



## NetFlow Multicast Support

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The NetFlow Multicast Support feature lets you capture multicast-specific data (both packets and bytes) for multicast flows. For example, you can capture the packet-replication factor for a specific flow as well as for each outgoing stream. This feature provides complete end-to-end usage information about network traffic for a complete multicast traffic billing solution.

The NetFlow Multicast Support feature can identify and count multicast packets on the ingress side or the egress side (or both sides) of a router. Multicast ingress accounting provides information about the source and the number of times the traffic was replicated, and multicast egress accounting monitors the destination of the traffic flow.

The NetFlow Multicast Support feature lets you enable NetFlow statistics to account for all packets that fail the reverse path forwarding (RPF) check that are dropped in the core of the service provider network. Accounting for RPF-failed packets provides more accurate traffic statistics and patterns.

### History for the NetFlow Multicast Support Feature

Release	Modification
12.3(1)	This feature was introduced.
12.2(18)S	This feature was integrated into Cisco IOS Release 12.2(18)S.
12.2(27)SBC	This feature was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(18)SXF	This feature was integrated into Cisco IOS Release 12.2(18)SXF.

### 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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- [Glossary, page 29](#)

## Prerequisites for NetFlow Multicast Support

### Release 12.2(18)SXF and later 12.2(SX) releases

Before you can configure the NetFlow Multicast Support feature, you must configure:

- Multicast routing
- NetFlow v9 (version 9) data export (otherwise, multicast data is visible in the cache but is not exported)

### All other Cisco IOS Releases

Before you can configure the NetFlow Multicast Support feature, you must configure:

- Multicast fast switching or multicast distributed fast switching (MDFS); multicast CEF switching is not supported.
- Multicast routing.
- NetFlow v9 (Version 9) data export. (Otherwise, multicast data is visible in the cache but is not exported.)

## Restrictions for NetFlow Multicast Support

### Memory Impact

If traffic is heavy, the additional flows might fill the global flow hash table. If you must increase the size of the global flow hash table, you must also add memory to the router.

NetFlow has a maximum cache size of 65,536 flow record entries of 64 bytes each. To deduce the packet-replication factor, multicast accounting adds 16 bytes (for a total of 80 bytes) to each multicast flow record.

### Performance Impact

Ingress multicast accounting does not greatly affect performance. Because of the additional accounting-related computation that occurs in the traffic-forwarding path of the router, egress NetFlow multicast accounting might degrade network performance slightly, but does not limit the functionality of the router.

### Multicast Addresses

NetFlow data cannot be exported to multicast addresses.

## Information About NetFlow Multicast Support

To configure the NetFlow Multicast Support feature, you must understand the following concepts:

- [Multicast Ingress and Multicast Egress Accounting, page 3](#)
- [NetFlow Multicast Flow Records, page 3](#)

## Multicast Ingress and Multicast Egress Accounting

The NetFlow Multicast Support feature lets you select either multicast ingress accounting, in which a replication factor (equal to the number of output interfaces) indicates the load, or multicast egress accounting, in which all outgoing multicast streams are processed as separate streams, or both. This lets you collect information about how much data is leaving the interfaces of the router (egress and multicast ingress accounting) or how much multicast data is received (multicast ingress accounting).

On the ingress side, multicast packets are counted like unicast packets, but with two additional fields (for number of replicated packets and byte count). With multicast ingress accounting, the destination interface field will be set to null, and the IP next hop field is set to zero for multicast flows.

## NetFlow Multicast Flow Records

Multicast ingress accounting creates one flow record that indicates how many times each packet is replicated. Multicast egress accounting creates a unique flow record for each outgoing interface.

## How to Configure NetFlow Multicast Support

See the following sections for configuration tasks for the NetFlow Multicast Support feature. Each task in the list is identified as either required or optional.

- [Configuring NetFlow Multicast Egress Accounting, page 3](#) (required)
- [Configuring NetFlow Multicast Ingress Accounting, page 4](#) (required)
- [Enabling Accounting for Multicast Data That Fails the RPF Check, page 5](#) (required)
- [Verifying the Configuration, page 6](#) (optional)
- [Troubleshooting Tips, page 6](#) (optional)

## Configuring NetFlow Multicast Egress Accounting

### SUMMARY STEPS

1. **enable**
2. **configure terminal**

3. **interface** *type number* [*name-tag*]
4. **ip multicast netflow egress**
5. **end**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
Step 2	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<b>interface</b> <i>type number</i> [ <i>name-tag</i> ]  <b>Example:</b> Router(config)# interface fastethernet 0/0	Enters interface configuration mode.
Step 4	<b>ip multicast netflow egress</b>  <b>Example:</b> Router(config-if)# ip multicast netflow egress	Enables NetFlow multicast egress accounting.
Step 5	<b>end</b>  <b>Example:</b> Router(config-if)# end	Ends the configuration session and returns to privileged EXEC mode.

## Configuring NetFlow Multicast Ingress Accounting

This section shows how to configure NetFlow multicast ingress accounting (which is enabled by default).

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type number* [*name-tag*]
4. **ip multicast netflow ingress**
5. **end**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"><li>Enter your password if prompted.</li></ul>
Step 2	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<b>interface</b> <i>type number</i> [ <i>name-tag</i> ]  <b>Example:</b> Router(config)# interface fastethernet 1/0	Enters interface configuration mode.
Step 4	<b>ip multicast netflow ingress</b>  <b>Example:</b> Router(config-if)# ip multicast netflow ingress	Enables NetFlow multicast ingress accounting.
Step 5	<b>end</b>  <b>Example:</b> Router(config-if)# end	Ends the configuration session and returns to privileged EXEC mode.

## Enabling Accounting for Multicast Data That Fails the RPF Check

This section shows how to enable accounting for multicast data that fails the RPF check.

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip multicast netflow rpf-failure**
4. **end**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<code>enable</code>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>Enter your password if prompted.</li> </ul>
Step 2	<code>configure terminal</code>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
Step 3	<code>ip multicast netflow rpf-failure</code>  <b>Example:</b> Router(config)# ip multicast netflow rpf-failure	Enables accounting for multicast data that fails the RPF check.
Step 4	<code>end</code>  <b>Example:</b> Router(config)# end	Ends the configuration session and returns to privileged EXEC mode.

## Verifying the Configuration

This section shows how to verify successful configuration of NetFlow multicast accounting.

### SUMMARY STEPS

1. `show ip cache verbose flow`

### DETAILED STEPS

Command or Action	Purpose
<code>show ip cache verbose flow</code>  <b>Example:</b> Router> show ip cache verbose flow	Displays the two additional fields related to multicast data (number of replicated packets and byte count).

## Troubleshooting Tips

If there are no multicast flow records in the NetFlow cache, check the multicast switching counters for the existence of process-switched packets. (NetFlow accounts only for fast-switched or MDFS-switched packets.) If process-switched packets are present, then check the multicast distributed fast switching (MDFS) routing table to help determine potential problems.

# Configuration Examples for NetFlow Multicast Support

This section provides the following configuration examples:

- [Configuring NetFlow Multicast Egress Accounting on an Ethernet Interface: Example, page 7](#)
- [Configuring NetFlow Multicast Ingress Accounting on an Ethernet Interface: Example, page 7](#)
- [Enabling Accounting for Multicast Data That Fails the RPF Check: Example, page 8](#)
- [Verifying the Configuration: Example, page 8](#)

## Configuring NetFlow Multicast Egress Accounting on an Ethernet Interface: Example

The following example shows how to configure multicast egress NetFlow accounting on the egress Ethernet 0/0 interface:

```
Router> enable
Password:
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# interface ethernet 0/0
  Router(config-if)# ip multicast netflow egress
  Router(config-if)# end
Router#
000068: *May 2 20:15:24.710:%SYS-5-CONFIG_I: Configured from console by console
Router# exit
```

## Configuring NetFlow Multicast Ingress Accounting on an Ethernet Interface: Example

The following example shows how to configure multicast ingress NetFlow accounting on the ingress Ethernet 1/0 interface:

```
Router> enable
Password:
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# interface ethernet 1/0
  Router(config-if)# ip multicast netflow ingress
  Router(config-if)# end
Router#
000070: *May 3 18:15:40.710:%SYS-5-CONFIG_I: Configured from console by console
Router# exit
```

## Enabling Accounting for Multicast Data That Fails the RPF Check: Example

The following example shows how to enable accounting for multicast data that fails the RPF check:

```
Router> enable
Password:
Router# configure terminal
Router(config)# ip multicast netflow rpf-failure
Router(config)# end
Router#
000071: *May 4 22:21:32.906:%SYS-5-CONFIG_I: Configured from console by console
Router# exit
```

## Verifying the Configuration: Example

The following example shows how to verify successful configuration of NetFlow multicast accounting:

```
Router> show ip cache verbose flow
IP packet size distribution (5246 total packets):
  1-32   64   96  128  160  192  224  256  288  320  352  384  416  448  480
  .800 .179 .000 .020 .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, 4456704 bytes
  6 active, 65530 inactive, 322 added
  4977 aged polls, 0 flow alloc failures
  Active flows timeout in 30 minutes
  Inactive flows timeout in 10 seconds
IP Sub Flow Cache, 270472 bytes
  4 active, 16380 inactive, 56 added, 56 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
ICMP          116        0.0        31      30      0.8        0.6         10.4
Total:       116        0.0        31      30      0.8        0.6         10.4

SrcIf          SrcIPAddress  DstIf          DstIPAddress   Pr TOS Flgs Pkts
Port Msk AS    OBytes        Port Msk AS    NextHop        B/Pk Active
IPM:OPkts
IPM: 0         0
Et1/1/1       10.0.0.1     Null           192.168.1.1    01 55 10    100
0000 /8 0     0000 /0 0     0.0.0.0        28    0.0
IPM: 100      2800
Et1/1/1       10.0.0.1     Se2/1/1.16    192.168.1.1    01 55 10    100
0000 /8 0     0000 /0 0     0.0.0.0        28    0.0
IPM: 0         0
Et1/1/2       10.0.0.1     Et1/1/4       192.168.2.1    01 55 10    100
0000 /8 0     0000 /0 0     0.0.0.0        28    0.1
Et1/1/2       10.0.0.1     Null           192.168.2.1    01 55 10    100
0000 /8 0     0000 /0 0     0.0.0.0        28    0.1
IPM: 100      2800
```

The OPkts column displays the number of IP multicast (IPM) output packets, the OBytes column displays the number of IPM output bytes, and the DstIPAddress column displays the destination IP address for the IPM output packets.

In this example, both egress accounting and ingress accounting are enabled. The ingress ports are named Et1/1/1 and 1/1/2, and the egress ports are named Se2/1/1.16 and Et1/1/4.

## Additional References

The following sections provide references related to the NetFlow Multicast Support feature.

### Related Documents

Related Topic	Document Title
NetFlow	<i>Cisco IOS Switching Services Configuration Guide</i> <i>Cisco IOS Switching Services Command Reference</i> , Release 12.3 <i>Cisco IOS Command Reference Master Index</i> , Release 12.3
NetFlow version 9 data export	<i>NetFlow v9 Export Format</i> feature module, Release 12.3
NetFlow version 9 export format	<i>NetFlow Version 9 Flow-Record Format</i> white paper
Description of an actual customer deployment of NetFlow services within an IP network	<i>NetFlow Services for an Enterprise Network</i> integrated solutions document (ISD)
IP multicast routing	“IP Multicast” part in the <i>Cisco IOS IP Configuration Guide</i> , Release 12.2
NetFlow Minimum Prefix Mask For Router-Based Aggregation feature	<i>NetFlow Minimum Prefix Mask for Router-Based Aggregation</i> feature module, Release 12.1(3)T
NetFlow ToS-Based Router Aggregation feature	<i>NetFlow ToS-Based Router Aggregation</i> feature module, Release 12.1(3)T
Sampled NetFlow feature	<i>Sampled NetFlow</i> feature module, Release 12.0(26)S
NetFlow FlowCollector	<i>NetFlow FlowCollector Installation and User Guide</i> , Release 3.0 <i>Release Notes for FlowCollector Release 3.0 and Release 3.0 (2.0)</i>
NetFlow Data Analyzer	<i>Network Data Analyzer Installation and User Guide</i> , Release 3.0 <i>Release Notes for Network Data Analyzer</i> , Release 3.0

### Standards

Standard	Title
None	—

### MIBs

MIB	MIBs Link
None	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

RFC	Title
None	—

## Technical Assistance

Description	Link
The Cisco Technical Support website contains thousands of 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/techsupport">http://www.cisco.com/techsupport</a>

## Command Reference

This section documents modified commands only.

- [ip multicast netflow](#)
- [ip multicast netflow rpf-failure](#)
- [show ip cache flow aggregation](#)
- [show ip cache verbose flow](#)

# ip multicast netflow

To configure multicast NetFlow accounting on an interface, use the **ip multicast netflow** command in interface configuration mode. To disable multicast NetFlow accounting, use the **no** form of this command.

```
ip multicast netflow {ingress | egress}
```

```
no ip multicast netflow {ingress | egress}
```

## Syntax Description

<b>ingress</b>	Enables multicast NetFlow (ingress) accounting.
<b>egress</b>	Enables multicast NetFlow (egress) accounting.

## Defaults

Multicast ingress NetFlow accounting is enabled.

Multicast egress NetFlow accounting is disabled.

## Command Modes

Interface configuration

## Command History

Release	Modification
12.3(1)	This command was introduced.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(18)SXF	This command was integrated into Cisco IOS Release 12.2(18)SXF.

## Usage Guidelines

You must have NetFlow accounting configured on your router before you can use this command.

```
ip multicast netflow ingress
```

NetFlow (ingress) accounting for multicast traffic is enabled by default. The **ip multicast netflow ingress** command does not appear in the configuration.

```
ip multicast netflow egress
```

You must enable multicast egress NetFlow accounting on all interfaces for which you want to count outgoing multicast streams.

## Examples

The following example shows how to enable multicast ingress NetFlow accounting on the ingress Ethernet 1/0 interface:

```
Router(config)# interface ethernet 1/0
Router(config-if)# ip multicast netflow ingress
```

The following example shows how to enable multicast egress NetFlow accounting on the egress Ethernet interface 0/0:

```
Router(config)# interface ethernet 0/0
Router(config-if)# ip multicast netflow egress
```

Related Commands	Command	Description
	<b>ip multicast netflow rpf-failure</b>	Enables accounting for multicast data that fails the RPF check.
	<b>show ip cache flow</b>	Displays a summary of the NetFlow statistics.
	<b>show ip cache verbose flow</b>	Displays a detailed summary of the NetFlow statistics.
	<b>show ip flow interface</b>	Displays NetFlow accounting configuration for interfaces.
	<b>show ip mroute</b>	Displays the contents of the IP multicast routing (mroute) table.

# ip multicast netflow rpf-failure

To enable NetFlow accounting for multicast data that fails the reverse path forwarding (RPF) check (meaning any IP packets that lack a verifiable IP source address), use the **ip multicast netflow rpf-failure** command in global configuration mode. To disable accounting for multicast data that fails the RPF check, use the **no** form of this command.

**ip multicast netflow rpf-failure**

**no ip multicast netflow rpf-failure**

## Syntax Description

This command has no arguments or keywords.

## Defaults

Accounting for multicast data that fails the RPF check is disabled.

## Command Modes

Global configuration

## Command History

Release	Modification
12.3(1)	This command was introduced.
12.2(18)S	This command was integrated into Cisco IOS Release 12.2(18)S.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(18)SXF	This command was integrated into Cisco IOS Release 12.2(18)SXF.

## Usage Guidelines

You must have NetFlow accounting configured on your router before you can use this command.

## Examples

The following example shows how to enable accounting for multicast data that fails the RPF check:

```
Router# configure terminal
Router(config)# ip multicast netflow rpf-failure
Router(config)# end
```

## Related Commands

Command	Description
<b>ip multicast netflow</b>	Configures multicast NetFlow accounting on an interface.
<b>show ip cache flow</b>	Displays a summary of the NetFlow accounting statistics.
<b>show ip cache verbose flow</b>	Displays a detailed summary of the NetFlow accounting statistics.
<b>show ip flow interface</b>	Displays NetFlow accounting configuration for interfaces.
<b>show ip mroute</b>	Displays the contents of the IP multicast routing (mroute) table.
<b>show ip rpf</b>	Displays how IP multicast routing does RPF.
<b>show ip rpf events</b>	Displays the last 15 triggered multicast RPF check events.

# show ip cache flow aggregation

To display the NetFlow accounting aggregation cache statistics, use the **show ip cache flow aggregation** command in user EXEC or privileged EXEC mode.

```
show ip cache [prefix mask] [type number] [verbose] flow aggregation {as | as-tos |
bgp-nexthop-tos | destination-prefix | destination-prefix-tos | prefix | prefix-port |
prefix-tos | protocol-port | protocol-port-tos | source-prefix | source-prefix-tos}
```

## Syntax Description

<i>prefix mask</i>	(Optional) Displays only the entries in the cache that match the prefix and mask combination.
<i>type number</i>	(Optional) Displays only the entries in the cache that match the interface type and number combination.
<b>verbose</b>	(Optional) Displays additional information from the aggregation cache.
<b>as</b>	Displays the configuration of the autonomous system aggregation cache scheme.
<b>as-tos</b>	Displays the configuration of the autonomous system type of service (ToS) aggregation cache scheme.
<b>bgp-nexthop-tos</b>	Displays the configuration of BGP next hop and ToS aggregation cache scheme.
<b>destination-prefix</b>	Displays the configuration of the destination prefix aggregation cache scheme.
<b>destination-prefix-tos</b>	Displays the configuration of the destination prefix ToS aggregation cache scheme.
<b>prefix</b>	Displays the configuration of the prefix aggregation cache scheme.
<b>prefix-port</b>	Displays the configuration of the prefix port aggregation cache scheme.
<b>prefix-tos</b>	Displays the configuration of the prefix ToS aggregation cache scheme.
<b>protocol-port</b>	Displays the configuration of the protocol port aggregation cache scheme.
<b>protocol-port-tos</b>	Displays the configuration of the protocol port ToS aggregation cache scheme.
<b>source-prefix</b>	Displays the configuration of the source prefix aggregation cache scheme.
<b>source-prefix-tos</b>	Displays the configuration of the source prefix ToS aggregation cache scheme.

## Command Modes

User EXEC  
Privileged EXEC

**Command History**

Release	Modification
12.0(3)T	This command was introduced.
12.0(15)S	This command was modified to include new <b>show</b> output for ToS aggregation schemes.
12.2(14)S	This command was integrated into Cisco IOS Release 12.2(14)S.
12.3(1)	The <b>bgp-nexthop-tos</b> keyword was added.
12.2(18)S	The <b>bgp-nexthop-tos</b> aggregation cache keyword was added.
12.0(26)S	The <b>bgp-nexthop-tos</b> aggregation cache keyword was added.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(18)SXF	This command was integrated into Cisco IOS Release 12.2(18)SXF.

**Examples**

The following is a sample display of an autonomous system aggregation cache with the **show ip cache flow aggregation as** command:

```
Router# show ip cache flow aggregation as
```

```
IP Flow Switching Cache, 278544 bytes
 2 active, 4094 inactive, 13 added
 178 ager polls, 0 flow alloc failures
```

Src If	Src AS	Dst If	Dst AS	Flows	Pkts	B/Pk	Active
Fa1/0	0	Null	0	1	2	49	10.2
Fa1/0	0	Se2/0	20	1	5	100	0.0

The following is a sample display of an autonomous system aggregation cache for the prefix mask 10.0.0.1 255.0.0.0 with the **show ip cache flow aggregation as** command:

```
Router# show ip cache 10.0.0.1 255.0.0.0 flow aggregation as
```

```
IP Flow Switching Cache, 278544 bytes
 2 active, 4094 inactive, 13 added
 178 ager polls, 0 flow alloc failures
```

Src If	Src AS	Dst If	Dst AS	Flows	Pkts	B/Pk	Active
e1/2	0	Null	0	1	2	49	10.2
e1/2	0	e1/2	20	1	5	100	0.0

The following is a sample display of an autonomous system aggregation cache for 10.0.0.1 255.0.0.0 Ethernet1/2 with the **show ip cache verbose flow aggregation as** command:

```
Router# show ip cache 10.0.0.1 255.0.0.0 e1/2 verbose flow aggregation as
```

```
IP Flow Switching Cache, 278544 bytes
 2 active, 4094 inactive, 13 added
 178 ager polls, 0 flow alloc failures
```

Src If	Src AS	Dst If	Dst AS	Flows	Pkts	B/Pk	Active
e1/2	0	Null	0	1	2	49	10.2
e1/2	0	e1/2	20	1	5	100	0.0

The following is a sample display of an autonomous system ToS aggregation cache with the **show ip cache verbose flow aggregation as-tos** command:

```
Router# show ip cache verbose flow aggregation as-tos
```

```
IP Flow Switching Cache, 278544 bytes
 4 active, 4092 inactive, 103 added
```

## show ip cache flow aggregation

1609 ager polls, 0 flow alloc failures

Src If	Src AS	Dst If	Dst AS	TOS	Flows	Pkts	B/Pk	Active
Et1/2	50	Fd4/0	40	CC	1	3568	28	17.8
Et1/2	0	Fd4/0	40	C0	15	17K	28	17.8
Et1/1	50	Fd4/0	40	55	1	3748	28	17.8
Fd4/0	0	Null	0	C0	1	2	49	0.9

The following is a sample display of a protocol port ToS aggregation cache with the **show ip cache verbose flow aggregation protocol-port-tos** command:

Router# **show ip cache verbose flow aggregation protocol-port-tos**

IP Flow Switching Cache, 278544 bytes  
 4 active, 4092 inactive, 102 added  
 1584 ager polls, 0 flow alloc failures

Prot	Src If	SrcPort	Dst If	DstPort	TOS	Flows	Pkts	B/Pk	Active
0x01	Et1/2	0000	Fd4/0	0000	C0	15	17K	28	17.8
0x01	Et1/2	0000	Fd4/0	0000	CC	1	3568	28	17.8
0x01	Et1/1	0000	Fd4/0	0000	55	1	3748	28	17.8
0x06	Fd4/0	00B3	Null	2AF9	C0	1	2	49	0.9

The following is a sample display of a source prefix ToS aggregation cache with the **show ip cache verbose flow aggregation source-prefix-tos** command:

Router# **show ip cache verbose flow aggregation source-prefix-tos**

IP Flow Switching Cache, 278544 bytes  
 4 active, 4092 inactive, 105 added  
 1683 ager polls, 0 flow alloc failures

Src If	Src Prefix	Msk	AS	TOS	Flows	Pkts	B/Pk	Active
Et1/1	52.0.0.0	/8	50	55	1	3748	28	17.8
Et1/2	52.0.0.0	/8	50	CC	1	3568	28	17.8
Et1/2	0.0.0.0	/0	0	C0	15	17K	28	17.8
Fd4/0	20.20.20.1	/32	0	C0	1	2	49	0.9

The following is a sample display of a destination prefix ToS aggregation cache with the **show ip cache verbose flow aggregation destination-prefix-tos** command:

Router# **show ip cache verbose flow aggregation destination-prefix-tos**

IP Flow Switching Cache, 278544 bytes  
 4 active, 4092 inactive, 86 added  
 1480 ager polls, 0 flow alloc failures

Dst If	Dst Prefix	Msk	AS	TOS	Flows	Pkts	B/Pk	Active
Local	10.31.31.1	/32	0	C0	1	2	49	0.9
Fd4/0	10.0.0.0	/8	40	55	1	3748	28	17.8
Fd4/0	10.0.0.0	/8	40	CC	1	3568	28	17.8
Fd4/0	10.0.0.0	/8	40	C0	15	17K	28	17.8

The following is a sample display of a prefix ToS aggregation cache with the **show ip cache verbose flow aggregation prefix-tos** command:

Router# **show ip cache verbose flow aggregation prefix-tos**

IP Flow Switching Cache, 278544 bytes  
 4 active, 4092 inactive, 4 added  
 14 ager polls, 0 flow alloc failures

Src If	Src Prefix	Dst If	Dst Prefix	TOS	Flows	Pkts
	Msk AS		Msk AS		B/Pk	Active

```

Et1/2      0.0.0.0      Fd4/0      10.0.0.0    C0    15    3933
           /0 0
Et1/1      52.0.0.0     Fd4/0      42.0.0.0    55    1    826
           /8 50
Et1/2      52.0.0.0     Fd4/0      42.0.0.0    CC    1    787
           /8 50
           /8 40
           /8 40
           28    3.9

```

The following is a sample display of a prefix port aggregation cache with the **show ip cache verbose flow aggregation prefix-port** command:

```
Router# show ip cache verbose flow aggregation prefix-port
```

```

IP Flow Switching Cache, 278544 bytes
  4 active, 4092 inactive, 105 added
  1679 ager polls, 0 flow alloc failures

```

Src If	Src Prefix Port Msk	Dst If	Dst Prefix Port Msk	TOS	Flows Pr B/Pk	Pkts Active
Fd4/0	10.20.20.1 00B3 /32	Local	10.31.31.1 2AF9 /32	C0	1	2
Et1/2	0.0.0.0 0000 /0	Fd4/0	10.0.0.0 0000 /8	C0	15	17K
Et1/1	52.0.0.0 0000 /8	Fd4/0	42.0.0.0 0000 /8	55	1	3748
Et1/2	52.0.0.0 0000 /8	Fd4/0	42.0.0.0 0000 /8	CC	1	3568
				01	28	17.8

**Table 1** describes the significant fields shown in the output of the **show ip cache verbose flow aggregation** command.

**Table 1** Field Descriptions for the show ip cache verbose flow aggregation Command

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 are not currently assigned to a specific flow at the time this command is 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.
Src If	Specifies the source interface.
Src AS	Specifies the source autonomous system.
Dst If	Specifies the destination interface.
Dst AS	Specifies the destination autonomous system.
Flows	Number of flows.
Pkts	Number of packets.
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).
Active	Number of active flows in the NetFlow cache at the time this command was entered.

Related Commands	Command	Description
	<b>cache</b>	Defines operational parameters for NetFlow accounting aggregation caches.
	<b>enabled (aggregation cache)</b>	Enables a NetFlow accounting aggregation cache.
	<b>export destination (aggregation cache)</b>	Enables the exporting of NetFlow accounting information from NetFlow aggregation caches.
	<b>ip flow-aggregation cache</b>	Enables NetFlow accounting aggregation cache schemes.
	<b>mask (IPv4)</b>	Specifies the source or destination prefix mask for a NetFlow accounting prefix aggregation cache.
	<b>show ip cache flow</b>	Displays a summary of the NetFlow accounting statistics.
	<b>show ip cache verbose flow</b>	Displays a detailed summary of the NetFlow accounting statistics.
	<b>show ip flow interface</b>	Displays NetFlow accounting configuration for interfaces.

# show ip cache verbose flow

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

## show ip cache verbose 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.
11.1CA	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 modified 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.
12.3(14)T	Support for NetFlow Layer 2 and Security Monitoring Exports was added.
12.2(27)SBC	This command was integrated into Cisco IOS Release 12.2(27)SBC.
12.2(18)SXF.	This command was integrated into Cisco IOS Release 12.2(18)SXF.

### 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 multiline headings and multiline data fields. 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 increases. The method for associating the headings with the correct data fields remains the same.

**Figure 1** How to Use the Multiline Headings and Multiline Data Fields in the Display Output from 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 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, 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	Flows /Sec	Packets /Flow	Bytes /Pkt	Packets /Sec	Active(Sec) /Flow	Idle(Sec) /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    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#
```

### NetFlow Multicast Support

When the NetFlow Multicast Support feature is enabled, the **show ip cache verbose flow** 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.

### MPLS-aware NetFlow

When you configure the MPLS-aware NetFlow feature, you can use the **show ip cache verbose flow** command to display both the 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.

### NetFlow BGP Nexthop

The NetFlow **bgp-nexthop** command can be configured when either the Version 5 export format or the Version 9 export format is configured. The following caveats apply to the **bgp-nexthop** command:

- The values for the BGP nexthop IP address are exported to a NetFlow collector only when the Version 9 export format is configured.
- In order for the BGP information to be populated in the main cache you must either have a NetFlow export destination configured or NetFlow aggregation configured.

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

On platforms running Distributed Cisco Express Forwarding (dCEF), NetFlow cache information is maintained on each line card or Versatile Interface Processor. If you want to use the **show ip cache verbose flow** command to display this information on a distributed platform, 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 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 (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
```

The preceding output shows the percentage distribution of packets by size. In this display, 20.6 percent of the packets fall in the 1024-byte size range and 79.3 percent fall in the 1536-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:

- Field Descriptions in the NetFlow Cache Section of the Output ([Table 1 on page 17](#))

## show ip cache verbose flow

- Field Descriptions in the Activity by Protocol Section of the Output (Table 2 on page 23)
- Field Descriptions in the NetFlow Record Section of the Output (Table 3 on page 23)

```

IP Flow Switching Cache, 278544 bytes
  6 active, 4090 inactive, 17 added
  505 aged 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         B/Pk Active
Et0/0.1        10.251.138.218   Et1/0.1        172.16.10.2    06 80 00    65
0015 /0 0      0015 /0 0        0.0.0.0        840    10.8
MAC: (VLAN id) aaaa.bbbb.cc03 (005)          aaaa.bbbb.cc06 (006)
Min plen:      840          Max plen:      840
Min TTL:       59          Max TTL:       59
IP id:         0

Et0/0.1        172.16.6.1       Et1/0.1        172.16.10.2    01 00 00    4880
0000 /0 0      0000 /0 0        0.0.0.0        1354   20.1
MAC: (VLAN id) aaaa.bbbb.cc03 (005)          aaaa.bbbb.cc06 (006)
Min plen:      772          Max plen:      1500
Min TTL:       255          Max TTL:       255
ICMP type:     0          ICMP code:     0
IP id:        2943          FO:            185

Et0/0.1        10.10.13.1       Et1/0.1        172.16.10.2    06 80 00    65
0017 /0 0      0017 /0 0        0.0.0.0        940    10.8
MAC: (VLAN id) aaaa.bbbb.cc03 (005)          aaaa.bbbb.cc06 (006)
Min plen:      940          Max plen:      940
Min TTL:       59          Max TTL:       59
IP id:         0

Et0/0.1        10.89.38.215    Et1/0.1        172.16.10.2    06 80 00    65
0014 /0 0      0014 /0 0        0.0.0.0        840    10.8
MAC: (VLAN id) aaaa.bbbb.cc03 (005)          aaaa.bbbb.cc06 (006)
Min plen:      840          Max plen:      840
Min TTL:       59          Max TTL:       59
IP id:         0

Et0/0.1        10.10.14.1       Et1/0.1        172.16.10.2    06 80 00    66
0019 /0 0      0019 /0 0        0.0.0.0        1040   11.0
MAC: (VLAN id) aaaa.bbbb.cc03 (005)          aaaa.bbbb.cc06 (006)
Min plen:      1040         Max plen:      1040
Min TTL:       59          Max TTL:       59
IP id:         0

Et0/0.1        172.16.6.1       Et1/0.1        172.16.10.2    01 00 10    975
0000 /0 0      0800 /0 0        0.0.0.0        1500   20.1

```

```

MAC: (VLAN id) aaaa.bbbb.cc03 (005)          aaaa.bbbb.cc06 (006)
Min plen:      1500                          Max plen:      1500
Min TTL:       255                          Max TTL:       255
ICMP type:     8                            ICMP code:     0
IP id:         2944
Et0/0.1       10.106.1.1      Et1/0.1       172.16.10.2    01 00 00    1950
0000 /0 0     0000 /0 0      0.0.0.0      1354      8.6
MAC: (VLAN id) aaaa.bbbb.cc03 (005)          aaaa.bbbb.cc06 (006)
Min plen:      772                          Max plen:      1500
Min TTL:       59                          Max TTL:       59
ICMP type:     0                            ICMP code:     0
IP id:         13499                        FO:           185

R3#

```

Table 2 describes the significant fields shown in the NetFlow cache section of the output.

**Table 2** *Field Descriptions in the NetFlow Cache Section of the Output*

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	The period of time that has passed since the <b>clear ip flow stats</b> privileged EXEC command was last executed. The standard time output format of hours, minutes, and seconds (hh:mm:ss) is used for a period of time less than 24 hours. 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 section of the output.

**Table 3** *Field Descriptions in the Activity by Protocol Section of the Output*

Field	Description
Protocol	IP protocol and the well-known port number. (Refer to <a href="http://www.iana.org/Protocol%20Assignment%20Number%20Services">http://www.iana.org/Protocol Assignment Number Services</a> , for the latest RFC values.) <b>Note</b> Only a small subset of all protocols is displayed.
Total Flows	Number of flows in the cache for this protocol since the last time the 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.

**Table 3** *Field Descriptions in the Activity by Protocol Section of the Output (continued)*

Field	Description
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.
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 divided by the number of 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 the <b>show ip cache verbose flow</b> command was entered divided by the total number of flows for this protocol for this summary period.

Table 4 describes the significant fields in the NetFlow record section of the output.

**Table 4** *Field Descriptions for the NetFlow Record Section of the Output*

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. The value of this field 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.
MAC	Source and destination MAC addresses from the Layer 2 frames in the flow.
VLAN id	Source and destination VLAN IDs from the Layer 2 frames in the flow.

**Table 4** *Field Descriptions for the NetFlow Record Section of the Output (continued)*

Field	Description
Min plen	Minimum packet length for the packets in the flows. <b>Note</b> This value is updated when a datagram with a lower value is received.
Max plen	Maximum packet length for the packets in the flows. <b>Note</b> This value is updated when a datagram with a higher value is received.
Min TTL	Minimum Time-To-Live (TTL) for the packets in the flows. <b>Note</b> This value is updated when a datagram with a lower value is received.
Max TTL	Maximum TTL for the packets in the flows. <b>Note</b> This value is updated when a datagram with a higher value is received.
IP id	IP identifier field for the packets in the flow.
ICMP type	Internet Control Message Protocol (ICMP) type field from the ICMP datagram in the flow.
ICMP code	ICMP code field from the ICMP datagram in the flow.
FO	This is the value of the fragment offset field from the first fragmented datagram in the second flow.  The value is: 185

The following example shows the NetFlow output of the **show ip cache verbose 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.

```
Router# show ip cache verbose flow
SrcIf          SrcIPAddress  DstIf          DstIPAddress  Pr TOS Flgs  Pkts
Port Msk AS    Port Msk AS    NextHop        B/Pk Active
BGP: BGP NextHop
Et1/0          10.8.8.8      Et0/0*         10.9.9.9      01 00 10     3
0000 /8 302      0800 /8 300   10.3.3.3      100    0.1
BGP: 2.2.2.2      Sampler: 1 Class: 1 FFlags: 01
```

[Table 5](#) describes the significant fields shown in the NetFlow output for a sampler, for an MQC policy class, and for general flags.

**Table 5** *show ip cache verbose flow Field Descriptions for a NetFlow Sampler, an MQC Policy Class, and General Flags*

Field (with Sample Values)	Description
Sampler: 1	Shows the ID of the sampler that captured the flow. The sampler ID in this example is 1.

**Table 5** *show ip cache verbose flow Field Descriptions for a NetFlow Sampler, an MQC Policy Class, and General Flags (continued)*

Field (with Sample Values)	Description
Class: 1	Shows the ID of the Modular QoS CLI (MQC) traffic class. The class ID in this example is 1.
FFlags: 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
BGP:BGP_NextHop
Et0/0/2       10.0.0.2      Et0/0/4        10.0.0.5      01 00 10      20
0000 /8  0          0800 /8  0          10.0.0.6      100    0.0
BGP:26.0.0.6
Et0/0/2       10.0.0.2      Et0/0/4        10.0.0.7      01 00 10      20
0000 /8  0          0800 /8  0          10.0.0.6      100    0.0
BGP:26.0.0.6
Et0/0/2       10.0.0.2      Et0/0/4        10.0.0.7      01 00 10      20
0000 /8  0          0000 /8  0          10.0.0.6      100    0.0
BGP:26.0.0.6
```

[Table 6](#) describes the significant fields shown in the NetFlow BGP next-hop accounting lines of the output.

**Table 6** *show ip cache verbose flow Field Descriptions in NetFlow BGP Next-Hop Accounting Output*

Field	Description
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      10.0.0.1      Null      192.168.1.1      01 55 10      100
0000 /8 0      0000 /0 0      0.0.0.0          28      0.0
IPM: 100      2800
Et1/1/1      10.0.0.1      Se2/1/1.16 192.168.1.1      01 55 10      100
0000 /8 0      0000 /0 0      0.0.0.0          28      0.0
IPM: 0        0
Et1/1/2      10.0.0.1      Et1/1/4    192.168.2.2      01 55 10      100
0000 /8 0      0000 /0 0      0.0.0.0          28      0.1
Et1/1/2      10.0.0.1      Null      192.168.2.2      01 55 10      100
0000 /8 0      0000 /0 0      0.0.0.0          28      0.1
IPM: 100      2800

```

Table 7 describes the significant fields shown in the NetFlow multicast accounting lines of the output.

**Table 7** *show ip cache verbose flow* Field Descriptions in NetFlow Multicast Accounting Output

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 sections 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 8 describes the significant fields for the IP and MPLS sections of the flow record in the output.

**Table 8** *show ip cache verbose flow* Field Descriptions for the IP and MPLS Sections of the Flow Record in the Output

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 0 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>clear ip flow stats</b>	Clears the NetFlow accounting statistics.
<b>show ip cache flow</b>	Displays a summary of the NetFlow accounting statistics.

<b>Command</b>	<b>Description</b>
<b>show ip flow interface</b>	Displays NetFlow accounting configuration for interfaces.
<b>show ip interface</b>	Displays the usability status of interfaces configured for IP.

# Glossary

**CEF**—Cisco Express Forwarding. Layer 3 IP switching technology that optimizes network performance and scalability for networks with large and dynamic traffic patterns.

**dCEF**—distributed Cisco Express Forwarding. Type of CEF switching in which line cards (such as VIP line cards) maintain an identical copy of the FIB and adjacency tables. The line cards perform the express forwarding between port adapters; this relieves the route/switch processor of involvement in the switching operation.

**dense**—PIM (protocol independent multicast) mode that uses a push model to flood multicast traffic. See also *sparse*.

**egress**—Traffic leaving the network.

**fast switching**—Cisco feature in which a route cache is used to expedite packet switching through a router.

**ingress**—Traffic entering the network.

**multicast**—Single packets copied by the network and sent to a specific subset of network addresses. These addresses are specified in the Destination Address field.

**NetFlow**—Cisco IOS acceleration and accounting feature that maintains per-flow information.

**NetFlow Aggregation**—A NetFlow feature that lets you summarize NetFlow export data on an IOS router before the data is exported to a NetFlow data collection system such as the NetFlow FlowCollector. This feature lowers bandwidth requirements for NetFlow export data and reduces platform requirements for NetFlow data collection devices.

**NetFlow Collection Engine** (formerly called NetFlow FlowCollector)—Cisco application that is used with NetFlow on Cisco routers and Catalyst 5000 series switches. The NetFlow Collection Engine collects packets from the router that is running NetFlow and decodes, aggregates, and stores them. You can generate reports on various aggregations that can be set up on the NetFlow Collection Engine.

**NetFlow v9**—NetFlow export format version 9. A flexible and extensible means to carry NetFlow records from a network node to a collector. NetFlow version 9 has definable record types and is self-describing for easier NetFlow Collection Engine configuration.

**PIM**—protocol independent multicast. Multicast routing architecture that enables IP multicast routing on existing IP networks.

**RPF**—reverse path forwarding. Multicasting technique in which a multicast datagram is forwarded out of all but the receiving interface if the receiving interface is the one used to forward unicast datagrams to the source of the multicast datagram.

**sparse**—PIM mode that uses a pull model to deliver multicast traffic. See also *dense*.

**ToS**—type of service byte. Second byte in the IP header that indicates the desired quality of service for a particular datagram.

**Note**

Refer to the [Dictionary of Internetworking Terms and Acronyms](#) for terms not included in this glossary.

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