



# Egress NetFlow Accounting

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NetFlow is a technology that provides highly granular per-flow statistics on traffic in a Cisco router. The NetFlow Egress Support feature allows NetFlow accounting to be implemented for egress (outgoing) traffic on an interface or subinterface.

## Feature History for the NetFlow Egress Support Feature

Release	Modification
12.3(11)T	This feature was introduced.

## Finding Support Information for Platforms and Cisco IOS Software Images

Use Cisco Feature Navigator to find information about platform support and Cisco IOS software image support. Access Cisco Feature Navigator at <http://www.cisco.com/go/fn>. You must have an account on Cisco.com. If you do not have an account or have forgotten your username or password, click **Cancel** at the login dialog box and follow the instructions that appear.

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## Prerequisites for NetFlow Egress Support

One of the following switching features must be enabled before the NetFlow Egress Support feature can be implemented:

- Cisco Express Forwarding (CEF) switching must be enabled in global configuration mode.  
or
- Distributed Cisco Express Forwarding (dCEF) switching must be enabled in global configuration mode.  
or
- Fast switching must be enabled on an interface in interface configuration mode.

## Restrictions for NetFlow Egress Support

Locally generated traffic (traffic that is generated by the router on which the NetFlow Egress Support feature is configured) will not be counted as flow traffic for the NetFlow Egress Support feature.

The NetFlow Egress Support feature captures NetFlow statistics for IP traffic only. MPLS statistics are not captured. The MPLS Egress NetFlow Accounting feature can be used on a provider edge (PE) router to capture IP traffic flow information for egress IP packets that arrived at the router as an MPLS packet and underwent label disposition.

## Information About NetFlow Egress Support

To configure the NetFlow Egress Support feature, you should understand the following concepts:

- [NetFlow Egress Support](#)
- [Benefits of NetFlow Egress Support](#)

## NetFlow Egress Support

NetFlow is a technology that collects traffic flow statistics on routing devices. NetFlow has been used for a variety of applications, including traffic engineering, usage-based billing, and denial of service (DoS) attack monitoring.

Previous versions of NetFlow allow statistics to be gathered only on traffic that is entering the router, or ingress traffic. The NetFlow Egress Support feature allows NetFlow statistics to be gathered on traffic that is exiting the router, or egress traffic.

## Benefits of NetFlow Egress Support

The NetFlow Egress Support feature greatly simplifies NetFlow configuration for some accounting scenarios. The following example shows such a scenario.

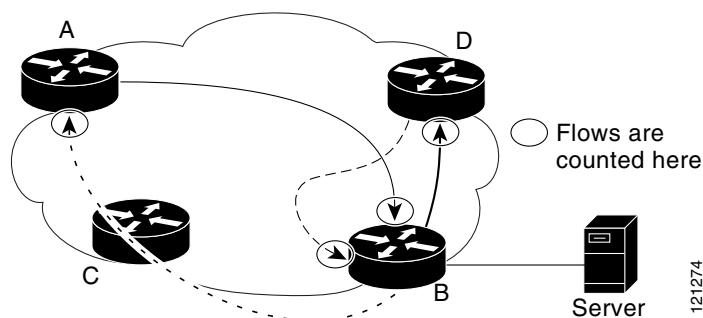
In [Figure 1](#) and [Figure 2](#), both incoming and outgoing (ingress and egress) flow statistics are required for the server. The server is attached to Router B. The “cloud” in the figure represents the core of the network and includes Multiprotocol Label Switching (MPLS) Virtual Private Networks (VPNs).

All traffic denoted by the arrows must be accounted for. The solid arrows represent IP traffic and the dotted arrows represent MPLS VPNs.

[Figure 1](#) shows how the flow traffic would have to be tracked before the introduction of the NetFlow Egress Support feature. Since only ingress flows could be tracked before the NetFlow Egress Support feature was introduced, the following NetFlow configurations would have to be implemented to track both ingress and egress flows from Router B:

- NetFlow would be enabled on an interface on Router B to track ingress IP traffic from Router A to Router B.
- NetFlow would be enabled on an interface on Router D to track ingress IP traffic from Router B to Router D.
- NetFlow would be enabled on an interface on Router A to track ingress traffic from the MPLS VPN from Router B to Router A.
- NetFlow would be enabled on an interface on Router B to track ingress traffic from the MPLS VPN from Router D to Router B.

**Figure 1** *Ingress-Only NetFlow Example*



A configuration such as the one used in [Figure 1](#) requires that NetFlow statistics from three separate routers be added together to obtain the flow statistics for the server.

In comparison, the example in [Figure 2](#) utilizes NetFlow, the NetFlow Egress Support feature and the MPLS Egress NetFlow Accounting feature to capture ingress and egress flow statistics for Router B, thus obtaining the required flow statistics for the server.

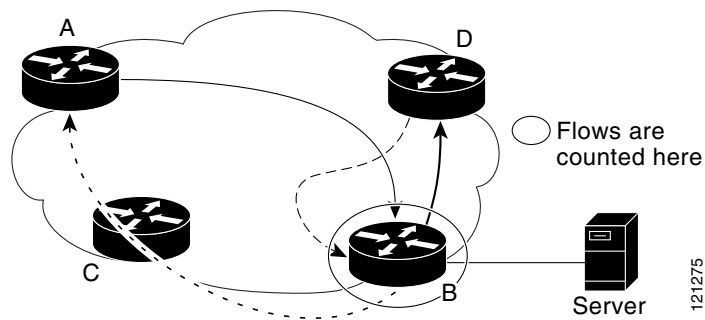
In [Figure 2](#), the following NetFlow configurations would be applied to Router B:

- NetFlow would be enabled on an interface on Router B to track ingress IP traffic from Router A to Router B.
- The NetFlow Egress Support feature will be enabled on an interface on Router B to track egress IP traffic from Router B to Router D.

- NetFlow would be enabled on an interface on Router B to track ingress traffic from the MPLS VPN from Router B to Router D.
- NetFlow would be enabled on an interface on Router B to track ingress traffic from the MPLS VPN from Router B to Router A.

After the NetFlow configurations have been entered for Router B, all NetFlow statistics for the server can be captured by entering the **show ip cache flow** command or the **show ip cache verbose flow** command for Router B.

**Figure 2** NetFlow Egress Support Example



## How to Configure NetFlow Egress Support

This section contains the following procedure:

- [Configuring NetFlow Egress Support, page 5](#)

## Configuring NetFlow Egress Support

The NetFlow Egress Support feature must be configured before you can start gathering egress flow statistics for the router.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip cef**  
or  
**ip cef distributed**  
or  
**interface type [number | slot/port]**  
**ip route-cache**
4. **interface type [number | slot/port]**
5. **ip flow egress**  
or  
**flow-sampler sampler-map-name egress**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<p><b>enable</b></p> <p><b>Example:</b> Router&gt; enable</p>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>
Step 2	<p><b>configure terminal</b></p> <p><b>Example:</b> Router# configure terminal</p>	<p>Enters global configuration mode.</p>
Step 3	<p><b>ip cef</b></p> <p>or</p> <p><b>ip cef distributed</b></p> <p>or</p> <p><b>interface</b> <i>type</i> [<i>number</i>   <i>slot/port</i>]</p> <p><b>ip route-cache</b></p> <p><b>Example:</b> Router(config)# <b>ip cef</b> or</p> <p><b>Example:</b> Router(config)# <b>ip dcef</b> or</p> <p><b>Example:</b> Router(config)# <b>ip route-cache</b> Router(config)# <b>interface ethernet</b> 3/0</p>	<p>Enables CEF,</p> <p>or</p> <p>Enables dCEF</p> <p>or</p> <p>Enables fast switching</p>
Step 4	<p><b>interface</b> <i>type</i> [<i>number</i>   <i>slot/port</i>]</p> <p>Example: Router(config)# <b>interface ethernet</b> 3/0</p>	<p>Configures an interface type and enters interface configuration mode.</p>
Step 5	<p><b>ip flow egress</b></p> <p>or</p> <p><b>flow-sampler</b> <i>sampler-map-name</i> <b>egress</b></p> <p>Example: Router(config-if)# <b>ip flow egress</b></p>	<p>Enables the NetFlow Egress Support feature on the interface.</p> <ul style="list-style-type: none"> <li>The <b>flow-sampler</b> <i>sampler-map-name</i> command enables sampling for NetFlow accounting. The <b>egress</b> keyword added to the <b>flow-sampler</b> <i>sampler-map-name</i> command enables egress support for sampled IP and MPLS-aware NetFlow accounting.</li> </ul>

## Configuration Examples for NetFlow Egress Support

This section provides the following configuration examples:

- [NetFlow Egress Support Configuration: Example](#)
- [Verifying NetFlow Egress Support Configuration: Example](#)

## NetFlow Egress Support Configuration: Example

The following example shows a sample configuration for the NetFlow Egress Support feature.

```
enable
 configure terminal
 interface Ethernet0/0
 ip flow egress
 exit
 exit
 exit
```

## Verifying NetFlow Egress Support Configuration: Example

The following example displays the output of the **show ip cache flow** command.

```
Router# show ip cache flow

IP packet size distribution (35 total packets):
 1-32  64  96 128 160 192 224 256 288 320 352 384 416 448 480
 .000 .000 .000 1.00 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000

   512  544  576 1024 1536 2048 2560 3072 3584 4096 4608
 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000

IP Flow Switching Cache, 278544 bytes
 0 active, 4096 inactive, 3 added
 52 ager polls, 0 flow alloc failures
 Active flows timeout in 30 minutes
 Inactive flows timeout in 15 seconds
IP Sub Flow Cache, 17416 bytes
 0 active, 1024 inactive, 3 added, 3 added to flow
 0 alloc failures, 0 force free
 1 chunk, 2 chunks added
 last clearing of statistics never

Protocol      Total    Flows    Packets Bytes    Packets Active(Sec) Idle(Sec)
-----      Flows   /Sec     /Flow  /Pkt     /Sec   /Flow   /Flow
ICMP           3       0.0      11    100      0.0    1.6    15.5
Total:         3       0.0      11    100      0.0    1.6    15.5

SrcIf      SrcIPaddress  DstIf      DstIPaddress  Pr SrcP DstP  Pkts
Et0/0      10.0.0.1      Et0/0*     10.0.1.1      01 0000 0000  5
Et0/1      10.0.0.2      Et0/1      10.0.1.2      01 0000 0000  5
```

The asterisk (\*) immediately following the “DstIf” field indicates that the flow being shown is an egress flow.



### Note

Although the asterisk will be used to show egress flows, no changes will be made for the display of aggregation cache flows.

For more information on the output fields, refer to the documentation for the **show ip cache flow** command.

## Additional References

The following sections provide references related to NetFlow Egress Support.

### Related Documents

Related Topic	Document Title
General NetFlow Overview	<i>NetFlow Overview</i> section of the <i>Cisco IOS Switching Configuration Guide, Release 12.3</i>
MPLS-Aware NetFlow feature	<i>MPLS-Aware NetFlow</i> feature module
MPLS Egress NetFlow Accounting feature	<i>MPLS Egress NetFlow Accounting</i> feature module

### Standards

Standards	Title
There are no new or modified standards associated with this feature.	

### MIBs

MIBs	MIBs Link
There are no new or modified MIBs associated with this feature.	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>

### RFCs

RFCs	Title
There are no new or modified RFCs associated with this feature.	

## Technical Assistance

Description	Link
Technical Assistance Center (TAC) home page, containing 30,000 pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	<a href="http://www.cisco.com/public/support/tac/home.shtml">http://www.cisco.com/public/support/tac/home.shtml</a>

## Command Reference

This section documents new and modified commands only.

- [flow-sampler](#)
- [ip flow egress](#)
- [ip flow-egress input-interface](#)
- [match \(NetFlow\)](#)
- [show ip cache flow](#)
- [show ip cache verbose flow](#)
- [show ip flow interface](#)

# flow-sampler

To enable a flow sampler, use the **flow-sampler** command in interface configuration mode. To disable a flow sampler, use the **no** form of this command.

**flow-sampler** *sampler-map-name*

**no flow-sampler** *sampler-map-name*

## Syntax Description

*sampler-map-name* Name of the flow sampler map to apply to the interface.

## Defaults

Flow samplers are disabled.

## Command Modes

Interface configuration

## Command History

Release	Modification
12.3(2)T	This command was introduced.
12.0(26)S	This command was integrated into Cisco IOS Release 12.0(26)S.

## Usage Guidelines

You must disable full NetFlow before enabling Statistical Sampling NetFlow Export.

Disabling Statistical Sampling NetFlow Export on an interface does not enable full NetFlow. This restriction prevents the transition to full NetFlow from overwhelming the interface. You must explicitly enable full NetFlow if desired.

## Examples

The following example shows how to enable a flow sampler. In this example, a flow sampler map named mysampler1 is applied to Ethernet interface 1:

```
Router(config)# interface ethernet 1
Router(config-if)# flow-sampler mysampler1
```

## Related Commands

Command	Description
<b>debug flow-sampler</b>	Enables debugging output for Statistical Sampling NetFlow Export flow sampler activity.
<b>flow-sampler-map</b>	Defines a Statistical Sampling NetFlow Export flow sampler map.
<b>ip flow-export</b>	Enables the export of information in NetFlow cache entries.
<b>mode (flow sampler map)</b>	Specifies a Statistical Sampling NetFlow Export flow sampling mode and packet interval.

<b>Command</b>	<b>Description</b>
<b>show flow-sampler</b>	Displays the Statistical Sampling NetFlow Export flow samplers (including mode, packet interval, and number of packets matched for each flow sampler).
<b>show ip flow export</b>	Displays the statistics for the NetFlow data export.

# ip flow egress

To configure egress support for NetFlow on an interface or subinterface, use the **ip flow egress** command in interface configuration mode or subinterface configuration mode. To disable egress support for NetFlow on an interface or subinterface, use the **no** form of this command.

**ip flow egress**

**no ip flow egress**

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

**Defaults** This command is disabled by default.

**Command Modes** Interface configuration  
Subinterface configuration

Command History	Release	Modification
	12.3(11)T	This command was introduced.

**Usage Guidelines** Use this command to configure egress support for NetFlow on an interface or subinterface.

**Examples** The following example shows how to configure NetFlow on a Fast Ethernet subinterface 6/3.0:

```
Router(config)# interface FastEthernet6/3.0
Router(config-subif)# ip flow egress
```

Related Commands	Command	Description
	<b>flow-sampler</b>	Enables a flow sampler.
	<b>ip route-cache flow</b>	Configures ingress NetFlow on an interface or subinterface.
	<b>show ip cache flow</b>	Displays a summary of NetFlow statistics.
	<b>show ip flow interface</b>	Displays NetFlow configuration on interfaces.

# ip flow-egress input-interface

To remove the flow key that specifies an output interface and to add a flow key that specifies an input interface for NetFlow egress statistics, use the **ip flow-egress input-interface** command in interface configuration mode or subinterface configuration mode. To change the flow key back from an input interface to an output interface for NetFlow egress statistics, use the **no** form of this command.

**ip flow-egress input-interface**

**no ip flow-egress input-interface**

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

**Defaults** NetFlow egress statistics use the output interface as part of the flow key by default.

**Command Modes** Global configuration

Command History	Release	Modification
	12.3(11)T	This command was introduced.

**Usage Guidelines** When the NetFlow Egress Support feature is configured, by default it uses the output interface as part of the flow key. The **ip flow-egress input-interface** command changes the key for egress flows so that the ingress interface is used instead of the output interface. This command is used to create a new flow for each input interface.

**Examples** In the following example, the following action is performed:

- The key for NetFlow reporting of egress traffic is changed from the output interface to the input interface.

```
Router> enable
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# ip flow-egress input-interface
```

Related Commands	Command	Description
	<b>ip flow egress</b>	Configures egress support for NetFlow on an interface or subinterface.
	<b>show ip flow interface</b>	Displays NetFlow configuration on interfaces.

## match (NetFlow)

To specify match criteria for the NetFlow MIB and Top Talkers feature, use the **match** command in NetFlow top talkers configuration mode. To remove match criteria for the NetFlow MIB and Top Talkers feature, use the **no** form of this command.

```
match [[source address | destination address | nexthop address] [ip-address] [mask | lnn]]
[[source port | destination port] [port-number | min port | max port | min port max port]]
[[source as | destination as] as-number] [[input-interface | output-interface] interface]
[tos [tos-value | dscp dscp-value | precedence precedence-value]]
[protocol [protocol-number | tcp | udp]] [flow-sampler flow-sampler-name]
[class-map class] [packet-range | byte-range [[min-range-number max-range-number]]
[min minimum-range | max maximum-range | min minimum-range max maximum-range]
[direction [ingress | egress]]]
```

```
no match [[[source address | destination address | nexthop address]] [ip-address] [mask | lnn]]
[[[source port | destination port]] [port-number | min port | max port | min port max port]]
[[[source as | destination as]] as-number] [[[input-interface | output-interface]] interface]
[[[tos] [tos-value | [dscp] dscp-value | [precedence] precedence-value]]]
[[[protocol] [protocol-number | [tcp | udp]]] [[[flow-sampler] flow-sampler-name]]]
[[[class-map] class] [[[packet-range | byte-range] [[min-range-number max-range-number]]]
[[min minimum-range | max maximum-range | min minimum-range max maximum-range]
[[direction [ingress | egress]]]
```

### Syntax Description

source address	(Optional) The match criterion is based on the source IP address.
destination address	(Optional) The match criterion is based on the destination IP address.
nexthop address	(Optional) The match criterion is based on the next-hop IP address.
<i>ip-address</i>	(Optional) IP address of the source, destination, or next-hop address to be matched.
<i>mask</i>	(Optional) Address mask, in dotted decimal format.
<i>lnn</i>	(Optional) Address mask as entered in Classless InterDomain Routing (CIDR) format. An address mask of 255.255.255.0 is equivalent to a /24 mask in CIDR format.
source port	(Optional) The match criterion is based on the source port.
destination port	(Optional) The match criterion is based on the destination port.
<i>port-number</i>	(Optional) The match criterion is based on the port number.
<i>min port</i>	(Optional) Minimum port number to be matched. Any port number equal to or greater than this number constitutes a match. Range: 0 to 65535.
<i>max port</i>	(Optional) Maximum port number to be matched. Any port number equal to or less than this number constitutes a match. Range: 0 to 65535.
<b>min port max port</b>	(Optional) Range of port numbers to be matched. Range: 0 to 65535.
source as	(Optional) The match criterion is based on the source autonomous system.
destination as	(Optional) The match criterion is based on the destination autonomous system.
<i>as-number</i>	(Optional) Autonomous system number to be matched.
input-interface	(Optional) The match criterion is based on the input interface.
output-interface	(Optional) The match criterion is based on the output interface.

<i>interface</i>	(Optional) Interface to be matched.
<i>tos</i>	(Optional) The match criterion is based on type of service (ToS).
<i>tos-value</i>	(Optional) ToS to be matched.
<i>dscp dscp-value</i>	(Optional) Differentiated services code point (DSCP) value to be matched.
<i>precedence</i> <i>precedence-value</i>	(Optional) Precedence value to be matched.
<i>protocol</i>	(Optional) The match criterion is based on protocol.
<i>protocol-number</i>	(Optional) Protocol number to be matched. Range: 0 to 255.
<i>tcp</i>	(Optional) Protocol number to be matched as TCP.
<i>udp</i>	(Optional) Protocol number to be matched as UDP.
<i>flow-sampler</i>	(Optional) The match criterion is based on top talker sampling.
<i>flow-sampler-name</i>	(Optional) Name of the top talker sampler to be matched.
<i>class-map</i>	(Optional) The match criterion is based on a class map.
<i>class</i>	(Optional) Name of the class map to be matched.
<i>packet-range</i>	(Optional) Protocol number to be matched on a range of packets.
<i>byte-range</i>	(Optional) Protocol number to be matched on a range of bytes.
<i>min-range-number</i> <i>max-range-number</i>	(Optional) Range of bytes or packets to be matched. Range: 1 to 4294967295.
<b>min</b> <i>minimum-range</i>	(Optional) Minimum number of bytes or packets to be matched. Range: 1 to 4294967295.
<b>max</b> <i>maximum-range</i>	(Optional) Maximum number of bytes or packets to be matched. Range: 1 to 4294967295.
<b>min</b> <i>minimum-range</i> <b>max</b> <i>maximum-range</i>	(Optional) Range of bytes or packets to be matched. Range: 1 to 4294967295.
<i>direction</i>	(Optional) Direction of the flow to be matched.
<i>ingress</i>	(Optional) The match criterion is based on ingress flows.
<i>egress</i>	(Optional) The match criterion is based on egress flows.

**Defaults**

No matching criteria are specified by default. All top talkers will be displayed.

**Command Modes**

NetFlow top talkers configuration

**Command History**

Release	Modification
12.2(25)S	This command was introduced.
12.3(11)T	This command was integrated into Cisco IOS Release 12.3(11)T. The <b>direction</b> , <b>ingress</b> , and <b>egress</b> keywords were added.

**Usage Guidelines**

Use this command to specify match criteria for the NetFlow MIB and Top Talkers feature. Using matching criteria is useful to restrict the list of top talkers.

If you are using a MIB and using simple network management protocol (SNMP) commands to configure this feature, refer to the following table for a mapping of the command-line interface (CLI) commands to the MIB SNMP commands:

**Table 1 Router CLI Commands and Equivalent SNMP Commands**

Router CLI Command	SNMP Command
<b>match source address</b> [ <i>ip-address</i> ] [ <i>mask</i>   <i>/nn</i> ]	<b>cnfTopFlowsMatchSrcAddress</b> <i>ip-address</i> <b>cnfTopFlowsMatchSrcAddressType</b> <i>type</i> <sup>1</sup> <b>cnfTopFlowsMatchSrcAddressMask</b> <i>mask</i>
<b>match destination address</b> [ <i>ip-address</i> ] [ <i>mask</i>   <i>/nn</i> ]	<b>cnfTopFlowsMatchDstAddress</b> <i>ip-address</i> <b>cnfTopFlowsMatchDstAddressType</b> <i>type</i> <sup>1</sup> <b>cnfTopFlowsMatchDstAddressMask</b> <i>mask</i>
<b>match nexthop address</b> [ <i>ip-address</i> ] [ <i>mask</i>   <i>/nn</i> ]	<b>cnfTopFlowsMatchNhAddress</b> <i>ip-address</i> <b>cnfTopFlowsMatchNhAddressType</b> <i>type</i> <sup>1</sup> <b>cnfTopFlowsMatchNhAddressMask</b> <i>mask</i>
<b>match source port min</b> <i>port</i>	<b>cnfTopFlowsMatchSrcPortLo</b> <i>port</i>
<b>match source port max</b> <i>port</i>	<b>cnfTopFlowsMatchSrcPortHi</b> <i>port</i>
<b>match destination port min</b> <i>port</i>	<b>cnfTopFlowsMatchDstPortLo</b> <i>port</i>
<b>match destination port max</b> <i>port</i>	<b>cnfTopFlowsMatchDstPortHi</b> <i>port</i>
<b>match source as</b> <i>as-number</i>	<b>cnfTopFlowsMatchSrcAS</b> <i>as-number</i>
<b>match destination as</b> <i>as-number</i>	<b>cnfTopFlowsMatchDstAS</b> <i>as-number</i>
<b>match input-interface</b> <i>interface</i>	<b>cnfTopFlowsMatchInputIf</b> <i>interface</i>
<b>match output-interface</b> <i>interface</i>	<b>cnfTopFlowsMatchOutputIf</b> <i>interface</i>
<b>match tos</b> [ <i>tos-value</i>   <b>dscp</b> <i>dscp-value</i>   <b>precedence</b> <i>precedence-value</i> ]	<b>cnfTopFlowsMatchTOSByte</b> <i>tos-value</i> <sup>2</sup>
<b>match protocol</b> [ <i>protocol-number</i>   <b>tcp</b>   <b>udp</b> ]	<b>cnfTopFlowsMatchProtocol</b> <i>protocol-number</i>
<b>match flow-sampler</b> <i>flow-sampler-name</i>	<b>cnfTopFlowsMatchSampler</b> <i>flow-sampler-name</i>
<b>match class-map</b> <i>class</i>	<b>cnfTopFlowsMatchClass</b> <i>class</i>
<b>match packet-range min</b> <i>minimum-range</i>	<b>cnfTopFlowsMatchMinPackets</b> <i>minimum-range</i>
<b>match packet-range max</b> <i>maximum-range</i>	<b>cnfTopFlowsMatchMaxPackets</b> <i>maximum-range</i>
<b>match byte-range min</b> <i>minimum-range</i>	<b>cnfTopFlowsMatchMinBytes</b> <i>minimum-range</i>
<b>match byte-range max</b> <i>maximum-range</i>	<b>cnfTopFlowsMatchMaxPackets</b> <i>maximum-range</i>
<b>direction</b> [ <b>ingress</b>   <b>egress</b> ]	<b>cnfTopFlowsMatchDirection</b> [ <b>flowDirNone(0)</b>   <b>flowDirIngress(1)</b>   <b>flowDirEgress(2)</b> ]

1. The only IP version type that is currently supported is IPv4 (type 1).

2. The *tos-value* argument consists of 6 bits for DSCP, 3 bits for precedence, and 8 bits (one byte) for ToS.

**Examples**

The following example enters NetFlow top talkers configuration mode and specifies that the top talkers will contain the following characteristics:

- The list of top talkers will have an IP address of 10.1.1.1 with a subnet mask of 255.255.255.240 (/28).
- The list of top talkers will have an autonomous system number of 64512.

```
Router(config)# ip flow-top-talkers
Router(config-flow-top-talkers)# match source address 10.1.1.1/28
Router(config-flow-top-talkers)# match destination as 64512
```

**Related Commands**

Command	Description
<b>cache-timeout</b>	Specifies the length of time for which the list of top talkers is retained.
<b>ip flow-top-talkers</b>	Enters NetFlow top talkers configuration mode.
<b>show ip flow top-talkers</b>	Displays the list of top talkers.
<b>sort-by</b>	Specifies the sorting criterion for the NetFlow MIB and Top Talkers feature.
<b>top</b>	Specifies the maximum number of top talkers to be displayed.

# show ip cache flow

To display a summary of the NetFlow switching statistics, use the **show ip cache flow** command in user EXEC or privileged EXEC mode.

**show ip cache flow**

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

**Command Modes** User EXEC  
Privileged EXEC

Command History	Release	Modification
	11.1	This command was introduced.
	11.1 CA	The information display for the command was updated.
	12.3(4)T, 12.3(6), 12.2(20)S	The <b>execute-on</b> command was implemented on the Cisco 7500 platforms to include the remote execution of the <b>show ip cache flow</b> command.
	12.3(11)T	Support for egress flow accounting was added, and the [ <i>prefix mask</i> ] and [ <i>type number</i> ] arguments were removed.

**Usage Guidelines** Some of the content in the display of the **show ip cache flow** command uses multi-line headings and multi-line data fields. [Figure 4](#) shows how to associate the headings with the correct data fields when there are two lines of headings and two lines of data fields. The first line of the headings is associated with the first line of data fields. The second line of the headings is associated with the second line of data fields.

When other features such as IP Multicast are configured the number of lines in the headings and data fields will increase. The method for associating the headings with the correct data fields remains the same.

**Figure 3** How to use the multi-line headings and multi-line data fields in the display output of the show ip cache flow command

```

Router# show ip cache verbose flow
IP packet size distribution (25229 total packets):
  1-32  64  96  128  160  192  224  256  288  320  352  384  416  448  480
  .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000
  512  544  576 1024 1536 2048 2560 3072 3584 4096 4608
  .000 .000 .000 .206 .793 .000 .000 .000 .000 .000 .000 .000

IP Flow Switching Cache, 278544 bytes
  6 active, 4090 inactive, 17 added
  505 age polls, 0 flow alloc failures
  Active flows timeout in 1 minutes
  Inactive flows timeout in 10 seconds

IP Sub Flow Cache, 25736 bytes
  12 active, 1012 inactive, 39 added, 17 added to flow
  0 alloc failures, 0 force free
  1 chunk, 1 chunk added
  last clearing of statistics never

Protocol      Total    Flows    Packets Bytes  Packets Active(Sec) Idle(Sec)
-----
              Flows  /Sec    /Flow /Pkt   /Sec   /Flow   /Flow
TCP-Telnet    1       0.0     362   940   2.7    60.2    0.0
TCP-FTP       1       0.0     362   840   2.7    60.2    0.0
TCP-FTPD      1       0.0     362   840   2.7    60.1    0.1
TCP-SMTP      1       0.0     361  1040   2.7    60.0    0.1
UDP-other     5       0.0      1    66    0.0    1.0    10.6
ICMP          2       0.0    8829 1378  135.8   60.7    0.0
Total:       11      0.0    1737 1343  147.0   33.4    4.8

SrcIf      SrcIPaddress  DstIf      DstIPaddress  Pr  TOS  Flgs  Pkts
Port Msk AS  Port Msk AS  NextHop       E/Pk Active
Et0/0.1    10.251.138.2 Et1/0.1     172.16.10.2   06  80   00    65
0015 /0 0   (005)        0.0.0.0       840  10.8
MAC: (VLAN id) aaaa.bbbb.cc03
Min plen:      840
Min TTL:       59
IP id:         0

```

### Displaying Detailed NetFlow Cache Information on Platforms Running Distributed Cisco Express Forwarding (dCEF)

On platforms running Distributed Cisco Express Forwarding (dCEF), NetFlow cache information is maintained on each line card or Versatile Interface Processor. To display this information on a distributed platform by use of the **show ip cache flow** command, you must enter the command at a line card prompt.

#### Cisco 7500 Series Platform

To display NetFlow cache information using the **show ip cache flow** command on a Cisco 7500 series router that is running dCEF, enter the following sequence of commands:

```

Router# if-con slot-number
LC-slot-number# show ip cache flow

```

For Cisco IOS Releases 12.3(4)T, 12.3(6), and 12.2(20)S and later, enter the following command to display NetFlow cache information:

```

Router# execute-on slot-number show ip cache flow

```

#### Cisco 12000 Series Platform

To display NetFlow cache information using the **show ip cache flow** command on a Cisco 12000 Series Internet router, enter the following sequence of commands:

```

Router# attach slot-number

```

## show ip cache flow

LC-slot-number# **show ip cache flow**

For Cisco IOS Releases 12.3(4)T, 12.3(6), and 12.2(20)S and later, enter the following command to display NetFlow cache information:

Router# **execute-on slot-number show ip cache flow**

### Examples

The following is a sample display of a main cache using the **show ip cache flow** command:

Router# **show ip cache flow**

```
IP packet size distribution (230151 total packets):
 1-32  64  96 128 160 192 224 256 288 320 352 384 416 448 480
 .999 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000

512  544  576 1024 1536 2048 2560 3072 3584 4096 4608
 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000
```

The preceding output shows the percentage distribution of packets by size range. In this display, 99.9 percent of the packets fall in the size range from 1 to 32 bytes.

```
IP Flow Switching Cache, 4456448 bytes
65509 active, 27 inactive, 820628747 added
955454490 ager polls, 0 flow alloc failures
Exporting flows to 1.1.15.1 (2057)
820563238 flows exported in 34485239 udp datagrams, 0 failed
last clearing of statistics 00:00:03
```

Protocol	Total	Flows	Packets	Bytes	Packets	Active(Sec)	Idle(Sec)
-----	Flows	/Sec	/Flow	/Pkt	/Sec	/Flow	/Flow
TCP-BGP	71	0.0	1	49	0.0	2.5	15.8
UDP-other	17	0.0	1	328	0.0	0.0	15.7
ICMP	18966	6.7	10	28	72.9	0.1	22.9
Total:	19054	6.7	10	28	72.9	0.1	22.9

SrcIf	SrcIPAddress	DstIf	DstIPAddress	Pr	TOS	Flgs	Pkts
Port Msk AS		Port Msk AS	NextHop			B/Pk	Active
Et1/1	52.52.52.1	Fd4/0	42.42.42.1	01	55	10	3748
0000 /8 50		0000 /8 40	202.120.130.2			28	17.8
Et1/2	52.52.52.1	Fd4/0	42.42.42.1	01	CC	10	3568
0000 /8 50		0000 /8 40	202.120.130.2			28	17.8
Et1/2	10.1.3.2	Fd4/0	42.42.42.1	01	C0	10	1124
0000 /0 0		0000 /8 40	202.120.130.2			28	17.8
Et1/2	11.1.3.2	Fd4/0	42.42.42.1	01	C0	10	1157
0000 /0 0		0000 /8 40	202.120.130.2			28	17.7
Et1/2	14.1.3.2	Fd4/0	42.42.42.1	01	C0	10	1149
0000 /0 0		0000 /8 40	202.120.130.2			28	17.8
Et1/2	15.1.3.2	Fd4/0	42.42.42.1	01	C0	10	1127
0000 /0 0		0000 /8 40	202.120.130.2			28	17.7
Et1/2	12.1.3.2	Fd4/0	42.42.42.1	01	C0	10	1204
0000 /0 0		0000 /8 40	202.120.130.2			28	17.8
Et1/2	13.1.3.2	Fd4/0	42.42.42.1	01	C0	10	1159
0000 /0 0		0000 /8 40	202.120.130.2			28	17.8
Et1/2	18.1.3.2	Fd4/0	42.42.42.1	01	C0	10	1223
0000 /0 0		0000 /8 40	202.120.130.2			28	17.8
Et1/2	19.1.3.2	Fd4/0	42.42.42.1	01	C0	10	1264
0000 /0 0		0000 /8 40	202.120.130.2			28	17.8
Et1/2	16.1.3.2	Fd4/0	42.42.42.1	01	C0	10	1170
0000 /0 0		0000 /8 40	202.120.130.2			28	17.8
Et1/2	17.1.3.2	Fd4/0	42.42.42.1	01	C0	10	1167
0000 /0 0		0000 /8 40	202.120.130.2			28	17.8

```

Et1/2          22.1.3.2          Fd4/0          42.42.42.1      01 C0 10 1193
0000 /0 0      23.1.3.2          Fd4/0          42.42.42.1      01 C0 10 1212
Et1/2          23.1.3.2          Fd4/0          42.42.42.1      01 C0 10 1212
0000 /0 0      23.1.3.2          Fd4/0          42.42.42.1      01 C0 10 1212
Et1/1          50.50.50.1        Local          31.31.31.1      06 C0 18 2
00B3 /32 0     2AF8 /32 0        0.0.0.0         49 10.1
Et1/0          8.8.8.8           Et0/0*         9.9.9.9          01 00 10 3
0000 /8 302    0800 /8 300      3.3.3.3          100 0.1

```

**Note**

The very last entry in the “DstIf” field has an asterisk (\*) next to the destination interface. The asterisk (\*) immediately following the “DstIf” field indicates that the flow being shown is an egress flow.

Table 2 describes the significant fields shown in the flow switching cache lines of the display.

**Table 2** *show ip cache flow Field Descriptions in Flow Switching Cache Display*

Field	Description
bytes	Number of bytes of memory used by the NetFlow cache.
active	Number of active flows in the NetFlow cache at the time this command was entered.
inactive	Number of flow buffers that are allocated in the NetFlow cache, but were not currently assigned to a specific flow at the time this command was entered.
added	Number of flows created since the start of the summary period.
ager polls	Number of times the NetFlow code looked at the cache to cause entries to expire (used by Cisco for diagnostics only).
flow alloc failures	Number of times the NetFlow code tried to allocate a flow but could not.
Exporting flows	IP address and User Datagram Protocol (UDP) port number of the workstation to which flows are exported.
flows exported in udp datagrams	Total number of flows exported and the total number of UDP datagrams used to export the flows to the workstation.
failed	Number of flows that could not be exported by the router because of output interface limitations.
last clearing of statistics	Standard time output (hh:mm:ss) since the <b>clear ip flow stats</b> privileged EXEC command was executed. This time output changes to hours and days after the time exceeds 24 hours.

Table 3 describes the significant fields shown in the activity by protocol lines of the display.

**Table 3** *show ip cache flow Field Descriptions in Activity by Protocol Display*

Field	Description
Protocol	IP protocol and the well-known port number as described in RFC 1340.
Total Flows	Number of flows for this protocol since the last time statistics were cleared.
Flows/Sec	Average number of flows for this protocol seen per second; equal to total flows/number of seconds for this summary period.

**Table 3** *show ip cache flow Field Descriptions in Activity by Protocol Display (continued)*

Field	Description
Packets/Flow	Average number of packets observed for the flows seen for this protocol. Equal to total packets for this protocol or number of flows for this protocol for this summary period.
Bytes/Pkt	Average number of bytes observed for the packets seen for this protocol (total bytes for this protocol or total number of packet for this protocol for this summary period).
Packets/Sec	Average number of packets for this protocol per second (total packets for this protocol) or total number of seconds for this summary period.
Active(Sec)/Flow	Sum of all the seconds from the first packet to the last packet of an expired flow (for example, TCP FIN, timeout, and so on), in seconds or total flows for this protocol for this summary period.
Idle(Sec)/Flow	Sum of all the seconds from the last packet seen in each nonexpired flow for this protocol until the time at which this command was entered, in seconds or total flows for this protocol for this summary period.

Table 4 describes the significant fields in the NetFlow record lines of the display.

**Table 4** *show ip cache verbose flow Field Descriptions in NetFlow Record Display*

Field	Description
SrcIf	Interface on which the packet was received.
Port Msk AS	Source Border Gateway Protocol (BGP) autonomous system. This is always set to 0 in MPLS flows.
SrcIPAddress	IP address of the device that transmitted the packet.
DstIf	Interface from which the packet was transmitted. <b>Note</b> If an asterisk (*) immediately follows the "DstIf" field, the flow being shown is an egress flow.
Port Msk AS	Destination BGP autonomous system. This is always set to 0 in MPLS flows.
DstIPAddress	IP address of the destination device.
NextHop	Specifies the BGP next-hop address. This is always set to 0 in MPLS flows.
Pr	IP protocol well-known port number as described in RFC 1340, displayed in hexadecimal format.
B/Pk	Average number of bytes observed for the packets seen for this protocol (total bytes for this protocol or the total number of flows for this protocol for this summary period).
Flgs	TCP flags (result of bitwise OR of TCP flags from all packets in the flow).
Active	Number of active flows in the NetFlow cache at the time this command was entered.
Pkts	Number of packets switched through this flow.

Related Commands	Command	Description
	<b>clear ip flow stats</b>	Clears the NetFlow switching statistics.
	<b>ip flow egress</b>	Configures egress support for NetFlow on an interface or subinterface.
	<b>ip route-cache</b>	Controls the use of high-speed switching caches for IP routing.

# show ip cache verbose flow

To display a detailed summary of NetFlow statistics, use the **show ip cache verbose flow** command in privileged EXEC mode.

## show ip cache verbose flow

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

**Command Modes** Privileged EXEC

Command History	Release	Modification
	11.1	This command was introduced.
	11.1 CA	The information display for the command was updated.
	12.3(1)	The command output was updated to display additional NetFlow fields.
	12.0(24)S	MPLS flow records were added to the command output.
	12.3(4)T, 12.3(6), 12.2(20)S	The <b>execute-on</b> command was implemented on the Cisco 7500 platforms to include the remote execution of the <b>show ip cache verbose flow</b> command.
	12.3(8)T	MPLS flow records were added to the command output for Cisco IOS Release 12.3(8)T.
	12.3(11)T	Support for egress flow accounting was added, and the <i>[prefix mask]</i> and <i>[type number]</i> arguments were removed.

**Usage Guidelines** Use the **show ip cache verbose flow** command to display flow record fields in the NetFlow cache in addition to the fields that are displayed with the **show ip cache flow** command. The values in the additional fields that are shown depend on the NetFlow features that are enabled and the flags that are set in the flow.



**Note** The flags, and therefore the fields, might vary from flow to flow.

Some of the content in the display of the **show ip cache verbose flow** command uses multi-line headings and multi-line data fields. [Figure 4](#) shows how to associate the headings with the correct data fields when there are two lines of headings and two lines of data fields. The first line of the headings is associated with the first line of data fields. The second line of the headings is associated with the second line of data fields.

When other features such as IP Multicast are configured the number of lines in the headings and data fields will increase. The method for associating the headings with the correct data fields remains the same.

**Figure 4** How to use the multi-line headings and multi-line data fields in the display output of the `show ip cache verbose flow` command

```

R3#show ip cache verbose flow
IP packet size distribution (16022 total packets):
  1-32  64  96 128 160 192 224 256 288 320 352 384 416 448 480
  .000 .001 .001 .111 .002 .002 .001 .001 .001 .001 .001 .001 .001 .001 .001

  512  544  576 1024 1536 2048 2560 3072 3584 4096 4608
  .001 .001 .001 .027 .827 .000 .000 .000 .000 .000 .000

IP Flow Switching Cache, 278544 bytes
  6 active, 4090 inactive, 10 added
  213 aged polls, 0 flow alloc failures
  Active flows timeout in 30 minutes
  Inactive flows timeout in 15 seconds
IP Sub Flow Cache, 17416 bytes
  0 active, 1024 inactive, 0 added, 0 added to flow
  0 alloc failures, 0 force free
  1 chunk, 1 chunk added
  last clearing of statistics never
Protocol          Total    Flows    Packets Bytes  Packets Active(Sec) Idle(Sec)
-----          Flows    /Sec    /Flow  /Pkt  /Sec    /Flow    /Flow
UDP-other         4        0.0      1     162    0.0     0.0     15.5
Total:           4        0.0      1     162    0.0     0.0     15.5

SrcIf          SrcIPAddress  DstIf          DstIPAddress  Pr TOS Flgs Pkts
Port Msk AS    Local         NextHop        B/Pk Active
Se3/0         10.10.0.7    Local         10.0.0.3      01 00 10 1543
0000 /0 0     0800 /0 0    0.0.0.0      1500 34.3
Se3/0         10.1.0.1    Local         10.0.0.3      01 00 10 1297
0000 /0 0     0800 /0 0    0.0.0.0      1500 34.3
Se3/0         10.5.0.2    Local         10.0.0.3      01 00 10 1845
0000 /0 0     0800 /0 0    0.0.0.0      100 34.3
Se3/0         10.10.0.7    Local         10.0.0.3      01 00 00 12K
0000 /0 0     0000 /0 0    0.0.0.0      1408 34.4
Se1/0         10.2.0.2    Null          255.255.255.255 11 C0 10 1
0208 /0 0     0208 /0 0    0.0.0.0      152 0.0
R3#

```

When the NetFlow Multicast Support feature is enabled, this command displays the number of replicated packets and the packet byte count for NetFlow multicast accounting. When you configure the NetFlow Version 9 Export Format feature, this command displays additional NetFlow fields in the header.

When you configure the MPLS-aware NetFlow feature, you can use the `show ip cache verbose flow` command to display both IP and MPLS portions of MPLS flows in the NetFlow cache on a router line card. To display only the IP portion of the flow record in the NetFlow cache when MPLS-aware NetFlow is configured, use the `show ip cache flow` command.

#### Displaying Detailed NetFlow Cache Information on Platforms Running Distributed Cisco Express Forwarding (dCEF)

On platforms running Distributed Cisco Express Forwarding (dCEF), NetFlow cache information is maintained on each line card or Versatile Interface Processor. To display this information on a distributed platform by use of the `show ip cache verbose flow` command, you must enter the command at a line card prompt.

#### Cisco 7500 Series Platform

To display detailed NetFlow cache information on a Cisco 7500 series router that is running distributed Cisco Express Forwarding (dCEF), enter the following sequence of commands:

```
Router# if-con slot-number
LC-slot-number# show ip cache verbose flow
```

For Cisco IOS Releases 12.3(4)T, 12.3(6), and 12.2(20)S and later, enter the following command to display detailed NetFlow cache information:

```
Router# execute-on slot-number show ip cache verbose flow
```

### Cisco 12000 Series Platform

To display detailed NetFlow cache information on a Cisco 12000 series Internet router, enter the following sequence of commands:

```
Router# attach slot-number
LC-slot-number# show ip cache verbose flow
```

For Cisco IOS Releases 12.3(4)T, 12.3(6), and 12.2(20)S and later, enter the following command to display detailed NetFlow cache information:

```
Router# execute-on slot-number show ip cache verbose flow
```

## Examples

The following example shows output from the **show ip cache verbose flow** command:

```
Router# show ip cache verbose flow

IP packet size distribution (6 total packets):
  1-32  64   96  128  160  192  224  256  288  320  352  384  416  448  480
    .000 .833 .166 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000

      512  544  576 1024 1536 2048 2560 3072 3584 4096 4608
      .000 .000 .000 .000 .000 .000 .000 .000 .000 .000 .000
```

The preceding output shows the percentage distribution of packets by size. In this display, 83.3 percent of the packets fall in the 64-byte size range and 16.6 percent fall in the 96-byte range.

The next section of the output can be divided into three sections. The section and the table corresponding to each are as follows:

- NetFlow cache statistics lines ([Table 5](#))
- Protocol statistics ([Table 6](#))
- NetFlow record display ([Table 7](#))

```
IP Flow Switching Cache, 278544 bytes
  1 active, 4095 inactive, 2 added
  25 ager polls, 0 flow alloc failures
  Active flows timeout in 30 minutes
  Inactive flows timeout in 15 seconds
IP Sub Flow Cache, 17096 bytes
  1 active, 1023 inactive, 2 added, 2 added to flow
  0 alloc failures, 0 force free
  1 chunk, 1 chunk added
  last clearing of statistics never
```

Protocol	Total	Flows	Packets	Bytes	Packets	Active(Sec)	Idle(Sec)
-----	Flows	/Sec	/Flow	/Pkt	/Sec	/Flow	/Flow
TCP-BGP	1	0.0	4	57	0.0	0.3	15.4
Total:	1	0.0	4	57	0.0	0.3	15.4

SrcIf	SrcIPAddress	DstIf	DstIPAddress	Pr	TOS	Flgs	Pkts
-------	--------------	-------	--------------	----	-----	------	------

```

Port Msk AS                Port Msk AS    NextHop                B/Pk  Active
BGP: BGP NextHop
Et0/0                    3.3.3.3        Local                  3.3.3.4        06 C0  18      2
2AF8 /24 0              00B3 /24 0    0.0.0.0                49      0.2
BGP: 0.0.0.0

```

Table 5 describes the significant fields shown in the NetFlow cache lines of the display.

**Table 5** *show ip cache verbose flow Field Descriptions in the NetFlow Cache Display*

Field	Description
bytes	Number of bytes of memory used by the NetFlow cache.
active	Number of active flows in the NetFlow cache at the time this command was entered.
inactive	Number of flow buffers that are allocated in the NetFlow cache but that were not assigned to a specific flow at the time this command was entered.
added	Number of flows created since the start of the summary period.
ager polls	Number of times the NetFlow code caused entries to expire (used by Cisco for diagnostics only).
flow alloc failures	Number of times the NetFlow code tried to allocate a flow but could not.
last clearing of statistics	Standard time output (hh:mm:ss) since the <b>clear ip flow stats</b> privileged EXEC command was last executed. This time output changes to hours and days after the time exceeds 24 hours.

Table 6 describes the significant fields shown in the activity by protocol lines of the display.

**Table 6** *show ip cache verbose flow Field Descriptions in Activity by Protocol Display*

Field	Description
Protocol	IP protocol and the well-known port number. (Refer to <a href="http://www.iana.org">http://www.iana.org</a> , <i>Protocol Assignment Number Services</i> , for the latest RFC values.) <b>Note</b> Only a small subset of all protocols is displayed.
Total Flows	Number of flows for this protocol since the last time statistics were cleared.
Flows/Sec	Average number of flows for this protocol per second; equal to the total flows divided by the number of seconds for this summary period.
Packets/Flow	Average number of packets for the flows for this protocol; equal to the total packets for this protocol divided by the number of flows for this protocol for this summary period.
Bytes/Pkt	Average number of bytes for the packets for this protocol; equal to the total bytes for this protocol divided by the total number of packets for this protocol for this summary period.

**Table 6** *show ip cache verbose flow Field Descriptions in Activity by Protocol Display (continued)*

Field	Description
Packets/Sec	Average number of packets for this protocol per second; equal to the total packets for this protocol divided by the total number of seconds for this summary period.
Active(Sec)/Flow	Number of seconds from the first packet to the last packet of an expired flow (for example, TCP connection close request [FIN], timeout, and so on) divided by the total flows for this protocol for this summary period.
Idle(Sec)/Flow	Number of seconds observed from the last packet in each nonexpired flow for this protocol until the time at which this command was entered divided by the total flows for this protocol for this summary period.

Table 7 describes the significant fields in the NetFlow record lines of the display.

**Table 7** *show ip cache verbose flow Field Descriptions in NetFlow Record Display*

Field	Description
SrcIf	Interface on which the packet was received.
Port Msk AS	Source port number (displayed in hexadecimal format), IP address mask, and autonomous system number. This is always set to 0 in MPLS flows.
SrcIPAddress	IP address of the device that transmitted the packet.
DstIf	Interface from which the packet was transmitted. <b>Note</b> If an asterisk (*) immediately follows the “DstIf” field, the flow being shown is an egress flow.
Port Msk AS	Destination port number (displayed in hexadecimal format), IP address mask, and autonomous system. This is always set to 0 in MPLS flows.
DstIPAddress	IP address of the destination device.
NextHop	The BGP next-hop address. This is always set to 0 in MPLS flows.
Pr	IP protocol “well-known” port number, displayed in hexadecimal format. (Refer to <a href="http://www.iana.org">http://www.iana.org</a> , <i>Protocol Assignment Number Services</i> , for the latest RFC values.)
TOS	Type of Service, displayed in hexadecimal format.
B/Pk	Average number of bytes observed for the packets seen for this protocol.
Flgs	TCP flags, shown in hexadecimal format (result of bitwise OR of TCP flags from all packets in the flow).
Pkts	Number of packets in this flow.
Active	Time the flow has been active.

The following example shows the NetFlow output of the **show ip cache verbose cache flow** command in which the sampler, class-id, and general flags are set. What is displayed for a flow depends on what flags are set in the flow. If the flow was captured by a sampler, the output shows the sampler ID. If the flow was marked by Modular QoS CLI (MQC), the display includes the class ID. If any general flags are set, the output includes the flags.

```

...
SrcIf          SrcIPAddress      DstIf          DstIPAddress   Pr  TOS Flgs  Pkts
Port Msk AS    Port Msk AS    NextHop        B/Pk  Active
BGP: BGP NextHop
Et1/0         8.8.8.8        Et0/0*        9.9.9.9        01 00 10      3
0000 /8 302          0800 /8 300    3.3.3.3        100   0.1
BGP: 2.2.2.2          Sampler: 1 Class: 1 FFlags: 01

```

[Table 8](#) describes the significant fields shown in the NetFlow output for a sampler, for an MQC policy class, and for general flags.

**Table 8** *show ip cache verbose flow Field Descriptions for a NetFlow Sampler, an MQC Policy Class, and General Flags*

Field	Description
Sampler: 1	Shows the ID of the sampler that captured the flow. The sampler ID in this example is 1.
Class: 1	Shows the ID of the MQC traffic class. The class ID in this example is 1.
FFlag: 01	Shows the general flow flag (shown in hexadecimal format), which is the bitwise OR of one or more of the following: <ul style="list-style-type: none"> <li>• 01 indicates an output (or egress) flow. (If this bit is not set, the flow is an input [or ingress] flow.)</li> <li>• 02 indicates a flow that was dropped (for example, by an access control list [ACL]).</li> <li>• 04 indicates a Multiprotocol Label Switching (MPLS) flow.</li> <li>• 08 indicates an IP version 6 (IPv6) flow.</li> </ul> The flow flag in this example is 01 (an egress flow).

The following example shows the NetFlow output for the **show ip cache verbose flow** command when NetFlow BGP next-hop accounting is enabled:

```

Router# show ip cache verbose flow
...
SrcIf          SrcIPAddress      DstIf          DstIPAddress   Pr  TOS Flgs  Pkts
Port Msk AS    Port Msk AS    NextHop        B/Pk  Active
MUL:M_Opaks  M_Obytes BGP:BGP_NextHop
Et0/0/2      12.0.0.2        Et0/0/4        13.0.0.5        01 00 10      20
0000 /8 0        0800 /8 0        11.0.0.6        100   0.0
BGP:26.0.0.6
Et0/0/2      12.0.0.2        Et0/0/4        15.0.0.7        01 00 10      20
0000 /8 0        0800 /8 0        11.0.0.6        100   0.0
BGP:26.0.0.6
Et0/0/2      12.0.0.2        Et0/0/4        15.0.0.7        01 00 10      20
0000 /8 0        0000 /8 0        11.0.0.6        100   0.0
BGP:26.0.0.6

```

Table 9 describes the significant fields shown in the NetFlow BGP next-hop accounting lines of the display.

**Table 9** *show ip cache verbose flow Field Descriptions in NetFlow BGP Next-Hop Accounting Display*

Field	Description
M_Opaks	Displays the number of multiprotocol BGP next-hop output packets.
M_Obytes	Displays the number of multiprotocol BGP next-hop output bytes.
BGP:BGP_NextHop	Destination address for the BGP next hop.

The following example shows the NetFlow output for the **show ip cache verbose flow** command when NetFlow multicast accounting is configured:

```
Router# show ip cache verbose flow
```

```
...
SrcIf          SrcIPAddress  DstIf          DstIPAddress  Pr TOS Flgs Pkts
Port Msk AS    Port Msk AS    NextHop        B/Pk Active
IPM:OPkts     OBytes
IPM: 0         0
Et1/1/1       11.0.0.1      Null           227.1.1.1     01 55 10    100
0000 /8 0     0000 /0 0     0.0.0.0       28         0.0
IPM: 100      2800
Et1/1/1       11.0.0.1      Se2/1/1.16    227.1.1.1     01 55 10    100
0000 /8 0     0000 /0 0     0.0.0.0       28         0.0
IPM: 0         0
Et1/1/2       12.0.0.1      Et1/1/4       227.2.2.2     01 55 10    100
0000 /8 0     0000 /0 0     0.0.0.0       28         0.1
Et1/1/2       12.0.0.1      Null           227.2.2.2     01 55 10    100
0000 /8 0     0000 /0 0     0.0.0.0       28         0.1
IPM: 100      2800
```

Table 10 describes the significant fields shown in the NetFlow multicast accounting lines of the display.

**Table 10** *show ip cache verbose flow Field Descriptions in NetFlow Multicasting Accounting Display*

Field	Description
OPkts	Displays the number of IP multicast (IPM) output packets.
OBytes	Displays the number of IPM output bytes.
DstIPAddress	Displays the destination IP address for the IPM output packets.

The following example shows the output for both the IP and MPLS portions of the flow record in the NetFlow cache when MPLS-aware NetFlow is enabled:

```
Router# show ip cache verbose flow
```

```
...
SrcIf          SrcIPAddress  DstIf          DstIPAddress  Pr TOS Flgs Pkts
Port Msk AS    Port Msk AS    NextHop        B/Pk Active
PO3/0         10.1.1.1     PO5/1         10.2.1.1     01 00 10     9
```

```
0100 /0 0                0200 /0 0    0.0.0.0          100    0.0
Pos:Lbl-Exp-S 1:12305-6-0 (LDP/10.10.10.10) 2:12312-6-1
```

Table 11 describes the significant fields shown in the display.

**Table 11** *show ip cache verbose flow Field Descriptions*

Field	Description
Pos	Position of the MPLS label in the label stack, starting with 1 as the top label.
Lbl	Value given to the MPLS label by the router.
Exp	Value of the experimental bit.
S	Value of the end-of-stack bit. Set to 1 for the oldest entry in the stack and to zero for all other entries.
LDP/10.10.10.10	Type of MPLS label and associated IP address for the top label in the MPLS label stack.

#### Related Commands

Command	Description
<b>ip flow-cache mpls label-positions</b>	Enables MPLS-aware NetFlow.
<b>ip route-cache flow</b>	Enables ingress NetFlow data collection on the interface.
<b>show ip cache flow</b>	Displays a summary of the NetFlow switching statistics.

# show ip flow interface

To display NetFlow configuration on interfaces, use the **show ip flow interface** command in privileged EXEC mode.

## show ip flow interface

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

**Command Modes** Privileged EXEC

Command History	Release	Modification
	12.3(7)T	This command was introduced.
	12.3(11)T	Support for egress NetFlow accounting was added.

**Usage Guidelines** Use this command to display the type of NetFlow configuration that is used on the router interfaces.

**Examples** The following example shows that the following interface configurations have been applied:

- NetFlow accounting for egress flows has been enabled on interface Ethernet 0/0.
- The “my\_medium\_sampling” flow sampler map has been applied to interface Ethernet 0/0.
- NetFlow accounting has been enabled on interface Ethernet 1/0.
- The “my\_high\_sampling” policy map has been applied to interface Ethernet 1/0:

```
Router# show ip flow interface

Ethernet0/0
 ip flow egress
 flow-sampler my_medium_sampling
Ethernet1/0
 ip route-cache flow
 netflow-sampler my_high_sampling
```

Related Commands	Command	Description
	<b>ip flow egress</b>	Configures egress support for NetFlow on an interface or subinterface.
	<b>ip route-cache flow</b>	Configures ingress NetFlow on an interface or subinterface.
	<b>show ip cache flow</b>	Displays a summary of NetFlow statistics.

---

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■ show ip flow interface