



NetFlow Commands

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.

This module provides command line interface (CLI) commands for configuring NetFlow on the Cisco ASR 9000 Series Router.

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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 3.9.1	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:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow monitor-map map1
RP/0/RSP0/CPU0:router(config-fmm)# cache entries 10000
```

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	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.9.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Release 3.9.1	This command was introduced.
Release	Modification				
Release 3.9.1	This command was introduced.				
Usage Guidelines	No specific guidelines impact the use of this command.				

Task ID	Task	Operations
	netflow	read, write

Examples

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

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)#flow monitor-map map1
RP/0/RSP0/CPU0:router(config-fmm)# cache permanent
```

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

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow monitor-map map1
RP/0/RSP0/CPU0:router(config-fmm)# no cache permanent
```

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 6.5.1	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:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)#flow monitor-map map1
RP/0/RSP0/CPU0:router(config-fmm)# cache immediate
```

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.
<i>timeout_value</i>	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 3.9.1	This command was introduced.

Usage Guidelines



Note 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:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow monitor-map map1
RP/0/RSP0/CPU0: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 EXEC mode.

```
clear flow exporter [fem-name] restart | statistics location node-id
```

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

Command Default No default behavior or values

Command Modes EXEC mode

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operations
	basic-services	read, write
	netflow	read, write

Examples

This example exports all templates to the collector:

```
RP/0/RSP0/CPU0: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:

```
RP/0/RSP0/CPU0: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 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 <i>node-id</i>	Node whose flow monitor you want to clear. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.

Command Default None

Command Modes EXEC mode

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task	Operations
	netflow	read, write

Examples

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

```
RP/0/RSP0/CPU0: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 EXEC mode.

clear flow platform producer statistics location *node-id*

Syntax Description	<p><i>node-id</i> Node on which to clear statistics collected by the NetFlow producer. The <i>node-id</i> is expressed in the <i>rack/slot/module</i> notation.</p> <p>Note Enter the show platform command to see the location of all nodes installed in the router.</p>
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Command Default	None
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Command Modes	EXEC mode
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.9.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Release 3.9.1	This command was introduced.
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Usage Guidelines	No specific guidelines impact the use of this command.
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Task ID	Operations				
netflow	read, write				

Examples

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

```
RP/0/RSP0/CPU0: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	<i>hostname_or_IP_address</i> Specify the export destination for the current flow exporter map. Enter the hostname or destination IP address in the <i>A.B.C.D</i> format.
vrf <i>vrf_name</i>	(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 (<i>vrf_name</i>). 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 3.9.1	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:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow exporter-map map1
RP/0/RSP0/CPU0: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	<i>dscp_value</i> Specifies the DSCP value for export packets. Replace <i>dscp_value</i> with a number. Range is from 0 through 63.
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Command Default	None
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Command Modes	Flow exporter map configuration
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Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines	No specific guidelines impact the use of this command.
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Task ID	Task ID	Operations
	netflow	read, write

Examples

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

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow exporter-map map1
RP/0/RSP0/CPU0: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	<p><i>map_name</i> 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.</p> <p>Note A single flow monitor map supports up to 8 exporters. Only the first five will be used.</p>
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Command Default	None
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Command Modes	Flow monitor map configuration
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Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.9.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Release 3.9.1	This command was introduced.
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Usage Guidelines	No specific guidelines impact the use of this command.
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Task ID	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>netflow</td> <td>read, write</td> </tr> </tbody> </table>	Task ID	Operations	netflow	read, write
Task ID	Operations				
netflow	read, write				

Examples	<p>This example shows how to associate a flow exporter map called “fem_1” with the current flow monitor map:</p>
-----------------	--

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow monitor-map map1
RP/0/RSP0/CPU0: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* **egress** | **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 <i>name</i>	Specifies the name of the flow monitor map you want to specify for IPv4, IPv6, or MPLS packets.
	sampler <i>name</i>	Name of the sampler map you want to apply to the flow monitor map.
	egress	Applies the flow monitor map on outgoing packets.
	ingress	Applies the flow monitor map on incoming packets.

Command Default None

Command Modes Interface configuration

Command History	Release	Modification
	Release 3.9.1	This command was introduced.
	Release 4.3.1	The support for NetFlow over Bridge-group Virtual Interface 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 GigabitEthernet interface, and then apply the flow monitor map, named "map1," on outgoing IPv4 packets:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface GigabitEthernet 0/4/0/0
RP/0/RSP0/CPU0:router(config-if)# flow ipv4 monitor map1 sampler smap1 ingress
RP/0/RSP0/CPU0:router(config-if)# flow ipv4 monitor NMS sampler NMS egress
```

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

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface gigabit Ethernet 0/0/0/0
RP/0/RSP0/CPU0:router(config-if)# flow mpls monitor map_mpls1 sampler smap1 egress
```

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

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface BVI 1
RP/0/RSP0/CPU0:router(config-if)# flow ipv4 monitor NMS sampler NMS ingress
RP/0/RSP0/CPU0:router(config-if)# flow ipv4 monitor NMS sampler NMS egress
```

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

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# interface BVI 1
RP/0/RSP0/CPU0:router(config-if)# flow ipv6 monitor NMS sampler NMS ingress
RP/0/RSP0/CPU0:router(config-if)# flow ipv6 monitor NMS sampler NMS egress
```

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 <i>monitor-map</i>	Specify flow monitor map name.
sampler <i>sampler-map</i>	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 6.5.1	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:

```
RP/0/RSP0/CPU0:router(config)#interface hundredGigE 0/0/0/18
RP/0/RSP0/CPU0: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 Global Configuration mode. To remove a configured flow exporter map, use the **no** form of this command.

flow exporter-map *fem-name*

Syntax Description	<i>fem-name</i> Creates a new exporter map name, or specifies the name of an existing exporter map.
---------------------------	---

Command Default	None
------------------------	------

Command Modes	Global Configuration mode
----------------------	---------------------------

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines	When you issue the flow exporter-map <i>fem-name</i> command in global configuration mode, the CLI prompt changes to “config-fem,” indicating that you have entered the flow exporter map configuration submode.
-------------------------	---

In this sample output, the question mark (?) online help function displays all the commands available under flow exporter map configuration submode:

```
RP/0/RSP0/CPU0:router(config)# flow exporter-map map1
RP/0/RSP0/CPU0:router(config-fem)# ?

RP/0/RSP0/CPU0:routerconfig-fem)#?
clear          Clear the uncommitted configuration
commit         Commit the configuration changes to running
describe       Describe a command without taking real actions
destination    Export destination configuration
do             Run an exec command
dscp           Specify DSCP value for export packets
exit           Exit from this submode
no             Negate a command or set its defaults
pwd           Commands used to reach current submode
root           Exit to the global configuration mode
show           Show contents of configuration
source         Source interface
transport      Specify the transport protocol for export packets
version        Specify export version parameters
```

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:
-----------------	--


```
RP/0/RSP0/CPU0:router# configure  
RP/0/RSP0/CPU0:router(config)# flow exporter-map map1  
RP/0/RSP0/CPU0:router(config-fem)#
```

flow monitor-map

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

```
flow monitor-map map_name
```

Syntax Description	<i>map_name</i> 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	Global Configuration mode
----------------------	---------------------------

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines When you issue the **flow monitor-map** *map_name* command in Global Configuration mode, the CLI prompt changes to “config-fmm,” indicating that you have entered the flow monitor map configuration submenu. In the following sample output, the question mark (?) online help function displays all the commands available under flow monitor map configuration submenu:

```
RP/0/RSP0/CPU0:router(config)# flow monitor-map map1
RP/0/RSP0/CPU0:router(config-fmm)#?

cache      Specify flow cache attributes
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 submenu
exporter   Specify flow exporter map name
no         Negate a command or set its defaults
pwd        Commands used to reach current submenu
record     Specify a flow record map name
root       Exit to the global configuration mode
show      Show contents of configuration
```

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:”

```
RP/0/RSP0/CPU0:router# configure
```

```
RP/0/RSP0/CPU0:router(config)# flow monitor-map map1  
RP/0/RSP0/CPU0:router(config-fmm)#
```

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.
vrf-table	Exports the VRF to VRF-Name table.
timeout <i>seconds</i>	Specifies the export timeout value. Replace <i>seconds</i> 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 3.9.1	This command was introduced.
Release 5.2.0	The keyword vrf-table 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.

```
RP/0/RSP0/CPU0:router(config)# flow exporter-map f1
RP/0/RSP0/CPU0:router(config-fem)# version v9
RP/0/RSP0/CPU0: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:

```
RP/0/RSP0/CPU0:router(config-fem-ver)# show running-config flow exporter-map f1
```

```

flow exporter-map f1
  version v9
  options vrf-table 50
  !
  transport udp 9321
  source HundredGigE 0/4/3/0
  destination 10.64.81.237
  !

```

```
RP/0/RSP0/CPU0:router(config-fem-ver)# do show flow exporter-map f1
```

```
Flow Exporter Map : f1
```

```

-----
Id                : 21
DestinationIpAddr : 10.64.81.237
SourceIfName      : HundredGigE 0/4/3/0
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

```

```
RP/0/RSP0/CPU0:router(config-fem-ver)# do 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 0/4/3/0
  destination 10.64.81.237
  !

```

```
RP/0/RSP0/CPU0:router(config-fem-ver)# show flow exporter-map f1
```

```
Flow Exporter Map : f1
```

```

-----
Id                : 21
DestinationIpAddr : 10.64.81.237
SourceIfName      : HundredGigE 0/4/3/0
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

```

option filtered

To enable filtering of the Netflow records, use **option filtered** command in flow monitor map configuration mode.

option filtered

Syntax Description	filtered Enables filtering of records
---------------------------	--

Command Default	Flow filtering is disabled.
------------------------	-----------------------------

Command Modes	Flow monitor map configuration
----------------------	--------------------------------

Command History	Release	Modification
	Release 6.0.1	This command was introduced.

Usage Guidelines	MPLS netflow filtering is not supported.
-------------------------	--

Since the filtering of packets is based on the ACL, you must define ACL configuration before using **option filtered** command. Use the **capture** keyword while defining ACL. For example:

```
ipv4 access-list nf_ex
 10 permit ipv4 10.1.1.1/24 any capture
```

Task ID	Task	Operation
	netflow	read, write

This example shows how to create flow monitor map that filters Netflow records with cache entries upto 10000:

```
RP/0/RSP0/CPU0:router# config
RP/0/RSP0/CPU0:router(config)# flow monitor-map fmm1
RP/0/RSP0/CPU0:router(config-fmm)# record ipv4
RP/0/RSP0/CPU0:router(config-fmm)# option filtered
RP/0/RSP0/CPU0:router(config-fmm)# exporter feml
RP/0/RSP0/CPU0:router(config-fmm)# cache entries 10000
RP/0/RSP0/CPU0:router(config-fmm)# cache timeout active 1800
RP/0/RSP0/CPU0:router(config-fmm)# cache timeout inactive 15
RP/0/RSP0/CPU0:router(config-fmm)# exit
```

random 1 out-of

To configure the packet sampling interval for a sampler 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. The limit of sampling rate values per line card per direction is 4, and limit of total samplers per line card per direction is 16.

random 1 out-of *number_of_packets*

Syntax Description	<i>number_of_packets</i> Sampling interval in units of packets. Replace the <i>number_of_packets</i> argument with a number. Range is from 1 through 65535 units.				
Command Default	There is no default value to <i>number_of_packets</i> . However, for optimal performance, the recommended value for <i>number_of_packets</i> is 10000.				
Command Modes	Sampler map configuration				
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.9.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Release 3.9.1	This command was introduced.
Release	Modification				
Release 3.9.1	This command was introduced.				
Usage Guidelines	<p>On Cisco ASR 9000 High Density 100GE Ethernet line cards, when the configured sampling rate is one of the following values, the sampling behavior is random with a deviation of more than 10 percent:</p> <ul style="list-style-type: none"> • 2048 • 4096 • 8192 • 16384 • 32768 • 65535 				
Task ID	<table border="1"> <thead> <tr> <th>Task</th> <th>Operations ID</th> </tr> </thead> <tbody> <tr> <td>netflow</td> <td>read, write</td> </tr> </tbody> </table>	Task	Operations ID	netflow	read, write
Task	Operations ID				
netflow	read, write				

Examples

This example shows how to configure the sampler map to randomly sample 1 out of every 10 packets:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# sampler map1
RP/0/RSP0/CPU0:router(config-sm)# random 1 out-of 10
```

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** | | **destination-tos**]

Syntax Description

peer-as (Optional) Records peer AS. The Border Gateway Protocol (BGP) AS is not collected unless the **bgp attribute download** command is configured.

destination-tos (Optional) Records IPv4 destination based NetFlow accounting.

Command Default

The default is that no IPv4 flow record is enabled.

Command Modes

Flow monitor map configuration

Command History

Release	Modification
Release 3.9.1	This command was introduced.
Release 4.2.0	The destination-tos keyword was added to support destination-based Netflow accounting.

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:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow monitor-map map1
RP/0/RSP0/CPU0:router(config-fmm)# record ipv4
```

This example shows how to configure an IPv4 flow record for destination-based NetFlow accounting:


```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow monitor-map map1
RP/0/RSP0/CPU0:router(config-fmm)# record ipv4 destination-tos
RP/0/RSP0/CPU0:router(config-fmm)# exit
RP/0/RSP0/CPU0:router(config)# interface Gigabit Ethernet 0/0/0/0
RP/0/RSP0/CPU0:router(config-if)# flow ipv4 monitor monitor1 ingress
RP/0/RSP0/CPU0:router(config-if)# end
```

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

Syntax Description	peer-as	Records peer AS.
Command Default	The default is that originating AS numbers are recorded.	
Command Modes	Flow monitor map configuration	
Command History	Release	Modification
	Release 3.9.1	This command was introduced.
Usage Guidelines	No specific guidelines impact the use of this command.	
Task ID	Task ID	Operations
	netflow	read, write

Examples

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

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow monitor-map map1
RP/0/RSP0/CPU0:router(config-fmm)# record ipv6
```

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 <i>number</i>	(Optional) Configures the number of labels that are used in hashing. The <i>number</i> 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 3.9.1	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.

```
RP/0/RSP0/CPU0:router(config)# flow monitor-map MPLS-fmm
RP/0/RSP0/CPU0:router(config-fmm)# record mpls labels 3
RP/0/RSP0/CPU0:router(config-fmm)# cache permanent
RP/0/RSP0/CPU0:router(config)# exit
```

```
RP/0/RSP0/CPU0:router(config)# interface Gigabit Ethernet 0/0/0/0
RP/0/RSP0/CPU0: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.

```
RP/0/RSP0/CPU0:router(config)# flow monitor-map MPLS-IPv4-fmm
RP/0/RSP0/CPU0:router(config-fmm)# record mpls IPv4-fields labels 3
RP/0/RSP0/CPU0:router(config-fmm)# cache permanent
RP/0/RSP0/CPU0:router(config-fmm)# exit
RP/0/RSP0/CPU0:router(config)# interface gigabitEthernet 0/0/0/0
RP/0/RSP0/CPU0: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.

```
RP/0/RSP0/CPU0:router(config)# flow monitor-map MPLS-IPv6-fmm
RP/0/RSP0/CPU0:router(config-fmm)# record mpls IPv6-fields labels 3
RP/0/RSP0/CPU0:router(config-fmm)# cache permanent
RP/0/RSP0/CPU0:router(config-fmm)# exit
RP/0/RSP0/CPU0:router(config)# interface gigabitEthernet 0/0/0/0
RP/0/RSP0/CPU0: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.

```
RP/0/RSP0/CPU0:router(config)# flow monitor-map MPLS-IPv4-IPv6-fmm
RP/0/RSP0/CPU0:router(config-fmm)# record mpls IPv4-IPv6-fields labels 3
RP/0/RSP0/CPU0:router(config-fmm)# cache permanent
RP/0/RSP0/CPU0:router(config-fmm)# exit
RP/0/RSP0/CPU0:router(config)# interface gigabitEthernet 0/0/0/0
RP/0/RSP0/CPU0:router(config-if)# flow mpls monitor MPLS-IPv4-IPv6-fmm sampler fsm ingress
```

This example shows how to configure three labels for hashing:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow monitor-map map1
RP/0/RSP0/CPU0:router(config-fmm)# record mpls labels 3
```

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 6.5.1	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:

```
RP/0/RSP0/CPU0:router(config)# flow monitor-map ipfix-mon
RP/0/RSP0/CPU0:router(config-fmm)# record datalinkframesection
RP/0/RSP0/CPU0:router(config-fmm)# cache immediate
RP/0/RSP0/CPU0:router(config)# exit
RP/0/RSP0/CPU0:router(config)# interface Gigabit Ethernet 0/0/0/1
RP/0/RSP0/CPU0:router(config-if)# flow datalinkframesection monitor ipfix-mon sampler
ipfix-sm ingress
```

sampler-map

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

sampler-map *map_name*

Syntax Description	<i>map_name</i> Name of the sampler map you want to configure. The sampler map name can be a maximum 32 characters.
---------------------------	---

Command Default	None
------------------------	------

Command Modes	Global Configuration mode
----------------------	---------------------------

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines When you issue the **sampler-map** *map_name* command in Global Configuration mode, the CLI prompt changes to “config-sm,” indicating that you have entered the sampler map configuration submode. In this sample output, the question mark (?) online help function displays all the commands available under sampler map configuration submode:

```
RP/0/RSP0/CPU0:router(config)# sampler-map test
RP/0/RSP0/CPU0:router(config-sm)# ?

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
pwd        Commands used to reach current submode
random     Use random mode for sampling packets
root       Exit to the global configuration mode
show       Show contents of configuration
```

These restrictions prevent the NetFlow processes from using up all of the available CPU:

- NetFlow supports a policer rate of 35,000 packets per second per direction for each individual line card.
- NetFlow supports a policer rate of 50,000 packets per second per direction for each individual line card if Sampled NetFlow (SNF) is enabled in one direction (ingress or egress). Note that this limit does not apply if SNF is enabled in both directions. If SNF is enabled in both directions, then NetFlow supports 25,000 packets per second per direction for each individual line card.

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:”

```
RP/0/RSP0/CPU0:router# configure  
RP/0/RSP0/CPU0:router(config)# sampler-map map1  
RP/0/RSP0/CPU0:router(config-sm)#
```

show flow exporter

To display flow exporter data, enter the **show flow exporter** command in 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* Location where the cache resides. The *node-id* argument 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

EXEC mode

Command History

Release	Modification
Release 3.9.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
netflow read	

Examples

This example shows how to display flow exporter map data:

```
RP/0/RSP0/CPU0: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 1: show flow exporter 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. <ul style="list-style-type: none"> • 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 flow exporter map information for a specific node, enter the **show flow exporter-map** command in EXEC mode.

show flow exporter-map [*name*]

Syntax Description	<i>name</i> Name of the exporter map whose information you want to display.						
Command Default	None						
Command Modes	EXEC mode						
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.9.1</td> <td>This command was introduced.</td> </tr> <tr> <td>Release 6.0.1</td> <td>This command was updated to display exporter version type IPFIX information.</td> </tr> </tbody> </table>	Release	Modification	Release 3.9.1	This command was introduced.	Release 6.0.1	This command was updated to display exporter version type IPFIX information.
Release	Modification						
Release 3.9.1	This command was introduced.						
Release 6.0.1	This command was updated to display exporter version type IPFIX information.						
Usage Guidelines	No specific guidelines impact the use of this command.						

Task ID	Task	Operations
	netflow	read

Examples

This example shows how to configure IPFIX as an exporter version in the exporter-map **fem_ipfix**:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow exporter-map fem_ipfix

RP/0/RSP0/CPU0:router(config-fem)# destination 10.17.7.24
RP/0/RSP0/CPU0:router(config-fem)# transport udp 1025
RP/0/RSP0/CPU0:router(config-fem)# version ipfix
RP/0/RSP0/CPU0:router(config-fem-ver)# options sampler-table timeout 1800
RP/0/RSP0/CPU0:router(config-fem-ver)# exit
RP/0/RSP0/CPU0:router(config-fem)# exit
RP/0/RSP0/CPU0:router(config)# exit
```

The **show flow exporter-map** command output shows IPFIX as an exporter version that we configured earlier in flow exporter map **fem_ipfix**:

```
RP/0/RSP0/CPU0:router# show flow exporter-map fem_ipfix

Flow Exporter Map : fem_ipfix
-----
Id                : 2
DestinationIpAddr : 10.17.7.24
VRFName           : default
SourceIfName      :
SourceIpAddr      :
DSCP              : 0
TransportProtocol : UDP
```

```

TransportDestPort   : 1025

Export Version: IPFIX
  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 : 1800 seconds
  VRF-Table Export Timeout : 0 seconds

```

This example shows how to display flow exporter map information:

```

RP/0/RSP0/CPU0: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 table describes the significant fields shown in the display.

Table 2: show flow exporter-map 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).
DSCP	Differentiated services codepoint (DSCP) value for export packets. Note You can specify the DSCP with the flow exporter-map command.
TransportProtocol	Displays the configured transport protocol. Note Cisco IOS XR software supports the UDP transport protocol only. Note You can specify the transport protocol with the flow exporter-map command.

Field	Description
TransportDestPort	Displays the configured destination port for UDP packets.
Export Version	Displays the configured export format. Note Cisco IOS XR software supports export format version 9 only.
Common Template Timeout	Displays the configured common template timeout.
Options Template Timeout	Displays the configured options template timeout. Note You can specify the options template timeout with the flow exporter-map command.
Data Template Timeout	Displays the configured data template timeout. Note 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. Note 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. Note 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 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 | egress 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:

<i>monitor-name</i>	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 <i>name</i>	Specifies an access list. Replace name with the <i>name</i> of the access whose information you want to display.
source-address <i>match-options</i>	Specifies source IP address match options. Possible match options are: <ul style="list-style-type: none"> • 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. <p>Note Enter the source-address keyword followed by the ? command to see a complete list of possible match criteria.</p>
destination-address	Specifies IPV4 or IPv6 destination address match options. Possible match options are: <ul style="list-style-type: none"> • 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. <p>Note Enter the destination-address keyword followed by the ? command to see a complete list of possible match criteria.</p>
tos <i>match-options</i>	Compares fields and matches them based on the type of service value. Range is from 0 through 255. Possible match options are: <ul style="list-style-type: none"> • 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. <p>Note Enter the tos keyword followed by the ? command to see a complete list of possible match criteria.</p>

protocol <i>match-options</i>	<p>Compares fields and matches them based on the protocol value. Possible match options are:</p> <ul style="list-style-type: none"> • 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. <p>Note Enter the protocol keyword followed by the ? command to see a complete list of possible match criteria.</p>
layer4	<p>Compares Layer 4 fields and matches them based on specific criteria. You can specify match criteria for any of the following Layer 4 fields:</p> <ul style="list-style-type: none"> • destination-port-overloaded • source-port-overloaded • tcp-flags <p>Note Enter the layer4 keyword followed by the ? command to see a complete list of possible Layer 4 fields to compare and match.</p>
destination-port-overloaded	<p>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.</p> <p>Possible match options are:</p> <ul style="list-style-type: none"> • 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. <p>Note Enter the destination-port-overloaded keyword followed by the ? command to see a complete list of possible match criteria.</p>

<p>source-port-overloaded</p>	<p>Compares fields and matches them based on the source-port-overloaded value.</p> <p>The source port is matched if the protocol specified for that port is one of the following:</p> <ul style="list-style-type: none"> • 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. <p>Possible match options are:</p> <ul style="list-style-type: none"> • 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. <p>Note NoteEnter the source-port-overloaded keyword followed by the ? command to see a complete list of possible match criteria.</p>
<p>tcp-flags <i>match-flags-options</i></p>	<p>Specifies TCP flags, as follows:</p> <ul style="list-style-type: none"> • all —Match all of the fields • any —Match any of the fields • none —Match none of the fields. <p>Note Enter the tcp-flags keyword followed by the ? command to see a complete list of possible match criteria.</p>
<p>bgp</p>	<p>Compares BGP fields and matches them based on specific criteria. You can specify match criteria for any of the following BGP fields:</p> <ul style="list-style-type: none"> • destination-as —Destination as. • source-as —Source as.

source-as <i>match-options</i>	<p>Compares and matches the BGP autonomous system number of the destination address.</p> <p>Possible match options are:</p> <ul style="list-style-type: none"> • 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. <p>Note Enter the source-as keyword followed by the ? command to see a complete list of possible match criteria.</p>
destination-as <i>match-options</i>	<p>Compares and matches the BGP autonomous system number of the source address. Possible match options are:</p> <ul style="list-style-type: none"> • 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. <p>Note Enter the destination-as keyword followed by the ? command to see a complete list of possible match criteria.</p>
timestamp	<p>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.</p>
first <i>match-options</i>	<p>Compares fields from the first time stamp and matches them based on the match-options value. Possible match options are:</p> <ul style="list-style-type: none"> • 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. <p>Note Enter the first keyword followed by the ? command to see a complete list of possible match criteria.</p>

last <i>match-options</i>	<p>Compares fields from the last time stamp and matches them based on the match-if-options value. Possible match options are:</p> <ul style="list-style-type: none"> • 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. <p>Note Enter the last keyword followed by the ? command to see a complete list of possible match criteria.</p>
counters	<p>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.</p>
byte <i>match-options</i>	<p>Compares bytes counter fields and matches them based on the match-options value. Possible match options are:</p> <ul style="list-style-type: none"> • 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. <p>Note Enter the byte keyword followed by the ? command to see a complete list of possible match criteria.</p>
packets <i>match-options</i>	<p>Compares packets counter fields and matches them based on the match-options value. Possible match options are:</p> <ul style="list-style-type: none"> • 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. <p>Note Enter the byte keyword followed by the ? command to see a complete list of possible match criteria.</p>
misc	<p>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.</p>

forwarding-status <i>match-options</i>	<p>Compares forwarding status fields and matches them based on the match-options value. Possible match options are:</p> <ul style="list-style-type: none"> • 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. <p>Enter the forwarding-status keyword followed by the ? command to see a complete list of possible match criteria.</p>
direction <i>match-dir-options</i>	<p>Compares information about the direction of the flow and matches it based on the match-options value. Possible match options are:</p> <ul style="list-style-type: none"> • eq —Match if equal to field value. • neq —Match if not equal to field value. <p>Note Enter the direction keyword followed by the ? command to see a complete list of possible match criteria.</p>
To sort flow record information according to a particular field:	
<i>monitor-name</i>	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	<p>Specifies sorting criteria for one of the following IPv4 fields:</p> <ul style="list-style-type: none"> • destination-address • source-address • protocol • tos <p>Note Enter the ipv4 keyword followed by the ? command to see a complete list of possible sorting criteria.</p>

ipv6	<p>Specifies sorting criteria for one of the following IPv6 fields:</p> <ul style="list-style-type: none"> • destination-address • source-address • protocol • tos <p>Note Enter the ipv6 keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
source-address	<p>Displays IPv4 or IPv6 information for the source address according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the source-address keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
destination-address	<p>Displays IPv4 or IPv6 information for the destination address according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the destination-address keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
tos	<p>Displays IPv4 type of service information according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the tos keyword followed by the ? command to see a complete list of possible sorting criteria.</p>

tc	<p>Displays IPv6 traffic class information according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the tc keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
protocol	<p>Displays IPv4 or IPv6 protocol information according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the tos keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
mpls	<p>Specifies sorting criteria for one of the following MPLS fields:</p> <ul style="list-style-type: none"> • label-2 • label-3 • label-4 • label-5 • label-6 • label-type • prefix • top-label <p>Note Enter the mpls keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
label-2	<p>Displays MPLS information for the second label in the MPLS label stack. Possible sorting options are:</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries.
prefix	Displays MPLS information for the destination address. Possible sorting options are: <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries.

layer4	<p>Specifies sorting criteria for one of the following Layer 4 fields:</p> <ul style="list-style-type: none"> • source-port-overloaded • destination-port-overloaded <p>Note Enter the layer4 keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
source-port-overloaded	<p>Displays source port overload information according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the source-port-overloaded keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
destination-port-overloaded	<p>Displays destination port overload information according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the destination-port-overloaded keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
bgp	<p>Specifies sorting criteria for one of the following BGP fields:</p> <ul style="list-style-type: none"> • source-as • destination-as <p>Note Enter the layer4 keyword followed by the ? command to see a complete list of possible sorting criteria.</p>

source-as	<p>Displays information about the BGP source address autonomous system number according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the source-as keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
destination-as	<p>Displays information about the BGP destination address autonomous system number according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the destination-as keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
timestamp	<p>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.</p> <p>Note Enter the timestamp keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
first	<p>Displays information for the first time stamp according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the first keyword followed by the ? command to see a complete list of possible sorting criteria.</p>

last	<p>Displays information for the last time stamp according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the last keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
counters	<p>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.</p>
bytes	<p>Displays bytes counter information according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the bytes keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
packets	<p>Displays packets counter information according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the packets keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
misc	<p>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.</p>

forwarding-status	<p>Displays forwarding status information according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the forwarding-status keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
direction	<p>Displays information about the direction of the flow according to the specified sorting criteria. Possible sorting options are:</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries. <p>Note Enter the direction keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
top	<p>Displays top cache entries. Replace records with the number of records you want to display.</p> <p>Note You can follow the top keyword with the optional entries argument to specify the number of records to display.</p>
bottom	<p>Displays bottom cache entries. Replace records with the number of records you want to display.</p> <p>Note You can follow the bottom keyword with the optional entries argument to specify the number of records to display.</p>
<i>entries</i>	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:	
<i>monitor-name</i>	Flow monitor map whose details you want to display.
cache	Displays details about the flow monitor cache.
include	<p>Includes the specified fields in the display output. Enter the include keyword, followed by the keyword or keywords that specify the fields to include.</p> <p>Note To see a list of fields that can be included, enter the include keyword, followed by the ? command.</p>

exclude	<p>Excludes the specified fields in the display output. Enter the exclude keyword, followed by the keyword or keywords that specify the fields to exclude.</p> <p>Note To see a list of fields that can be excluded, enter the exclude keyword, followed by the ? command.</p>
ipv4	<p>Includes or excludes one of the following IPv4 fields in the command output:</p> <ul style="list-style-type: none"> • destination-address • source-address • protocol • tos <p>Note Enter the ipv4 keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
ipv6	<p>Includes or excludes one of the following IPv6 fields in the command output:</p> <ul style="list-style-type: none"> • destination-address • flow-label • option-headers • source-address • protocol • tos <p>Note Enter the ipv6 keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
source-address	<p>Includes or excludes IPV4 or IPV6 information for the source address in the command output.</p>
destination-address	<p>Includes or excludes IPV4 or IPV6 information for the destination address in the command output.</p>
flow-label	<p>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.</p>

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: <ul style="list-style-type: none"> • label-2 • label-3 • label-4 • label-5 • label-6 • top-label <p>Note Enter the mpls keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
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	<p>Includes or excludes one of the following the following Layer 4 fields in the command output:</p> <ul style="list-style-type: none"> • source-port-overloaded • destination-port-overloaded <p>Note Enter the layer4 keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
source-port-overloaded	Includes or excludes source port overload information in the command output.
destination-port-overloaded	<p>Includes or excludes destination port overload information in the command output.</p> <ul style="list-style-type: none"> • top —Displays top cache entries. • bottom —Displays bottom cache entries.
bgp	<p>Includes or excludes the following BGP fields in the command output:</p> <ul style="list-style-type: none"> • source-as • destination-as <p>Note Enter the bgp keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
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	<p>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.</p> <p>Note Enter the timestamp keyword followed by the ? command to see a complete list of possible sorting criteria.</p>
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 <i>records</i> you want to display.
bottom	Includes or excludes bottom cache entries. Replace records with the number of <i>records</i> you want to display
<i>entries</i>	Number of records to display. Range is from 1 through 1000.
To display summarized flow record statistics:	
<i>monitor-name</i>	Flow monitor map whose details you want to display.
cache	Displays details about the flow monitor cache.
summary	Displays summarized flow monitor information only.
<i>monitor-name</i>	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:	
<i>monitor-name</i>	Flow monitor map whose details you want to display.
cache	Displays details about the flow monitor cache.
location <i>node-id</i>	Identifies the node whose flow exporter statistics you want to clear, or whose flow exporter statistics collector you want to restart. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation. Note Enter the location keyword followed by the ? command to see a complete list of possible sorting criteria.

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.0.0	The interface keyword options were removed.

Usage Guidelines

Note 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:

```
RP/0/RSP0/CPU0: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 :

```
RP/0/RSP0/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	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	0	Fwd						
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	0	Fwd						
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						24
61	normal	HundredGigE 0/0/0/8	HundredGigE 0/0/0/12	0	0	Fwd						
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 3: 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 <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Active timeout • Inactive timeout • TCP FIN flag • Watermark aged • Emergency aged • Counter wrap aged • Total
Periodic export	<ul style="list-style-type: none"> • 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 <ul style="list-style-type: none"> • 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
FirstSwitched	Displays the system uptime at which the first packet of this flow was switched. The display format is days hours:minutes:seconds:milliseconds
LastSwitched	Displays the system uptime at which the last packet of this flow was switched. The display format is days hours:minutes:seconds:milliseconds

show flow monitor-map

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

show flow monitor-map *map-name*

Syntax Description	<i>map-name</i> Name of the monitor map whose data you want to display.
---------------------------	---

Command Default	None
------------------------	------

Command Modes	EXEC mode
----------------------	-----------

Command History	Release	Modification
	Release 3.4.1	The ipv4-raw record map name was replaced with ipv4.
	Release 3.9.1	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 monitor-map data for a specific flow:

```
RP/0/RSP0/CPU0: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 4: show flow monitor-map Field Descriptions

Field	Description
Flow Monitor Map	Name of the flow monitor map whose information is display in the show flow monitor-map command output.
Id	Number that identifies the flow monitor map.

Field	Description
RecordMapName	Name of the flow record map that is associated with this monitor map. The RecordMapName 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. "Permanent" indicates that the removal of entries from the monitor map flow cache is disabled. Note To configure the number of entries allowed in the monitor map flow cache, enter 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. Note 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. Note 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. Note To modify the configured inactive flow timeout, use the cache timeout command in flow monitor map configuration mode.
CacheUpdateTout	Update timeout configured for this cache, in seconds. Note To modify the configured update timeout, use the cache timeout command in flow monitor map configuration mode.

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

```
RP/0/RSP0/CPU0:router# show flow monitor-map map2

Tue Jan 22 00:15:53.424 PST
Flow Monitor Map : map2
-----
Id: 1
RecordMapName: ipv6-destination
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 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

EXEC mode

Command History

Release	Modification
Release 3.9.1	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
netflow	read

Examples

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

```
# show flow platform producer statistics location 0/0/CPU0
Thu Oct 29 09:49:35.771 UTC
Netflow Platform Producer Counters:
IPv4 Ingress Packets:          41447246
IPv4 Egress Packets:          41447242
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:                 4677
SPP Packets:                    2032602
Flow Packets:                   82894488
Flow Packets per SPP Frame:     40
```

This table describes the significant fields shown in the display.

Table 5: show flow platform producer statistics 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.
SPP Packets	Number of sequenced packet protocol (SPP) packets transmitted to the remote end.
Flow Packets	Number of flow packets transmitted to the remote end.
Flow Packets per SPP Frame	Number of flow packets per SPP frame transmitted to the remote end.

show flow platform nfea sampler

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

show flow platform nfea sampler [*detail*location]

Syntax Description	
<i>detail</i>	Displays flow platform nfea sampler detail information
<i>location</i>	Displays the node number

Command Default None

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operations
	netflow	read

Examples

The following example shows how to display flow platform nfea samp detail :

```
RP/0/RSP0/CPU0:router# show flow platform nfea samp
RP/0/RSP0/CPU0:router#show flow pla nfea samp detail loc 0/1/cpu0
Fri Sep 18 16:30:08.435 UTC
Sampler Name:    nf_samp
id: 1, sp_id: 0, interval: 1, ref_count: 2
Attached Interface List Info
Interface Name: GigabitEthernet0/1/0/1, Direction: Ingress, NP ID: 3
Flow Type(s) Configured: IPv4,
Checkpoint Record ID: 12184
Interface Name: GigabitEthernet0/1/0/31, Direction: Ingress, NP ID: 0
Flow Type(s) Configured: IPv4,
Checkpoint Record ID: 12088
Sampler Name:    nf_samp1
id: 2, sp_id: 1, interval: 2, ref_count: 1
Attached Interface List Info
Interface Name: GigabitEthernet0/1/0/1, Direction: Egress, NP ID: 3
Flow Type(s) Configured: IPv4,
Checkpoint Record ID: 12248
```

show flow platform nfea interface

To display flow map platform information, enter the **show flow platform nfea interface** command in EXEC mode.

show flow platform nfea interface *type interface-path-id ingressegress location location node id*

Syntax Description	
<i>interface-path-id</i>	Physical interface or virtual interface.
<i>egress</i>	Egress direction
<i>ingress</i>	Ingress direction
<i>location</i>	Specifies the location

Command Default None

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operations
	netflow	read

Examples

The following example shows how to display flow map platform information:

```
RP/0/RSP0/CPU0:router# show flow platform nfea interface bundle-ether1 ingress location
0/1/CPU0
```

show flow platform nfea sp location

To display sampling profile information, enter the **show flow platform nfea sp location** command in EXEC mode.

```
show flow platform nfea sp location node-id
```

Syntax Description	location <i>node-id</i> Specifies the location node number. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation.
---------------------------	--

Command Default	Default value for the output when monitor is not configured is all zeros.
------------------------	---

Command Modes	EXEC mode
----------------------	-----------

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines	No specific guidelines impact the use of this command.
-------------------------	--

Task ID	Task	Operations
	netflow	read

Examples The following example shows how to display sampling profile information:

```
RP/0/RSP0/CPU0:router# show flow platform nfea sp location 0/1/CPU0
```


show flow platform nfea policer np

To display policer rate information, enter the **show flow platform nfea policer np** command in EXEC mode.

```
show flow platform nfea policer np node-id
```

Syntax Description

node-id Identifies the location node number.

Command Default

The Default values depends on how many NPs are programmed with the netflow, for example, if the interface is configured on only one NP with netflow, the output will be 100,000; if more NPs are configured, the output will be divided by the number of NPs; if no netflow is configured on a particular NP, the output is 0

Command Modes

EXEC mode

Command History

Release	Modification
Release 3.9.1	This command was introduced.

Usage Guidelines

When Netflow is applied on PWHE interfaces, the *ing_lns* and *egr_lns* fields in the **show flow platform nfea policer np** command are not updated.

This issue is observed in the third and fourth generation of ASR 9000 Enhanced Ethernet line cards.



Note

The *ing_lns* field indicates that the Netflow is configured in ingress direction for a particular interface corresponding to the NP. Similarly, *eng_lns* indicates that the Netflow is configured in egress direction.

Task ID

Task ID	Operations
netflow	read

Examples

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

```
RP/0/RSP0/CPU0:router# show flow platform nfea policer np 3 location 0/0/CPU0
```

show flow platform nfea bundle

To display bundle ether interface location information, enter the **show flow platform nfea bundle** command in EXEC mode.

```
show flow platform nfea bundle bundle-ether 100 location node-id
```

Syntax Description	location <i>node-id</i> The node-id is expressed in the rack/slot/module notation.
---------------------------	---

Command Default	None
------------------------	------

Command Modes	EXEC mode
----------------------	-----------

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines	No specific guidelines impact the use of this command.
-------------------------	--

Task ID	Task	Operations
	netflow	read

Examples

The following example shows how to display bundle ether interface location information:

```
RP/0/RSP0/CPU0:router# show flow platform nfea bundle bundle-ether 100 location 0/$
```

show flow platform nfea chkp

To display checkpoint information, enter the **show flow platform nfea chkp** command in EXEC mode.

show flow platform nfea chkp [*checkpoint table number*intf*policersp*] [*checkpoint record number*all]
location *node-id*

Syntax Description		
	<0-2>	Displays checkpoint table number.
	<i>intf</i>	Displays interface checkpoint table.
	<i>policer</i>	Displays policer checkpoint table.
	<i>sp</i>	Displays sp checkpoint table.
	<1-4294967295>	Displays the checkpoint record number.

Command Default Default values should be all zeros, when no interface is configured with monitor in the location.

Command Modes EXEC mode

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task ID	Operations
	netflow	read

Examples The following example shows how to display checkpoint information:

```
RP/0/RSP0/CPU0:router# show flow platform nfea chkpt policer all location 0/0/CPU0
RP/0/RSP0/CPU0:router# show flow platform nfea chkpt intf all location 0/0/CPU0
RP/0/RSP0/CPU0:router# show flow platform nfea chkpt sp all location 0/0/CPU0
```

show flow platform pal-cpp chkpt object

To display Netflow CPP platform checkpoint information, use the **show flow platform pal-cpp chkpt object** command in EXEC mode.

show flow platform pal-cpp chkpt object [*number*] **location** *node-id*

Syntax Description

<i>number</i>	Displays checkpoint record number. Range is 1-4294967295.
location <i>node-id</i>	Specifies the location node number. The <i>node-id</i> argument is expressed in the <i>rack/slot/module</i> notation

Command Default

None

Command Modes

EXEC mode

Command History

Release	Modification
Release 4.0.0	This command was introduced.

Usage Guidelines

No specific guidelines impact the use of this command.

Task ID

Task ID	Operations
netflow	read

Examples

The following example shows how to display the checkpoint information for 0/1/CPU0:

```
RP/0/RSP0/CPU0:router# show flow platform pal-cpp chkpt object location 0/1/CPU0
```

show flow platform pal-cpp object

To display Netflow CPP platform layer object information, use the **show flow platform pal-cpp object** command in EXEC mode.

```
show flow platform pal-cpp object all | fmm name | fem name | fsm name location node-id
```

Syntax Description	Parameter	Description
	all	Displays all flow object information.
	fmm	Displays flow monitor information.
	fem	Displays flow exporter information.
	fsm	Displays flow sampler information.
	<i>name</i>	Flow name.
	location node-id	Specifies the location node number. The node-id argument is expressed in the rack/slot/module notation

Command Default None

Command Modes EXEC mode

Command History	Release	Modification
	Release 4.0.0	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task	Operations
	netflow	read

Examples

The following example shows how to display all flow object information for location 0/1/CPU0:

```
RP/0/RSP0/CPU0:router# show flow platform pal-cpp object all location 0/1/CPU0
```

show controllers pse qfp feature fnf datapath

To display QFP Netflow Datapath information on interfaces, use the **show controllers pse qfp feature fnf datapath** command in EXEC mode.

show controllers pse qfp feature fnf datapath **all** | **all-detail** | **builder-program** | **cache** | **cache-state** | **exporter** | **monitor** | **monitor-state** | **sampler** | **sampler-state** *type interface-path-id*

Syntax Description		
all		Displays netflow information.
all-detail		Displays detailed netflow information.
builder-program		Displays builder program.
cache		Displays cache structure.
cache-state		Displays cache_state structure.
exporter		Displays exporter.
monitor		Displays monitor structure.
monitor-state		Displays monitor_state structure
sampler		Displays sampler structure.
sampler-state		Displays sampler_state structure.
<i>type</i>		Interface type. For more information, use the question mark (?) online help function.
<i>interface-path-id</i>		Physical interface or virtual interface.
	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 EXEC mode

Command History	Release	Modification
	Release 4.0.0	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task Operations ID
	netflow read

Examples

The following example shows how to display datapath information for all interfaces:

```
RP/0/RSP0/CPU0:router# show controllers pse qfp feature fnf datapath all ?
ATM                ATM Network Interface(s)
Bundle-Ether       Aggregated Ethernet interface(s)
Bundle-POS         Aggregated POS interface(s)
GigabitEthernet    GigabitEthernet/IEEE 802.3 interface(s)
Loopback           Loopback interface(s)
MgmtEth            Ethernet/IEEE 802.3 interface(s)
Multilink          Multilink network interface(s)
Null               Null interface
POS                Packet over SONET/SDH network interface(s)
Serial             Serial network interface(s)
TenGigE            TenGigabitEthernet/IEEE 802.3 interface(s)
WORD               Other interface
tunnel-gte         MPLS Traffic Engineering GMPLS Tunnel interface
tunnel-ip          GRE/IPinIP Tunnel Interface(s)
tunnel-ipsec       IPsec Tunnel interface(s)
tunnel-mte         MPLS Traffic Engineering P2MP Tunnel interface(s)
tunnel-te          MPLS Traffic Engineering Tunnel interface(s)
```

show flow trace platform producer location

To trace the information for all or specified netflow processes on all or specified location.

show flow trace platform producer *location-id*

Syntax Description	<i>location-id</i> Displays the location
---------------------------	--

Command Modes	EXEC mode
----------------------	-----------

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines	No specific guidelines impact the use of this command.
-------------------------	--

Task ID	Task ID	Operations
	netflow	read

Examples The following example shows how to display sampler map information for a router:

```
RP/0/RSP0/CPU0:router# show flow trace platform producer location 0/0/CPU0
```


show flow trace ea location

show flow trace platform producer location node-id

Syntax Description	<i>node-id</i> The <i>node-id</i> is expressed in the <i>rack/slot/module</i> notation.
---------------------------	---

Command Modes	EXEC mode
----------------------	-----------

Command History	Release	Modification
	Release 3.9.1	This command was introduced.

Usage Guidelines	No specific guidelines impact the use of this command.
-------------------------	--

Task ID	Task ID	Operations
	netflow	read

Examples The following example shows how to display sampler map information for a router:

```
RP/0/RSP0/CPU0:router# show flow trace ea location 0/0/CPU0
```

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	<i>type</i>	Interface type. For more information, use the question mark (?) online help function.
	<i>interface-path-id</i>	Physical interface or virtual interface.
	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 3.9.1	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:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow exporter-map map1
RP/0/RSP0/CPU0:router(config-fem)# source GigabitEthernet 0/1/0/0
```

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:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow exporter-map map1
RP/0/RSP0/CPU0:router(config-fem)# source Bundle-Ether 1
```

Related Commands

Command	Description
flow exporter-map, on page 16	Creates a flow exporter map
flow monitor-map, on page 18	Creates and configures a flow monitor map
show flow exporter, on page 32	Displays flow exporter data
show flow exporter-map, on page 34	Displays flow exporter map information for a specific node.

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	Parameter	Description
	data	(Optional) Specifies the data template.
	options	(Optional) Specifies the options template.
	timeout <i>seconds</i>	Configures the timeout value for the specified template, or for both the data and options templates. Replace <i>seconds</i> 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 3.9.1	This command was introduced.

Usage Guidelines No specific guidelines impact the use of this command.

Task ID	Task	Operations
	netflow	read, write

Examples

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

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow exporter-map fem1
RP/0/RSP0/CPU0:router(config-fem)# version v9
RP/0/RSP0/CPU0:router(config-fem-ver)# template data timeout 300
```

Related Commands	Command	Description
	flow exporter-map, on page 16	Creates a flow exporter map
	flow monitor-map, on page 18	Creates and configures a flow monitor map
	show flow exporter, on page 32	Displays flow exporter data

Command	Description
show flow exporter-map, on page 34	Displays flow exporter map information for a specific node.

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	<i>port_value</i> Destination port for UDP packets. Replace <i>port</i> with the destination port value. Range is from 1024 through 65535.										
Command Default	None										
Command Modes	Flow exporter map configuration										
Command History	<table border="1"> <thead> <tr> <th>Release</th> <th>Modification</th> </tr> </thead> <tbody> <tr> <td>Release 3.9.1</td> <td>This command was introduced.</td> </tr> </tbody> </table>	Release	Modification	Release 3.9.1	This command was introduced.						
Release	Modification										
Release 3.9.1	This command was introduced.										
Usage Guidelines	No specific guidelines impact the use of this command.										
Task ID	<table border="1"> <thead> <tr> <th>Task ID</th> <th>Operations</th> </tr> </thead> <tbody> <tr> <td>netflow</td> <td>read, write</td> </tr> </tbody> </table>	Task ID	Operations	netflow	read, write						
Task ID	Operations										
netflow	read, write										
Examples	<p>This example shows how to configure the destination port for UDP packets:</p> <pre>RP/0/RSP0/CPU0:router# configure RP/0/RSP0/CPU0:router(config)# flow exporter-map map1 RP/0/RSP0/CPU0:router(config-fem)# transport udp 1030</pre>										
Related Commands	<table border="1"> <thead> <tr> <th>Command</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>flow exporter-map, on page 16</td> <td>Creates a flow exporter map</td> </tr> <tr> <td>flow monitor-map, on page 18</td> <td>Creates and configures a flow monitor map</td> </tr> <tr> <td>show flow exporter, on page 32</td> <td>Displays flow exporter data</td> </tr> <tr> <td>show flow exporter-map, on page 34</td> <td>Displays flow exporter map information for a specific node.</td> </tr> </tbody> </table>	Command	Description	flow exporter-map, on page 16	Creates a flow exporter map	flow monitor-map, on page 18	Creates and configures a flow monitor map	show flow exporter, on page 32	Displays flow exporter data	show flow exporter-map, on page 34	Displays flow exporter map information for a specific node.
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show flow exporter, on page 32	Displays flow exporter data										
show flow exporter-map, on page 34	Displays flow exporter map information for a specific node.										

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 3.9.1	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:

```
RP/0/RSP0/CPU0:router(config-fem)# version v9
RP/0/RSP0/CPU0: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 global configuration 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:

```
RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow exporter-map map1
```

```
RP/0/RSP0/CPU0:router(config-fem)# version v9  
RP/0/RSP0/CPU0:router(config-fem-ver)#
```

Related Commands

Command	Description
flow exporter-map, on page 16	Creates a flow exporter map
flow monitor-map, on page 18	Creates and configures a flow monitor map
show flow exporter, on page 32	Displays flow exporter data
show flow exporter-map, on page 34	Displays flow exporter map information for a specific node.

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: <ul style="list-style-type: none"> • interface-table • sampler-table • vrf-table <p>For each options template specify timeout value (in seconds) during which the exporter has to retransmit each active options template.</p>
template	(Optional) Specifies template export parameters such as data template and options template timeout configurations.
timeout <i>timeoutout-value</i>	Specifies custom timeout value (in seconds) during which the exporter has to retransmit each active template. The range of <i>timeout-value</i> is 1 to 604800 seconds.

Command Default

None

Command Modes

Flow exporter map configuration

Command History

Release	Modification
Release 6.0.1	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 submenu. In this sample output, the question mark (?) online help function displays all the commands available under flow exporter map version configuration submenu:

```
RP/0/RSP0/CPU0:router(config-fem)# version ipfix
RP/0/RSP0/CPU0: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 submenu
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 global configuration 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:

```

RP/0/RSP0/CPU0:router# configure
RP/0/RSP0/CPU0:router(config)# flow exporter-map map1
RP/0/RSP0/CPU0:router(config-fem)# version ipfix
RP/0/RSP0/CPU0:router(config-fem-ver)#

```