transport protocol for export packets
udp *destination-port*	Use UDP as transport protocol. Replace the *destination-port* variable with the destination UPD source port number. Range is from 1024 through 65535.
source-port *port-number*	UDP source port configuration. Replace the *port-number* variable with the UPD source port number. Range is from 49152 through 65535.
multiple	Use multiple udp source ports for export packets
first *port-number*	Specify the first port to use. Replace the *port-number* variable with the UPD source port number. Range is from 49152 through 65535.
count *port-range*	Number of UDP source ports. Replace the *port-range* variable with the total number of UPD source port to be configured. Range is from 1 through 1024.

Command Default

None

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.5.4	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
netflow	read, write

Examples

The following example shows how to configure multiple sFLow UDP source port using multiple source port configuration method:

```
Router#configure
```

```
Router(config)# flow exporter-map sflow_exporter_map_1
Router(config-fem)# dscp 43
Router(config-fem)# destination 10.1.1.12
Router(config-fem)# transport udp 2200
Router(config-fem)# transport udp source-port multiple first 50001 count 1000
Router(config-fem)# version sflow v9
Router(config-fem)# dfbit set
Router(config-fem)# template data timeout 8
Router(config-fem)# template options timeout 12
Router(config-fem)# source HundredGigE 0/0/0/24
Router(config-fem)# exit
```

The following example shows how to configure multiple sFLow UDP source port using single source port configuration method:

```
Router#configure
Router(config)# flow exporter-map sflow_exporter_map_3
Router(config-fem)# dscp 43
Router(config-fem)# destination 10.1.1.12
Router(config-fem)# transport udp 6343
Router(config-fem)# transport udp source-port 65534
Router(config-fem)# version sflow v5
Router(config-fem)# dfbit set
Router(config-fem)# packet-length 1468
Router(config-fem)# source HundredGigE 0/0/0/24
Router(config-fem)# exit
```

flow monitor-map

To create and configure a flow monitor map and enter flow monitor map configuration submode, use the **flow monitor-map** command in XR Config mode. To remove a configured flow monitor map, use the **no** form of this command:

flow monitor-map *map_name*

Syntax Description

map_name	New monitor map name, or specifies the name of an existing monitor map. The monitor map name can be a maximum 32 characters.

Command Default

None

Command Modes

XR Config 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
netflow	read, write

Examples

This example shows how to enter flow monitor map configuration mode for a monitor map called `map1`.

```
Router# configure
Router(config)# flow monitor-map map1
Router(config-fmm)#
```

hw-module profile netflow fpc-enable

To enable full packet capture feature on a specified node location, use the **hw-module profile netflow fpc-enable location** command in the XR Config mode.

hw-module profile profile netflow fpc-enable location *node-id*

Syntax Description

node-id	The node-id argument is entered in the rack/slot/module notation.

Command Default

Netflow full packet capture is disabled

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

When no location is specified the full packet capture gets enabled on all line cards.

Note You should reload the line card for the changes to take effect.

Task ID

Task ID	Operation
netflow	read, write

This example shows how to enable full packet capture on node location 0/0/cpu0:

```
Router(config)# hw-module profile netflow fpc-enable location 0/0/CPU0
```

hw-module profile netflow ipfix315

To enable IPFIX 315 on a specified node location, use the **hw-module profile netflow ipfix315** command in the XR Config mode .

hw-module profile netflow ipfix315 location *node-id*

Syntax Description

node-id	The node-id argument is entered in the rack/slot/module notation.

Command Default

IPFIX315 is disabled

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

hw-module profile netflow ipfix315 configuration works only if interfaces have IPFIX315 configured. Ensure that there is no netflow configuration (**flow IPv4** or **flow IPv6**) that is configured on all the interfaces. If there are any netflow configuration on any interface, replace the config with IPFIX315 ie, **flow datalinkframesection** on the interface.

Task ID

Task ID	Operation
netflow	read, write

This example shows how to enable IPFIX 315 on node location 0/0/cpu0:

```
Router(config)# hw-module profile netflow ipfix315-enable location 0/0/CPU0
```

options

To export the tables in the options template and specify export timeout values, enter the **options** command in flow exporter map version configuration mode. To return the options template to its default configuration values, use the **no** form of this command.

options {**interface-table** | **sampler-table** | **vrf-table**} [**timeout** *seconds*]

Syntax Description

interface-table	Export the interface table.
sampler-table	Exports the sampler table. Use **options sampler-table timeout** command to send IE 305. This command configures the timeout value for the sampler table. This timeout value can be in the range 1–604800 seconds and the default value is 1800 seconds. You can also use **options sampler-table** command to export the following IEs: • IE 302—to export selector ID. • IE 304—to export sampling algorithm. • IE 309—to export sampling size. • IE 310—to export sampling population. • IE 84—to export sampler name. • IE 335—to export selector name. IE 309, IE 310, and IE 335 are supported starting from Release 7.8.2
vrf-table	Exports the VRF to VRF-Name table.
timeout *seconds*	Specifies the export timeout value. Replace *seconds* with the export timeout value. Range is from 1 through 604800 seconds.

Command Default

Without options command, the default value for timeout is 0 seconds, which means that the template options are not exported by default. Where as when options command is used without mentioning any timeout, default timeout is 1800 seconds.

Command Modes

Flow exporter map version configuration

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
netflow	read, write

Examples

This example shows how to export the timeout in the interface table to the options template.

```
Router(config)# flow exporter-map f1
Router(config-fem)# version v9
Router(config-fem)# options interface-table timeout 45
```

Examples

This is the sample output after setting to export the interface table and configure the export timeout value:

```
Router# show running-config flow exporter-map f1
flow exporter-map f1
 version v9
 options vrf-table 50
 !
 transport udp 9321
 source HundredGigE 0/0/0/24
 destination 10.64.81.237
!

Router#  show flow exporter-map f1

Flow Exporter Map : f1
-------------------------------------------------
Id                  : 21
DestinationIpAddr   : 10.64.81.237
SourceIfName        : HundredGigE 0/0/0/24
SourceIpAddr        : 0.0.0.0
DSCP                : 0
TransportProtocol   : UDP
TransportDestPort   : 9321

Export Version: 9
  Common Template Timeout : 1800 seconds
  Options Template Timeout : 1800 seconds
  Data Template Timeout : 1800 seconds
  Interface-Table Export Timeout : 0 seconds
  Sampler-Table Export Timeout : 0 seconds
  VRF-Table Export Timeout : 50 seconds

Router# show running-config flow exporter-map f1
flow exporter-map f1
 version v9
  options interface-table
  options sampler-table
  options vrf-table
 !
 transport udp 9321
 source HundredGigE 0/0/0/24
 destination 10.64.81.237
!
Router# show flow exporter-map f1
```

```
Flow Exporter Map : f1
-------------------------------------------------
Id                  : 21
DestinationIpAddr   : 10.64.81.237
SourceIfName        : HundredGigE 0/0/0/24
SourceIpAddr        : 0.0.0.0
DSCP                : 0
TransportProtocol   : UDP
TransportDestPort   : 9321

Export Version: 9
  Common Template Timeout : 1800 seconds
  Options Template Timeout : 1800 seconds
  Data Template Timeout : 1800 seconds
  Interface-Table Export Timeout : 1800 seconds
  Sampler-Table Export Timeout : 1800 seconds
  VRF-Table Export Timeout : 1800 seconds
```

random 1 out-of

To configure the packet sampling interval for a monitor map, use the **random 1 out-of** command in sampler map configuration submode. To remove a configured sampling interval and return to the default sampling interval, use the **no** form of this command.

random 1 out-of *number_of_packets*

Syntax Description

number_of_packets	Sampling interval in units of packets. Replace the *number_of_packets* argument with a number. Range is from 1 through 65535 units.

Command Default

There is no default value to *number_of_packets* . However, for optimal performance, the recommended value for *number_of_packets* is 10000.

Command Modes

Sampler map configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

On high bandwidth interfaces, applying NetFlow processing to every single packet can result in significant CPU utilization.

Task ID

Task ID	Operations
netflow	read, write

Examples

This example shows how to configure the sampler map to randomly sample 1 out of every 2000 packets:

```
Router# configure
Router(config)# sampler map1
Router(config-sm)# random 1 out-of 2000
```

record datalinksection

To record the information element that carries *n* octets from the data link frame (IPFIX 315), use the **record datalinksection** command in flow monitor map configuration mode. To disable recording, use the **no** form of this command.

record datalinksection

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Flow monitor map configuration

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
netflow	read, write

Task ID

Task ID	Operations
netflow	read, write

Examples

This configuration allows you to collect IPFIX 315 element information:

```
Router(config)# flow monitor-map ipfix-mon
Router(config-fmm)# record datalinkframesection
Router(config-fmm)# cache immediate
Router(config)# exit
Router(config)# interface HundredGigE 0/0/0/24
Router(config-if)# flow datalinkframesection monitor ipfix-mon sampler ipfix-sm ingress
```

record ipv4

To activate an IPv4 flow record, use the **record ipv4** command in flow monitor map configuration mode. To deactivate the flow record, use the **no** form of this command.

record ipv4 [[peer-as] | | gtp | | extented]

Syntax Description

peer-as	(Optional) Records peer AS. **Note** The Border Gateway Protocol (BGP) AS is not collected unless the **bgp attribute download** command is configured.
gtp	Record GTP-U specific data.
extended	Records information from the L3 and L4 headers.

Command Default

The default is that no IPv4 flow record is enabled.

Command Modes

Flow monitor map configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.
Release 24.2.1	This command was modified and a new optional keyword, `gtp` is introduced.

Usage Guidelines

- The BGP AS is not collected unless the **bgp attribute download** command is configured.
- The **record ipv4** command exports the BGP AS information in the following format:

  bgpSourceAsNumber

  bgpDestinationAsNumber
- The **record ipv4 peer-as** command exports the adjacent BGP AS information in the following format:

  bgpPrevAdjacentAsNumber

  bgpNextAdjacentAsNumber

Task ID

Task ID	Operations
netflow	read, write

Examples

This example shows how to configure an IPv4 flow record:

```
Router# configure
Router(config)# flow monitor-map map1
Router(config-fmm)# record ipv4
Router(config-fmm)# exit
Router(config)# interface HundredGigE 0/0/0/0
Router(config-if)# flow ipv4 monitor map1 sampler fsm1 ingress
Router(config-if)# end
```

This example shows how to configure the `gtp` flow record map name for the `record ipv4` option:

```
Router# configure
Router(config)#flow monitor-map ipv4
Router(config-fmm)#record ipv4 gtp
Router(config-fmm)#exporter Expo1
Router(config-fmm)#option bgpattr
Router(config-fmm)#cache timeout active 30
Router(config-fmm)#cache timeout inactive 5
Router(config-fmm)#exit
```

This example shows how to configure the `extended` flow record map name for the `record ipv4` option:

```
Router# configure
Router(config)#flow monitor-map ipv4
Router(config-fmm)#record ipv4 extended
Router(config-fmm)#exporter Expo1
Router(config-fmm)#option bgpattr
Router(config-fmm)#cache timeout active 30
Router(config-fmm)#cache timeout inactive 5
Router(config-fmm)#exit
```

record ipv6

To configure the flow record map name for IPv6, use the **record ipv6** command in flow monitor map configuration mode. To remove the configured name from a flow record, use the **no** form of this command.

record ipv6 { [**peer-as**] | **srv6** | **l2-l3** | **gtp** | **extended** }

Syntax Description

peer-as	Records peer AS.
srv6	Records SRv6 based NetFlow data.
l2-l3	Records L2 and L3 specific NetFlow data.
gtp	Record GTP-U specific data.
extended	Records information from the L3 and L4 headers.

Command Default

The default is that originating AS numbers are recorded.

Command Modes

Flow monitor map configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.
Release 7.8.1	This command was modified and a new optional keyword, `srv6` is introduced for the `record ipv6` option.
Release 7.10.1	This command was modified and a new optional keyword, `srv6` is introduced.
Release 7.10.1	This command was modified and a new optional keyword, `l2-l3` is introduced for the `record ipv6` option.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
netflow	read, write

Examples

This example shows how to configure the flow record map name for IPv6:

```
Router# configure
Router(config)# flow monitor-map map1
Router(config-fmm)# record ipv6
```

This example shows how to configure the peer-as to collect and export the IPv6 peer AS numbers:

```
Router#configure
Router(config)#flow monitor-map IPv6-peer
Router(config-fmm)#record ipv6 peer-as
```

This example shows how to configure the `srv6` flow record map name for the `record ipv6` option:

```
Router# configure
Router(config-fem)# flow monitor-map MON-MAP-v6
Router(config-fmm)# record ipv6 srv6
Router(config-fmm)# exporter EXP
Router(config-fmm)# cache timeout inactive 5
Router(config-fmm)# !
Router(config-fmm)# sampler-map SAMP
Router(config-fmm)# random 1 out-of 1000
Router(config-fmm)# !
Router(config-fmm)# interface HundredGigE 0/0/0/24
Router(config-fmm)# ipv4 address 10.1.1.1 255.255.255.0
Router(config-fmm)# flow ipv6 monitor M1 sampler SAMP ingres
```

This example shows how to configure the `l2-l3` flow record map name for the `record ipv6` option:

```
Router# configure
Router(config-fmm)# flow monitor-map M-IPv6
Router(config-fmm)# record ipv6 l2-l3
Router(config-fmm)# exporter EXP-ipfix
Router(config-fmm)# !
Router(config-fmm)# sampler-map SAMP
Router(config-fmm)# random 1 out-of 1000
Router(config-fmm)# !
Router(config-fmm)# interface HundredGigE 0/0/0/24
Router(config-fmm)# description CE-PE Interface
Router(config-fmm)# ipv6 address<>
Router(config-fmm)# flow ipv6 monitor M-IPv6 sampler SAMP ingress
Router(config-fmm)# !
```

This example shows how to configure the `gtp` flow record map name for the `record ipv6` option:

```
Router# configure
Router(config)#flow monitor-map ipv6
Router(config-fmm)#record ipv6 gtp
Router(config-fmm)#exporter Expo1
Router(config-fmm)#option bgpattr
Router(config-fmm)#cache timeout active 30
Router(config-fmm)#cache timeout inactive 5
Router(config-fmm)#exit
```

This example shows how to configure the `extended` flow record map name for the `record ipv6` option:

```
Router# configure
```

```
Router(config)#flow monitor-map ipv6
Router(config-fmm)#record ipv6 extended
Router(config-fmm)#exporter Expo1
Router(config-fmm)#option bgpattr
Router(config-fmm)#cache timeout active 30
Router(config-fmm)#cache timeout inactive 5
Router(config-fmm)#exit
```

record mpls

To configure the flow record map name for MPLS, use the **record mpls** command in flow monitor map configuration mode. To remove the configured name from a flow record, use the **no** form of this command.

record mpls [**ipv4-fields**] [**ipv6-fields**] [**ipv4-ipv6-fields**] [**labels** *number*]

Syntax Description

ipv4-fields	(Optional) Collects IPv4 fields in the MPLS-aware Netflow when the payload of the MPLS packet has IPv4 fields. It also collects MPLS traffic with no IPv4 payload, but the IPv4 fields are set to zero.
ipv6-fields	(Optional) Collects IPv6 fields in the MPLS-aware Netflow when the payload of the MPLS packet has IPv6 fields. It also collects MPLS traffic with no IPv6 payload, but the IPv6 fields are set to zero.
ipv4-ipv6-fields	(Optional) Collects IPv4 and IPv6 fields in the MPLS-aware Netflow when the payload of the MPLS packet has either IPv4 fields or IPv6 fields. It also collects MPLS traffic with no IPv4 or IPv6 payload, but those fields are set to zero.
labels *number*	(Optional) Configures the number of labels that are used in hashing. The *number* argument is the number of labels that are used in hashing. The range is from 1 to 6.

Command Default

The default is no IPV4 fields and six labels.

Command Modes

Flow monitor map configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

In Cisco IOS XR software, you can have only one MPLS flow monitor running on an interface at a time. If you apply an additional MPLS flow monitor to the interface, the new flow monitor overwrites the existing one.

You can configure the MPLS flow monitor to collect IPv4 fields, IPv6 fields, or both types of fields.

Task ID

Task ID	Operations
netflow	read, write

Examples

This configuration allows you to collect only MPLS fields. No payload information is collected.

```
Router(config)# flow monitor-map MPLS-fmm
Router(config-fmm)# record mpls labels 3
Router(config-fmm)# cache permanent
Router(config)# exit
```

```
Router(config)# interface HundredGigE 0/0/0/0
Router(config-if)# flow mpls monitor MPLS-fmm sampler fsm ingress
```

This configuration allows you to collect MPLS traffic with IPv4 fields. It also collects MPLS traffic with no IPv4 payload, but the IPv4 fields are set to zero.

```
Router(config)# flow monitor-map MPLS-IPv4-fmm
Router(config-fmm)# record mpls IPv4-fields labels 3
Router(config-fmm)# cache permanent
Router(config-fmm)# exit
Router(config)# interface HundredGigE 0/0/0/0
Router(config-if)# flow mpls monitor MPLS-IPv4-fmm sampler fsm ingress
```

This configuration allows you to collect MPLS traffic with IPv6 fields. It also collects MPLS traffic with no IPv6 payload, but the IPv6 fields are set to zero.

```
Router(config)# flow monitor-map MPLS-IPv6-fmm
Router(config-fmm)# record mpls IPv6-fields labels 3
Router(config-fmm)# cache permanent
Router(config-fmm)# exit
Router(config)# interface HundredGigE 0/0/0/0
Router(config-if)# flow mpls monitor MPLS-IPv6-fmm sampler fsm ingress
```

This configuration allows you to collect MPLS traffic with both IPv6 and IPv4 fields. It also collects MPLS traffic with no IPv4 or IPv6 payload, but those fields are set to zero.

```
Router(config)# flow monitor-map MPLS-IPv4-IPv6-fmm
Router(config-fmm)# record mpls IPv4-IPv6-fields labels 3
Router(config-fmm)# cache permanent
Router(config-fmm)# exit
Router(config)# interface HundredGigE 0/0/0/0
Router(config-if)# flow mpls monitor MPLS-IPv4-IPv6-fmm sampler fsm ingress
```

This example shows how to configure three labels for hashing:

```
Router# configure
Router(config)# flow monitor-map map1
Router(config-fmm)# record mpls labels 3
```

sampler-map

To enter sampler map configuration submode for a specific monitor map, use the **sampler-map** command in XR Config mode. To remove a configured sampler map, use the **no** form of this command.

sampler-map *map_name*

Syntax Description

map_name	Name of the sampler map you want to configure. The sampler map name can be a maximum 32 characters.

Command Default

None

Command Modes

XR Config mode

Command History

Release	Modification
Release 7.0.12	This command was introduced.

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
netflow	read, write

Examples

This example shows how to use the **sampler-map** command to enter sampler map configuration submode for the monitor map called `map1`:

```
Router# configure
Router(config)# sampler-map map1
Router(config-sm)#
```

show flow exporter

To display the flow exporter data, use the **show flow exporter** command in XR EXEC mode.

show flow exporter [*exporter_name*] **location** *node-id*

Syntax Description

exporter_name	Identifies the flow exporter whose data you want to display.
location *node-id*	Specifies the location where the cache resides. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Run the **show platform** command to see the location of all nodes installed in the router.

Command Default

None

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
netflow	read

Examples

This example shows how to display flow exporter map data:

```
Router# show flow exporter fem1 location 0/0/CPU0

Flow Exporter: NFC
Used by flow monitors: fmm4

Status: Normal
Transport   UDP
Destination 12.24.39.0      (50001)
Source      12.25.54.3      (5956)
Flows exported:                                 0 (0 bytes)
Flows dropped:                                  0 (0 bytes)

Templates exported:                             1 (88 bytes)
Templates dropped:                              0 (0 bytes)

Option data exported:                           0 (0 bytes)
Option data dropped:                            0 (0 bytes)

Option templates exported:                      2 (56 bytes)
```

```
Option templates dropped:                          0 (0 bytes)

Packets exported:                                  3 (144 bytes)
Packets dropped:                                   0 (0 bytes)

Total export over last interval of:
  1 hour:                                          0 pkts
                                                   0 bytes
                                                   0 flows
  1 minute:                                        3 pkts
                                                 144 bytes
                                                   0 flows
  1 second:                                        0 pkts
                                                   0 bytes
                                                   0 flows
```

Table 2: Command Field Descriptions

Field	Description
Id	Identifies the flow exporter map.
Used by flow monitors	Name of the flow monitors associated with the specified flow exporter map.
Status	Status of the exporter. • Normal—Exporter is active and can export packets. • Disabled—Exporter cannot send out packets because the collector is unreachable or the configuration is incomplete.
Destination	Export destination address the current flow exporter map.
Flows exported	Flows exported, in bytes.
Flows dropped	Flows dropped, in bytes.
Templates exported	Templates exported, in bytes.
Templates dropped	Templates dropped, in bytes.
Option data exported	Option data exported, in bytes.
Option data dropped	Option data dropped, in bytes.
Option templates exported	Option templates exported, in bytes.
Option templates dropped	Option templates dropped, in bytes.
Packets exported:	Packets exported, in bytes.
Packets dropped	Packets dropped, in bytes.
Average export rate over interval of last:	Average export rate, in bytes/pkts. Information is displayed for intervals of the last hour, minute, and second.

show flow exporter-map

To display information about flow exporter map for a specific node, enter the **show flow exporter-map** command in XR EXEC mode.

show flow exporter-map [*name*]

Syntax Description

name	Name of the exporter map whose information you want to display.

Command Default

None

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 7.0.12	This command was introduced.
Release 7.2.12	The show command output was updated to display sFlow information.
Release 7.10.1	The show command output was updated to display **router-id** information.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
netflow	read

Examples

This example shows how to display flow exporter map information that includes sFlow:

```
Router# show flow exporter-map sflow_exporter1
Wed Sep 23 04:16:52.516 UTC

Flow Exporter Map : sflow_exporter1
-------------------------------------------------
Id                  : 2
Packet-Length       : 1468
DestinationIpAddr   : 192.127.0.3
VRFName             : default
SourceIfName        : HundredGigE0/0/0/28
SourceIpAddr        : 192.127.10.12
DSCP                : 40
TransportProtocol   : UDP
TransportDestPort   : 6343
Do Not Fragment     : Enabled

Export Version: sFlow Protocol
sFlow protocol version: v5
```

This example shows how to display flow exporter map information:

```
Router# show flow exporter-map map1

Flow Exporter Map : map1
-------------------------------------------------
Id                 : 2
DestinationIpAddr   : 10.1.1.1
SourceIfName        : Loopback0
SourceIpAddr        : 10.1.1.1
DSCP                : 10
TransportProtocol   : UDP
TransportDestPort   : 1024

Export Version: 9
  Common Template Timeout : 1800 seconds
  Options Template Timeout : 1800 seconds
  Data Template Timeout : 600 seconds
  Interface-Table Export Timeout : 1800 seconds
  Sampler-Table Export Timeout : 0 seconds
```

This example shows how to display flow exporter map with **router-id** information:

```
Router# show flow exporter-map E
Fri Mar 24 13:28:13.617 IST

Flow Exporter Map   : E
-------------------------------------------------
Id                  : 6
Packet-Length       : 1468
DestinationIpAddr   :
VRFName             :
SourceIfName        :
SourceIpAddr        : Unsupported family type (0)
DSCP                : 0
TransportProtocol   :
TransportDestPort   :
TransportSourcePortSelectionMethod   :
Do Not Fragment     : Not Enabled
Router-Id           : 209.165.201.1

Export Version: 9
  Common Template Timeout : 1800 seconds
  Options Template Timeout : 1800 seconds
  Data Template Timeout : 1800 seconds
  Interface-Table Export Timeout : 0 seconds
  Sampler-Table Export Timeout : 0 seconds
  VRF-Table Export Timeout : 0 seconds
```

This table describes the significant fields shown in the display.

Table 3: Command Field Descriptions

Field	Description
Id	Identifies the flow exporter map.
DestinationIpAddr	Exports destination configuration.
SourceIfName	Source interface for this exporter map. You can specify the source interface with the **flow exporter-map** command.
SourceIpAddr	IP address of the source interface (SourceIfName).

Field	Description
DSCP	Differentiated services codepoint (DSCP) value for export packets. You can specify the DSCP with the **flow exporter-map** command.
TransportProtocol	Displays the configured transport protocol. Cisco IOS XR software supports only the UDP transport protocol only. You can specify the transport protocol with the **flow exporter-map** command.
TransportDestPort	Displays the configured destination port for UDP packets.
Router-Id	Displays the configured router-id or agent-id.
Export Version	Displays the configured export format. Cisco IOS XR software supports export format version 9.
Common Template Timeout	Displays the configured common template timeout.
Options Template Timeout	Displays the configured options template timeout. You can specify the options template timeout with the **flow exporter-map** command.
Data Template Timeout	Displays the configured data template timeout. You can specify the data template timeout with the **flow exporter-map** command.
Interface-Table Export Timeout	Displays the export timeout value for the interface table. You can specify the export timeout for the interface table with the **flow exporter-map** command.
Sampler-Table Export Timeout	Displays the export timeout value for the sampler table. You can specify the export timeout for the sampler table with the **flow exporter-map** command.

show flow monitor

To display flow monitor cache data in various formats, enter the **show flow monitor** command in XR EXEC mode.

To match on Access Control Lists (ACLs) and one or more fields:

show flow monitor *monitor-name* **cache match** {**ipv4** {**acl** *name* | **source-address** *match-options* | **destination-address** *match-options* | **protocol** *match-options* | **tos** *match-options*} | **ipv6** {**acl** *name* | **source-address** *match-options* | **destination-address** *match-options* | **protocol** *match-options* | **tc** *match-options*} | **layer4** {**source-port-overloaded** *match-options* | **destination-port-overloaded** *match-options* | **tcp-flags** *match-flags-options*} | **bgp** {**source-as** *match-options* | **destination-as** *match-options*} | **interface** {**ingress** *match-if-options*} | **timestamp** {**first** *match-options* | **last** *match-options*} | **counters** {**byte** *match-options* | **packets** *match-options*} | **misc** {**forwarding-status** *match-options* | **direction** *match-dir-options*}}

To sort flow record information according to a particular field:

show flow monitor *monitor-name* **cache sort** {**ipv4** {**source-address** | **destination-address** | **tos** | **protocol**} | **ipv4** {**source-address** | **destination-address** | **tc** | **protocol**} | **mpls** {**label-2** | **label-3** | **label-4** | **label-5** | **label-6** | **label-type** | **prefix** | **top-label**} | **layer4** {**source-port-overloaded** | **destination-port-overloaded**} | **bgp** {**source-as** | **destination-as**} | **timestamp** {**first** | **last**} | **counters** {**bytes** | **packets**} | **misc** {**forwarding-status** | **direction**} {**top** | **bottom**} [*entries*]}

To include or exclude one or more fields in the **show flow monitor** command output:

show flow monitor *monitor-name* **cache** {**include** | **exclude**} {**ipv4** {**source-address** | **destination-address** | **tos** | **protocol**} | **ipv6** {**source-address** | **destination-address** | **tc** | **flow-label** | **option-headers** | **protocol**} | **mpls** {**label-2** | **label-3** | **label-4** | **label-5** | **label-6** | **top-label**} | **layer4** {**source-port-overloaded** | **destination-port-overloaded**} | **bgp** {**source-as** | **destination-as**} | **timestamp** {**first** | **last**} | **counters** {**bytes** | **packets**} | **misc** {**forwarding-status** *match-options* | **direction** *match-dir-options*}}

To display summarized flow record statistics:

show flow monitor *monitor-name* **cache summary location** *node-id*

To display only key field, packet, and byte information for the flow records:

show flow monitor *monitor-name* **cache brief location** *node-id*

To display flow record information for a particular node only:

show flow monitor *monitor-name* **cache location** *node-id*

Syntax Description

If you specified the **show flow monitor monitor-name cache match** command to match on ACL and one or more fields:

monitor-name	Flow monitor map whose details you want to display.
cache	Displays details about the flow monitor cache.

match	Specifies match criteria for the display. Enter the **match** keyword followed by the **?** command to see a complete list of possible match criteria.
ipv4	Specifies IPv4 fields.
ipv6	Specifies IPv6 fields.
acl *name*	Specifies an access list. Replace name with the *name* of the access whose information you want to display.
source-address *match-options*	Specifies source IP address match options. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** Enter the **source-address** keyword followed by the **?** command to see a complete list of possible match criteria.
destination-address	Specifies IPV4 or IPv6 destination address match options. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** Enter the **destination-address** keyword followed by the **?** command to see a complete list of possible match criteria.
tos *match-options*	Compares fields and matches them based on the type of service value. Range is from 0 through 255. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** Enter the **tos** keyword followed by the **?** command to see a complete list of possible match criteria.

protocol *match-options*	Compares fields and matches them based on the protocol value. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** Enter the **protocol** keyword followed by the **?** command to see a complete list of possible match criteria.
layer4	Compares Layer 4 fields and matches them based on specific criteria. You can specify match criteria for any of the following Layer 4 fields: • **destination-port-overloaded** • **source-port-overloaded** • **tcp-flags** **Note** Enter the **layer4** keyword followed by the **?** command to see a complete list of possible Layer 4 fields to compare and match.
destination-port-overloaded	Compares fields and matches them based on the **destination-port-overloaded** value. The destination port is matched if the protocol specified for that port is TCP or UDP. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** Enter the **destination-port-overloaded** keyword followed by the ? command to see a complete list of possible match criteria.

source-port-overloaded	Compares fields and matches them based on the **source-port-overloaded** value. The source port is matched if the protocol specified for that port is one of the following: • TCP—Range is from 0 through 65535. • UDP—Range is from 0 through 65535. • ICMP—Type or code is in range from 0 through 255. • IGMP—Type is in range from 0 through 255. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** NoteEnter the **source-port-overloaded** keyword followed by the **?** command to see a complete list of possible match criteria.
tcp-flags *match-flags-options*	Specifies TCP flags, as follows: • **all** —Match all of the fields • **any** —Match any of the fields • **none** —Match none of the fields. **Note** Enter the **tcp-flags** keyword followed by the **?** command to see a complete list of possible match criteria.
bgp	Compares BGP fields and matches them based on specific criteria. You can specify match criteria for any of the following BGP fields: • **destination-as** —Destination as. • **source-as** —Source as.

source-as *match-options*	Compares and matches the BGP autonomous system number of the destination address. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** Enter the **source-as** keyword followed by the **?** command to see a complete list of possible match criteria.
destination-as match-options	Compares and matches the BGP autonomous system number of the source address. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** Enter the **destination-as** keyword followed by the **?** command to see a complete list of possible match criteria.
timestamp	Specifies the time stamp for which to compare and match the specified criteria. Enter the **first** keyword or the **last** keyword to specify the time stamp whose criteria you want to compare.
first *match-options*	Compares fields from the first time stamp and matches them based on the match-options value. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** Enter the **first** keyword followed by the **?** command to see a complete list of possible match criteria.

last *match-options*	Compares fields from the last time stamp and matches them based on the match-if-options value. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** Enter the **last** keyword followed by the **?** command to see a complete list of possible match criteria.
counters	Specifies the counters for which to compare and match the specified criteria. Enter the **byte** keyword or the **packets** keyword to specify the counters whose criteria you want to compare.
byte *match-options*	Compares bytes counter fields and matches them based on the match-options value. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** Enter the **byte** keyword followed by the **?** command to see a complete list of possible match criteria.
packets *match-options*	Compares packets counter fields and matches them based on the match-options value. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. **Note** Enter the **byte** keyword followed by the **?** command to see a complete list of possible match criteria.
misc	Specifies miscellaneous fields for which to compare and match the specified criteria. Enter the **forwarding-status** keyword or the **direction** keyword to specify the field whose criteria you want to compare.

forwarding-status *match-options*	Compares forwarding status fields and matches them based on the match-options value. Possible match options are: • **eq** —Match if equal to field value. • **gt** —Match if greater than field value. • **lt** —Match if less than field value. • **neq** —Match if not equal to field value. • **range** —Match if within the range of field values. Enter the **forwarding-status** keyword followed by the **?** command to see a complete list of possible match criteria.
direction *match-dir-options*	Compares information about the direction of the flow and matches it based on the match-options value. Possible match options are: • **eq** —Match if equal to field value. • **neq** —Match if not equal to field value. **Note** Enter the **direction** keyword followed by the **?** command to see a complete list of possible match criteria.
To sort flow record information according to a particular field:	
monitor-name	Flow monitor map whose details you want to display.
cache	Displays details about the flow monitor cache.
sort	Determines sorting criteria for the **show flow monitor** command display.
ipv4	Specifies sorting criteria for one of the following IPv4 fields: • **destination-address** • **source-address** • **protocol** • **tos** **Note** Enter the **ipv4** keyword followed by the **?** command to see a complete list of possible sorting criteria.

ipv6	Specifies sorting criteria for one of the following IPv6 fields: • **destination-address** • **source-address** • **protocol** • **tos** **Note** Enter the **ipv6** keyword followed by the **?** command to see a complete list of possible sorting criteria.
source-address	Displays IPv4 or IPv6 information for the source address according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **source-address** keyword followed by the **?** command to see a complete list of possible sorting criteria.
destination-address	Displays IPv4 or IPv6 information for the destination address according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **destination-address** keyword followed by the **?** command to see a complete list of possible sorting criteria.
tos	Displays IPv4 type of service information according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **tos** keyword followed by the **?** command to see a complete list of possible sorting criteria.

tc	Displays IPv6 traffic class information according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **tc** keyword followed by the **?** command to see a complete list of possible sorting criteria.
protocol	Displays IPv4 or IPv6 protocol information according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **tos** keyword followed by the **?** command to see a complete list of possible sorting criteria.
mpls	Specifies sorting criteria for one of the following MPLS fields: • **label-2** • **label-3** • **label-4** • **label-5** • **label-6** • **label-type** • **prefix** • **top-label** **Note** Enter the **mpls** keyword followed by the **?** command to see a complete list of possible sorting criteria.
label-2	Displays MPLS information for the second label in the MPLS label stack. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries.

label-3	Displays MPLS information for the third label in the MPLS label stack. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries.
label-4	Displays MPLS information for the fourth label in the MPLS label stack. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries.
label-5	Displays MPLS information for the fifth label in the MPLS label stack. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries.
label-6	Displays MPLS information for the sixth label in the MPLS label stack. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries.
label-type	Displays MPLS information for the specified type of label in the MPLS label stack. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries.
prefix	Displays MPLS information for the destination address. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries.
top-label	Displays MPLS information for the top label in the MPLS label stack. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries.

layer4	Specifies sorting criteria for one of the following Layer 4 fields: • **source-port-overloaded** • **destination-port-overloaded** **Note** Enter the **layer4** keyword followed by the **?** command to see a complete list of possible sorting criteria.
source-port-overloaded	Displays source port overload information according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **source-port-overloaded** keyword followed by the **?** command to see a complete list of possible sorting criteria.
destination-port-overloaded	Displays destination port overload information according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **destination-port-overloaded** keyword followed by the **?** command to see a complete list of possible sorting criteria.
bgp	Specifies sorting criteria for one of the following BGP fields: • **source-as** • **destination-as** **Note** Enter the **layer4** keyword followed by the **?** command to see a complete list of possible sorting criteria.

source-as	Displays information about the BGP source address autonomous system number according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **source-as** keyword followed by the **?** command to see a complete list of possible sorting criteria.
destination-as	Displays information about the BGP destination address autonomous system number according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **destination-as** keyword followed by the **?** command to see a complete list of possible sorting criteria.
timestamp	Specifies sorting criteria for the first or last time stamp. Enter the **first** keyword or the **last** keyword to specify the time stamp whose criteria you want to specify. **Note** Enter the **timestamp** keyword followed by the **?** command to see a complete list of possible sorting criteria.
first	Displays information for the first time stamp according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **first** keyword followed by the **?** command to see a complete list of possible sorting criteria.

last	Displays information for the last time stamp according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **last** keyword followed by the **?** command to see a complete list of possible sorting criteria.
counters	Specifies sorting criteria for the bytes or packets counters. Follow the **counters** keyword with the **byte** keyword or the **packets** keyword to specify the counters whose criteria you want to compare.
bytes	Displays bytes counter information according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **bytes** keyword followed by the **?** command to see a complete list of possible sorting criteria.
packets	Displays packets counter information according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **packets** keyword followed by the **?** command to see a complete list of possible sorting criteria.
misc	Specifies sorting criteria for miscellaneous fields. Follow the **misc** keyword with the **forwarding-status** keyword or the **direction** keyword to specify the counters whose criteria you want to compare.

forwarding-status	Displays forwarding status information according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **forwarding-status** keyword followed by the **?** command to see a complete list of possible sorting criteria.
direction	Displays information about the direction of the flow according to the specified sorting criteria. Possible sorting options are: • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries. **Note** Enter the **direction** keyword followed by the **?** command to see a complete list of possible sorting criteria.
top	Displays top cache entries. Replace records with the number of records you want to display. **Note** You can follow the **top** keyword with the optional entries argument to specify the number of records to display.
bottom	Displays bottom cache entries. Replace records with the number of records you want to display. **Note** You can follow the **bottom** keyword with the optional entries argument to specify the number of records to display.
entries	Number of records to display. Range is from 1 through 1000.
To include or exclude one or more fields in the show flow monitor command output:	
monitor-name	Flow monitor map whose details you want to display.
cache	Displays details about the flow monitor cache.
include	Includes the specified fields in the display output. Enter the **include** keyword, followed by the keyword or keywords that specify the fields to include. **Note** To see a list of fields that can be included, enter the **include** keyword, followed by the ? command.

exclude	Excludes the specified fields in the display output. Enter the **exclude** keyword, followed by the keyword or keywords that specify the fields to exclude. **Note** To see a list of fields that can be excluded, enter the **exclude** keyword, followed by the ? command.
ipv4	Includes or excludes one of the following IPv4 fields in the command output: • **destination-address** • **source-address** • **protocol** • **tos** **Note** Enter the **ipv4** keyword followed by the **?** command to see a complete list of possible sorting criteria.
ipv6	Includes or excludes one of the following IPv6 fields in the command output: • **destination-address** • **flow-label** • **option-headers** • **source-address** • **protocol** • **tos** **Note** Enter the **ipv6** keyword followed by the **?** command to see a complete list of possible sorting criteria.
source-address	Includes or excludes IPV4 or IPV6 information for the source address in the command output.
destination-address	Includes or excludes IPV4 or IPV6 information for the destination address in the command output.
flow-label	Includes or excludes information about the IPv6 flow label in the command output. The flow label is the 20-bit flow label id present in every IPv6 packet header.

option-headers	Includes or excludes IPV6 information for the option headers in the command output. The option header is a bit mask that indicates which options headers are present in the IPv6 header.
tos	Includes or excludes IPV4 type of service information in the command output.
tc	Includes or excludes IPV6 traffic class information in the command output.
protocol	Includes or excludes IPV4 or IPV6 protocol information in the command output.
mpls	Includes or excludes one of the following MPLS fields in the command output: • **label-2** • **label-3** • **label-4** • **label-5** • **label-6** • **top-label** **Note** Enter the **mpls** keyword followed by the **?** command to see a complete list of possible sorting criteria.
label-2	Includes or excludes MPLS information for the second label in the MPLS label stack.
label-3	Includes or excludes MPLS information for the third label in the MPLS label stack.
label-4	Includes or excludes MPLS information for the fourth label in the MPLS label stack.
label-5	Includes or excludes MPLS information for the fifth label in the MPLS label stack.
label-6	Includes or excludes MPLS information for the sixth label in the MPLS label stack.
top-label	Includes or excludes MPLS information for the top label in the MPLS label stack.

layer4	Includes or excludes one of the following the following Layer 4 fields in the command output: • **source-port-overloaded** • **destination-port-overloaded** **Note** Enter the **layer4** keyword followed by the **?** command to see a complete list of possible sorting criteria.
source-port-overloaded	Includes or excludes source port overload information in the command output.
destination-port-overloaded	Includes or excludes destination port overload information in the command output. • **top** —Displays top cache entries. • **bottom** —Displays bottom cache entries.
bgp	Includes or excludes the following BGP fields in the command output: • **source-as** • **destination-as** **Note** Enter the **bgp** keyword followed by the **?** command to see a complete list of possible sorting criteria.
source-as	Includes or excludes information about the BGP source address autonomous system number in the command output.
destination-as	Includes or excludes information about the BGP destination address autonomous system number in the command output.
timestamp	Includes or excludes information from the first or last time stamp in the command output. Enter the **first** keyword or the **last** keyword to include or exclude information about a specific time stamp. **Note** Enter the **timestamp** keyword followed by the **?** command to see a complete list of possible sorting criteria.
first	Includes or excludes information for the first time stamp in the command output.
last	Includes or excludes information for the first time stamp in the command output.

counters	Includes or excludes bytes or packets counters in the command output. Follow the **counters** keyword with the **byte** keyword or the **packets** keyword to include or exclude particular counters. **Note** Enter the **counters** keyword followed by the **?** command to see a complete list of possible sorting criteria.
bytes	Includes or excludes bytes counter information in the command output.
packets	Includes or excludes packets counter information in the command output.
misc	Includes or excludes information for miscellaneous fields in the command output. Follow the **misc** keyword with the **forwarding-status** keyword or the **direction** keyword to specify the field you want to include or exclude. **Note** Enter the **misc** keyword followed by the **?** command to see a complete list of possible sorting criteria.
forwarding-status	Includes or excludes forwarding status information in the command output.
direction	Includes or excludes information about the direction of the flow in the command output.
top	Includes or excludes top cache entries in the command output. Replace records with the number of *records* you want to display.
bottom	Includes or excludes bottom cache entries. Replace records with the number of *records* you want to display
entries	Number of records to display. Range is from 1 through 1000.
To display summarized flow record statistics:	
monitor-name	Flow monitor map whose details you want to display.
cache	Displays details about the flow monitor cache.
summary	Displays summarized flow monitor information only.
monitor-name	Flow monitor map whose details you want to display.
cache	Displays details about the flow monitor cache.

brief	Abbreviates the **show flow monitor** command output.
To display flow record information for a particular node only:	
monitor-name	Flow monitor map whose details you want to display.
cache	Displays details about the flow monitor cache.
location *node-id*	Identifies the node whose flow exporter statistics you want to clear, or whose flow exporter statistics collector you want to restart. The *node-id* argument is expressed in the *rack/slot/module* notation. **Note** Enter the **location** keyword followed by the **?** command to see a complete list of possible sorting criteria.

Command Default

None

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

To collect source and destination AS information, you must enable BGP on the relevant BGP AFI/SAFI. Unless this is done, all AS numbers in the flow records are displayed as *0*.

Keep these information in mind when using the **show flow monitor** command:

- The **show flow monitor** command can include combinations of these options:
  - **format**
  - **match**
  - **include**
  - **exclude**
  - **sort**
  - **summary**
  - **location**
- We do not recommend including the **summary** option with the **sort** and **format** options.
- The mutually exclusive options are **summary**, **brief**, **include**, and **exclude**.
- To see a list of fields that can be included after a keyword, enter the **?** command, as shown in this example:

```
Router# show flow monitor map1 cache summary ?
```

```
brief     Show just the key fields
exclude   Exclude field
format    Display format
include   Include field
location  Specify a location
match     Match criteria
sort      Sorting criteria
```

Task ID

Task ID	Operations
netflow	read

Examples

This example shows how to display flow monitor data for a specific monitor map cache in the location 0/0/CPU0 *:*

```
Router# show flow monitor fmm2 cache loc 0/0/CPU0

Cache summary for Flow Monitor fmm2:
Cache size:                         65535
Current entries:                        4
High Watermark:                     62258
Flows added:                            4
Flows not added:                        0
Ager Polls:                            60
  - Active timeout                      0
  - Inactive timeout                    0
  - TCP FIN flag                        0
  - Watermark aged                      0
  - Emergency aged                      0
  - Counter wrap aged                   0
  - Total                               0
Periodic export:
  - Counter wrap                        0
  - TCP FIN flag                        0
Flows exported                          0
Matching entries:                       4

IPV4SrcAddr      IPV4DstAddr      L4SrcPort  L4DestPort BGPDstOrigAS BGPSrcOrigAS
IPV4DstPrfxLen
IPV4SrcPrfxLen  IPV4Prot IPV4TOS  InputInterface  OutputInterface L4TCPFlags   ForwardStatus
ForwardReason FirstSwitched   LastSwitched    ByteCount    PacketCount  Dir Sampler ID
17.17.17.2       18.18.18.2       0          0          0            0            24
        24        $
61       normal   HundredGigE /0/0/8       HundredGigE 0/0/0/12      0            Fwd
      0             00
00:02:43:800 00 00:02:49:980 37200        620           In 0
18.18.18.2       17.17.17.2       0          0          0            0            24
        24        $
61       normal   HundredGigE 0/0/0/12      HundredGigE 0/0/0/8       0            Fwd
       0             00
00:02:43:791 00 00:02:49:980 37200        620           In 0
17.17.17.2       18.18.18.2       0          0          0            0            24
        0         $
61       normal   HundredGigE 0/0/0/8       HundredGigE 0/0/0/12      0            Fwd
       0             00
00:02:43:798 00 00:02:49:980 34720        620          Out 0
18.18.18.2       17.17.17.2       0          0          0            0            24
        0         $
61       normal   HundredGigE 0/0/0/12      HundredGigE 0/0/0/8       0            Fwd
```

```
       0             00
00:02:43:797 00 00:02:49:980 34720        620          Out 0
L4SrcPort  L4DestPort BGPDstOrigAS BGPSrcOrigAS IPV4DstPrfxLen
```

This table describes the significant fields shown in the display.

Table 4: show flow monitor Field Descriptions

Field	Description
Cache summary for Flow Monitor fmm2	Displays general cache information for the specified flow monitor. The following information is displayed • Cache size for the specified flow monitor map • Current number of entries in the cache • High watermark for this cache • Number of flows added to the cache • Number of flows not added to the cache
Ager Polls	Displays the following ager statistics: • Active timeout • Inactive timeout • TCP FIN flag • Watermark aged • Emergency aged • Counter wrap aged • Total
Periodic export	• Counter wrap • TCP FIN flag
Cache summary for Flow Monitor fmm2	Displays general cache information for the specified flow monitor. The following information is displayed • Cache size for the specified flow monitor map • Current number of entries in the cache • High watermark for this cache • Number of flows added to the cache • Number of flows not added to the cache

show flow monitor-map

To display flow monitor map data, enter the **show flow monitor-map** command in XR EXEC mode.

show flow monitor-map *map-name*

Syntax Description

map-name	Name of the monitor map whose data you want to display.

Command Default

None

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 7.0.12	This command was introduced.
Release 7.2.12	The show command output was updated to display sFlow information.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
netflow	read

Examples

This example shows how to display monitor-map data for a sFlow:

```
Router# show flow monitor-map sflow_monitor1
Wed Sep 23 04:18:38.942 UTC

Flow Monitor Map : sflow_monitor1
-----------------------------------------------
Id:                3
RecordMapName:     sflow (1 labels)
ExportMapName:     sflow_exporter1
CacheAgingMode:    Normal
CacheMaxEntries:   65535
CacheActiveTout:   1800 seconds
CacheInactiveTout: 15 seconds
CacheUpdateTout:   N/A
CacheRateLimit:    2000
HwCacheExists:     False
HwCacheInactTout:  50

sFlow options:
  Option: extended router
  Option: extended gateway
  Option: Input ifindex physical
  Option: Output ifindex physical
```

```
  Option: Max sample header size: using default: 128
  Option: if_stats counter sampling with interval 5 seconds
```

This example shows how to display monitor-map data for a specific flow:

```
Router# show flow monitor-map map1

Flow Monitor Map : map1
-----------------------------------------------
Id:                1
RecordMapName:     ipv4
ExportMapName:     NFC
CacheAgingMode:    Permanent
CacheMaxEntries:   10000
CacheActiveTout:   N/A
CacheInactiveTout: N/A
CacheUpdateTout:   60 seconds
```

This table describes the significant fields shown in the display.

Table 5: Command Field Descriptions

Field	Description
Flow Monitor Map	Name of the flow monitor map whose information is displayed in the **show flow monitor-map** command output.
Id	Number that identifies the flow monitor map.
RecordMapName	Name of the flow record map that is associated with this monitor map. It indicates the type of packets NetFlow captures as they leave the router.
ExportMapName	Name of the export map that is associated with this monitor map.
CacheAgingMode	Current aging mode configured on this cache. A `Permanent` indicates that the removal of entries from the monitor map flow cache is disabled. To configure the number of entries allowed in the monitor map flow cache, run the **cache entries** command in flow monitor map configuration mode. To disable the removal of entries from the monitor map flow cache, enter the **cache permanent** command in flow monitor map configuration mode.
CacheMaxEntries	Number of flow entries currently allowed in the flow cache before the oldest entry is removed. To modify the number of entries in the monitor map flow cache, enter the **cache entries** command in flow monitor map configuration mode.
CacheActiveTout	Active flow timeout configured for this cache, in seconds. To modify the configured active flow timeout, use the **cache timeout** command in flow monitor map configuration mode.
CacheInactiveTout	Inactive flow timeout configured for this cache, in seconds. To modify the configured inactive flow timeout, use the **cache timeout** command in flow monitor map configuration mode.

Field	Description
CacheUpdateTout	Update timeout configured for this cache, in seconds. To modify the configured update timeout, use the **cache timeout** command in flow monitor map configuration mode.
sFlow Options	The options include the following parameters: • Extended-gateway • Extended-router • Input ifindex physical • Output ifindex physical • Max sample header size • if_stats counter sampling rate in seconds

This example shows how to display monitor-map data for a specific IPv6 flow:

```
Router# show flow monitor-map map2

Tue Jan 22 00:15:53.424 PST
Flow Monitor Map : map2
-----------------------------------------------
Id: 1
RecordMapName: ipv6
CacheAgingMode: Normal
CacheMaxEntries: 65535
CacheActiveTout: 1800 seconds
CacheInactiveTout: 15 seconds
CacheUpdateTout: N/A
```

show flow platform producer statistics location

To display statistics collected by the NetFlow producer, use the **show flow platform producer statistics location** command in XR EXEC mode.

show flow platform producer statistics location *node-id*

Syntax Description

node-id	Location of the node whose NetFlow producer statistics you want to display. The *node-id* is expressed in the *rack/slot/module* notation.

Note Enter the **show platform** command to see the location of all nodes installed in the router.

Command Default

None

Command Modes

XR EXEC mode

Command History

Release	Modification
Release 7.0.12	This command was introduced.
Release 7.2.12	The show command output was updated to display sFlow statistics.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
netflow	read

Examples

This example shows Netflow, IPFIX315 and sFlow statistics collected by the NetFlow producer for the CPU card in slot 0:

```
Router# show flow platform producer statistics location 0/RP0/CPU0

Tue Sep 22 17:31:04.237 UTC
Netflow Platform Producer Counters:
IPv4 Ingress Packets:                       0
IPv4 Egress Packets:                        0
IPv6 Ingress Packets:                       0
IPv6 Egress Packets:                        0
MPLS Ingress Packets:                       0
MPLS Egress Packets:                        0

IPFIX315 Platform Producer Counters:
IPFIX315 Ingress Packets:                   0
IPFIX315 Egress Packets:                    0

sFlow Platform Producer Counters:
```

```
sFlow Ingress Packets:                        78655
sFlow Egress Packets:                         0

Common Platform Producer Counters:
Drops (no space):                             0
Drops (other):                                0
Unknown Ingress Packets:                      0
Unknown Egress Packets:                       0
```

Examples

This example shows how to display statistics collected by the NetFlow producer for the CPU card in slot 0:

```
Router# show flow platform producer statistics location 0/0/CPU0

Netflow Platform Producer Counters:
IPv4 Ingress Packets:                       0
IPv4 Egress Packets:                        0
IPv6 Ingress Packets:                       0
IPv6 Egress Packets:                        0
MPLS Ingress Packets:                       0
MPLS Egress Packets:                        0
Drops (no space):                           0
Drops (other):                              0
Unknown Ingress Packets:                    0
Unknown Egress Packets:                     0
Worker waiting:                             0
```

This table describes the significant fields shown in the display.

Table 6: Command Field Descriptions

Field	Description
IPv4 Ingress Packets	Number of IPv4 packets that were received from the remote end.
IPv4 Egress Packets	Number of transmitted IPv4 packets.
MPLS Ingress Packets	Number of MPLS packets that were received from the remote end.
MPLS Egress Packets	Number of transmitted MPLS packets.
Drops (no space)	Number of packets that the producer could not enqueue to the NetFlow server because the server input ring was full.
Drops (other)	Number of packets that the producer could not enqueue to the NetFlow server due to errors other than the server input ring being full.
Unknown Ingress Packets	Number of unrecognized packets received from the remote end that were dropped.
Unknown Egress Packets	Number of packets transmitted to the remote end that were dropped because they were not recognized by the remote end.
Worker waiting	Number of times that the producer needed to use the server. **Note** This field is strictly informational and does not indicate any error.

show sampler-map

To display sampler map information, enter the **show sampler-map** command in XR EXEC mode.

show sampler-map [*sampler-name*]

Syntax Description

sampler-name	Identifies the sampler map whose information you want to display.

Command Default

None

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
netflow	read

Examples

This example shows how to display sampler map information :

```
Router# show sampler-map SF-SAMP-MAP

Sampler Map : SF-SAMP-MAP
-------------------------------------------------
Id:         1
Mode:       Random (1 out of 4096 Pkts)
```

This example shows how to display sampler map information for a router:

```
Router# show sampler-map map1

Sampler Map : map1
-------------------------------------------------
Id:      1
Mode:    Random (1 out of 100 Pkts)
```

This table describes the significant fields shown in the display.

Table 7: Command Field Descriptions

Field	Description
Id	Flow sampler map identifier.

Field	Description
Mode	Sampling interval in units of packet. “Random” mode is any mode that was configured with the **flow monitor-map** command. Cisco IOS XR software supports only the “Random” mode.

source (NetFlow)

To configure a source interface for the current collector, use the **source** command in flow exporter map configuration mode. To remove a configured source interface, use the **no** form of this command.

source *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

None

Command Modes

Flow exporter map configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

For the *interface-path-id* argument, use the following guidelines:

- If specifying T1/E1/DS0 physical interfaces, the naming notation is *rack*/*slot*/*module*/*port*/*t1-num:*
- *channel-group-number*. If specifying other physical interface types, the naming notation is *rack*/*slot*/*module*/*port.* The slash between values is required as part of the notation. An explanation of each component of the naming notation is as follows:
  - *rack*: Chassis number of the rack.
  - *slot*: Physical slot number of the modular services card or line card.
  - *module*: Module number. A physical layer interface module (PLIM) is always 0. Shared port adapters (SPAs) are referenced by their subslot number.
  - *port*: Physical port number of the T3 controller.
  - *t1-num* : T1 or E1 channel number. T1 channels range from 1 to 24; E1 channels range from 1 to 31.
  - *channel-group-number* : Time slot number. T1 time slots range from 1 to 24; E1 time slots range from 1 to 31. The *channel-group-number* is preceded by a colon and not a slash.
- If specifying a virtual interface, the number range varies, depending on interface type.

Task ID

Task ID	Operations
netflow	read, write

Examples

This example shows how to configure a physical interface as a source for the current collector:

```
Router# configure
Router(config)# flow exporter-map map1
Router(config-fem)# source HundredGigE 0/3/0/0
```

This example shows how to configure a virtual interface as a source for the current collector. In this example, the source is an Ethernet bundle:

```
Router# configure
Router(config)# flow exporter-map map1
Router(config-fem)# source Bundle-Ether 1
```

template (NetFlow)

To configure the export timeout value for the data and options templates, enter the **template** command in flow exporter map version configuration mode. To remove a configured template export timeout value, use the **no** form of this command.

template [**data** | **options**] **timeout** *seconds*

Syntax Description

data	(Optional) Specifies the data template.
options	(Optional) Specifies the options template.
timeout *seconds*	Configures the timeout value for the specified template, or for both the data and options templates. Replace *seconds* with the export timeout value. Range is from 1 through 604800 seconds.

Command Default

Default timeout value for data and options template is 1800 seconds.

Command Modes

Flow exporter map version configuration

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
netflow	read, write

Examples

This example shows how to configure the export timeout value for the data template to be 300 seconds:

```
Router# configure
Router(config)# flow exporter-map fem1
Router(config-fem)# version v9
Router(config-fem-ver)# template data timeout 300
```

transport udp

To configure the destination port for User Datagram Protocol (UDP) packets, enter the **transport udp** command in flow exporter map configuration mode. To remove a configured destination port, use the **no** form of this command.

transport udp *port_value*

Syntax Description

port_value	Destination port for UDP packets. Replace *port* with the destination port value. Range is from 1024 through 65535.

Command Default

None

Command Modes

Flow exporter map configuration

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
netflow	read, write

Examples

This example shows how to configure the destination port for UDP packets:

```
Router# configure
Router(config)# flow exporter-map map1
Router(config-fem)# transport udp 1030
```

version ipfix

To configure Internet Protocol Flow Information Export (IPFIX) as an export version and configure export version parameters, enter the **version ipfix** command in flow exporter map configuration mode. To remove the current export version configuration and return to the default configuration, use the **no** form of this command.

version ipfix [**options {interface-table | sampler-table | vrf-table} timeout** *timeout-value* | **template {data | options } timeout** *timeout-value*]

Syntax Description

options	(Optional) Specifies export of options template. Options template provide extra information about the flow records. The options template include these options: • interface-table • sampler-table • vrf-table For each options template specify timeout value (in seconds) during which the exporter has to retransmit each active options template.
template	(Optional) Specifies template export parameters such as data template and options template timeout configurations.
timeout *timeoutout-value*	Specifies custom timeout value (in seconds) during which the exporter has to retransmit each active template. The range of *timeout-value* is 1 to 604800 seconds.

Command Default

None

Command Modes

Flow exporter map configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

When you issue the **version ipfix** command, the CLI prompt changes to "config-fem-ver," indicating that you have entered flow exporter map version configuration submode. In this sample output, the question mark (**?**) online help function displays all the commands available under flow exporter map version configuration submode:

```
Router(config-fem)# version ipfix
Router(config-fem-ver)#?

  clear     Clear the uncommitted configuration
  commit    Commit the configuration changes to running
  describe  Describe a command without taking real actions
  do        Run an exec command
  exit      Exit from this submode
  no        Negate a command or set its defaults
  options   Specify export of options template
```

```
  pwd       Commands used to reach current submode
  root      Exit to the XR Config mode
  show      Show contents of configuration
  template  Specify template export parameters
```

Task ID

Task ID	Operations
netflow	read, write

Examples

This example shows how to configure IPFIX as an exporter in an flow exporter map configuration submode:

```
Router# configure
Router(config)# flow exporter-map map1
Router(config-fem)# version ipfix
Router(config-fem-ver)#
```

version v9

To enter flow exporter map version configuration submode so that you can configure export version parameters, enter the **version v9** command in flow exporter map configuration mode. To remove the current export version configuration and return to the default configuration, use the **no** form of this command.

version v9

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Flow exporter map configuration

Command History

Release	Modification
Release 7.0.12	This command was introduced.

Usage Guidelines

When you issue the **version v9** command, the CLI prompt changes to "config-fem-ver," indicating that you have entered flow exporter map version configuration submode. In this sample output, the question mark (**?**) online help function displays all the commands available under flow exporter map version configuration submode:

```
Router(config-fem)# version v9
Router(config-fem-ver)#?

  clear     Clear the uncommitted configuration
  commit    Commit the configuration changes to running
  describe  Describe a command without taking real actions
  do        Run an exec command
  exit      Exit from this submode
  no        Negate a command or set its defaults
  options   Specify export of options template
  pwd       Commands used to reach current submode
  root      Exit to the XR Config mode
  show      Show contents of configuration
  template  Specify template export parameters
```

Task ID

Task ID	Operations
netflow	read, write

Examples

This example shows how to enter flow exporter map version configuration submode:

```
Router# configure
Router(config)# flow exporter-map map1
Router(config-fem)# version v9
Router(config-fem-ver)#
```

sFlow Commands

This module provides command line interface (CLI) commands for configuring sFlow on the Cisco 8000 Series Routers.

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.

hw-module profile netflow sflow-enable

To enable sFlow on a specified node location, use the **hw-module profile netflow sflow enable** command in the configuration mode.

hw-module profile netflow sflow enable location *node-id*

Syntax Description

node-id	The node-id argument is entered in the rack/slot/module notation.

Command Default

sFlow is disabled

Command Modes

Configuration

Command History

Release	Modification
Release 7.2.12	This command was introduced.

Usage Guidelines

The Netflow, IPFIX315 and sFlow features are mutually exclusive. Therefore, Netflow, IPFIX315 and sFlow should not be configured on the same node. However, some nodes can have Netflow, IPFIX315 and other nodes can have sFlow configurations.

You must reload the router for the configurations to take effect.

Example

This example shows how to enable sFlow on the node location 0/0/CPU0:

```
Router(config)# hw-module profile netflow sflow-enable location 0/0/CPU0
```

record sflow

To activate an sFlow flow record, use the **record sflow** command in flow monitor map configuration mode. To deactivate the flow record, use the **no** form of this command.

record sflow

Syntax Description

This command has no keywords or arguments.

Command Default

None

Command Modes

Flow monitor map configuration

Command History

Release	Modification
Release 7.2.12	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

This example shows how to configure an sFlow flow record:

```
Router# configure
Router(config)# flow monitor-map SAMPLE-MON-1
Router(config-fmm)# record sflow
```

sflow options

To configure sFlow related options, use the **sflow options** command in flow monitor map configuration mode.

sflow options
[extended-gateway | extended-router | if-counters polling-interval <time-in-seconds> | input ifindex physical | Output ifindex physical | sample-header size <bytes>]

Syntax Description

extended-gateway	(Optional) Enables extended-gateway flow data type. When enabled, the following information is exported to the sFlow agent: • Next-hop IP • Autonomous system number of router, source and source peer • Autonomous system path to the destination • Communities
extended-router	(Optional) Enables extended-router flow data type. When enabled the following information is exported to the sFlow agent: • Next-hop IP • Source and destination mask lengths
if-counters polling-interval *<time-in-seconds>*	(Optional) Specifies polling interval for polling interface counters. The range is from 15-120 seconds. When enabled, the sFlow agent collects the interface statistics from interface counters.
input ifindex physical	(Optional) Specifies ifindex-related options. When enabled the input (physical) interface SNMP ifindex on which the packet arrived is exported to the external collector.
output ifindex physical	(Optional) Specifies ifindex-related options. When enabled the output (physical) interface SNMP ifindex on which the packet departed is exported to the external collector.
sample-header size *<bytes>*	(Optional) Specifies maximum sample-header size to be exported. The size is expressed in bytes. The default size is 128 bytes. Range: 128 - 343 bytes (from Cisco IOS XR Release 7.3.4 onwards) Range: 128 - 200 bytes (prior to Cisco IOS XR Release 7.3.4)

Command Default

None

Command Modes

Flow monitor map configuration

Command History

Release	Modification
Release 7.3.4	Maximum value for configuring sample-header size is increased to 343 bytes.
Release 7.2.12	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Example

This example shows how to configure various sFlow options:

```
Router(config)#flow monitor-map SAM-MON-1
Router(config-fmm)#sflow options
Router(config-fmm-sflow)#extended-gateway
Router(config-fmm-sflow)#extended-router
Router(config-fmm-sflow)#sample-header size 164
Router(config-fmm-sflow)#if-counters polling-interval 30
Router(config-fmm-sflow)#input ifindex physical
Router(config-fmm-sflow)#commit
```

version sflow v5

To configure version 5 as an export version for sFlow, use the **version sflow v5** command in flow exporter map configuration mode. To remove the current export version configuration and return to the default configuration, use the **no** form of this command.

version sflow v5 [**options {interface-table** | **sampler-table** | **vrf-table}** **timeout** *timeout-value* | **template {data** | **options }** **timeout** *timeout-value*]

Syntax Description

options	(Optional) Specifies export of options template. Options template provides extra information about the flow records. The options template include these options: • interface-table • sampler-table • vrf-table For each options template, specify timeout value (in seconds) during which the exporter has to retransmit each active options template.
template	(Optional) Specifies export parameters of the template such as data template and options template timeout configurations.
timeout *timeout-value*	Specifies custom timeout value (in seconds) during which the exporter has to retransmit each active template. The range of *timeout-value* is 1 to 604800 seconds.

Command Default

None

Command Modes

Flow exporter map configuration

Command History

Release	Modification
Release 7.2.12	This command was introduced.

Usage Guidelines

When you issue the **version sflow v5** command, the CLI prompt changes to `config-fem-ver,` indicating that you have entered the version submode of the flow exporter map configuration mode.

Examples

This example shows how to configure sFlow v5 as an exporter in a flow exporter map configuration submode:

```
Router# configure
Router(config)# flow exporter-map SAMPLE-1
Router(config-fem)# version sflow v5
Router(config-fem-ver)#
```

router-id

To configure the sFlow agent ID with a specific IPv4 or IPv6 address, use the **router-id** command in flow exporter map configuration mode.

router-id address { *ipv4* | *ipv6* }

Syntax Description

address *ipv4* | *ipv6*	Specifies the router id in IPv4 or IPv6 address format.

Command Default

None

Command Modes

Flow exporter map configuration

Command History

Release	Modification
Release 7.10.1	This command was introduced.

Examples

This example shows how to configure sFlow agent ID for an IPv4 address in flow exporter map configuration submode:

```
Router#configure
Router(config)#flow exporter-map E
Router(config-fem)#router-id address 209.165.201.1
Router(config-fem)#commit
```

Full Cisco Trademarks with Software License

THE SPECIFICATIONS AND INFORMATION REGARDING THE PRODUCTS IN THIS MANUAL ARE SUBJECT TO CHANGE WITHOUT NOTICE. ALL STATEMENTS, INFORMATION, AND RECOMMENDATIONS IN THIS MANUAL ARE BELIEVED TO BE ACCURATE BUT ARE PRESENTED WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED. USERS MUST TAKE FULL RESPONSIBILITY FOR THEIR APPLICATION OF ANY PRODUCTS.

THE SOFTWARE LICENSE AND LIMITED WARRANTY FOR THE ACCOMPANYING PRODUCT ARE SET FORTH IN THE INFORMATION PACKET THAT SHIPPED WITH THE PRODUCT AND ARE INCORPORATED HEREIN BY THIS REFERENCE. IF YOU ARE UNABLE TO LOCATE THE SOFTWARE LICENSE OR LIMITED WARRANTY, CONTACT YOUR CISCO REPRESENTATIVE FOR A COPY.

The Cisco implementation of TCP header compression is an adaptation of a program developed by the University of California, Berkeley (UCB) as part of UCB's public domain version of the UNIX operating system. All rights reserved. Copyright © 1981, Regents of the University of California.

NOTWITHSTANDING ANY OTHER WARRANTY HEREIN, ALL DOCUMENT FILES AND SOFTWARE OF THESE SUPPLIERS ARE PROVIDED “AS IS" WITH ALL FAULTS. CISCO AND THE ABOVE-NAMED SUPPLIERS DISCLAIM ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, THOSE OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT OR ARISING FROM A COURSE OF DEALING, USAGE, OR TRADE PRACTICE.

IN NO EVENT SHALL CISCO OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES, INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR LOSS OR DAMAGE TO DATA ARISING OUT OF THE USE OR INABILITY TO USE THIS MANUAL, EVEN IF CISCO OR ITS SUPPLIERS HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Any Internet Protocol (IP) addresses and phone numbers used in this document are not intended to be actual addresses and phone numbers. Any examples, command display output, network topology diagrams, and other figures included in the document are shown for illustrative purposes only. Any use of actual IP addresses or phone numbers in illustrative content is unintentional and coincidental.

All printed copies and duplicate soft copies of this document are considered uncontrolled. See the current online version for the latest version.

Cisco has more than 200 offices worldwide. Addresses and phone numbers are listed on the Cisco website at www.cisco.com/go/offices.

Cisco and the Cisco logo are trademarks or registered trademarks of Cisco and/or its affiliates in the U.S. and other countries. To view a list of Cisco trademarks, go to this URL: https://www.cisco.com/c/en/us/about/legal/trademarks.html. Third-party trademarks mentioned are the property of their respective owners. The use of the word partner does not imply a partnership relationship between Cisco and any other company. (1721R)

Full Cisco Trademarks with Software License