



Getting Started with Configuring Cisco IOS NetFlow and NetFlow Data Export

This module contains the minimum amount of information about and instructions necessary for configuring NetFlow to capture and export network traffic data. This module is intended to help you get started using NetFlow and NetFlow Data Export as quickly as possible. If you want more detailed information about and instructions for configuring NetFlow and NetFlow Data Export please refer to [Configuring NetFlow and NetFlow Data Export](#).

NetFlow capture and export are performed independently on each internetworking device on which NetFlow is enabled. NetFlow need not be operational on each router in the network.

NetFlow is a Cisco IOS application that provides statistics on packets flowing through the router. NetFlow is emerging as a primary network accounting and security technology.

Module History

This module was first published on June 19th, 2006, and last updated on June 19th, 2006.

Finding Feature Information in This Module

Your Cisco IOS software release may not support all features. To find information about feature support and configuration, use the “[Feature Information for Configuring NetFlow and NetFlow Data Export](#)” section on page 14.

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- [Feature Information for Configuring NetFlow and NetFlow Data Export, page 14](#)

Prerequisites for Configuring NetFlow and NetFlow Data Export

Before you enable NetFlow:

- Configure the router for IP routing
- Ensure that one of the following is enabled on your router, and on the interfaces that you want to configure NetFlow on: Cisco Express Forwarding (CEF), distributed CEF, or fast switching
- Understand the resources required on your router because NetFlow consumes additional memory and CPU resources

Restrictions for Configuring NetFlow and NetFlow Data Export

NetFlow Data Capture

NetFlow consumes additional memory. If you have memory constraints, you might want to preset the size of the NetFlow cache so that it contains a smaller number of entries. The default cache size depends on the platform. For example, the default cache size for the Cisco 7500 router is 65536 (64K) entries.

Memory Impact

During times of heavy traffic, the additional flows can fill up the global flow hash table. If you need to increase the size of the global flow hash table, increase the memory of the router.

Cisco IOS Releases 12.2(14)S, 12.0(22)S, or 12.2(15)T

If your router is running a version of Cisco IOS prior to releases 12.2(14)S, 12.0(22)S, or 12.2(15)T the **ip route-cache flow** command is used to enable NetFlow on an interface.

If your router is running Cisco IOS release 12.2(14)S, 12.0(22)S, 12.2(15)T, or later the **ip flow ingress** command is used to enable NetFlow on an interface.

Egress NetFlow Accounting in Cisco IOS 12.3T Releases, 12.3(11)T or Later

The Egress NetFlow Accounting 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 MPLS packets and underwent label disposition.

Egress NetFlow accounting might adversely affect network performance because of the additional accounting-related computation that occurs in the traffic-forwarding path of the router.

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



Note

In Cisco IOS 12.2S releases, egress NetFlow captures either IPv4 or MPLS packets as they leave the router.

NetFlow Data Export

Restrictions for NetFlow Version 9 Data Export

- Backward compatibility—Version 9 is not backward-compatible with Version 5 or Version 8. If you need Version 5 or Version 8, you must configure it.
- Export bandwidth—Export bandwidth use increases for Version 9 (because of template flowsets) versus Version 5. The increase in bandwidth usage versus Version 5 varies with the frequency with which template flowsets are sent. The default is to resend templates every 20 packets, which has a bandwidth cost of about 4 percent. If necessary, you can lower the resend rate with the **ip flow-export template refresh-rate packets** command.
- Performance impact—Version 9 slightly decreases overall performance, because generating and maintaining valid template flowsets require additional processing.

Information About Configuring NetFlow and NetFlow Data Export

This section contains information that you should understand before you configure NetFlow to analyze network traffic.

- [NetFlow Data Capture, page 3](#)
- [NetFlow Flows: Key Fields, page 3](#)
- [NetFlow Data Export Using the Version 9 Export Format, page 4](#)

NetFlow Data Capture

NetFlow captures data from ingress (incoming) and egress (outgoing) packets. NetFlow gathers statistics for the following ingress IP packets:

- IP-to-IP packets
- IP-to-Multiprotocol Label Switching (MPLS) packets
- Frame Relay-terminated packets
- ATM-terminated packets

NetFlow captures data for all egress (outgoing) packets through the use of the following features:

- Egress NetFlow Accounting—NetFlow gathers statistics for all egress packets for IP traffic only.
- NetFlow MPLS Egress—NetFlow gathers statistics for all egress MPLS-to-IP packets.

NetFlow Flows: Key Fields

A network flow is identified as a unidirectional stream of packets between a given source and destination—both are defined by a network-layer IP address and by transport-layer source and destination port numbers. Specifically, a flow is identified as the combination of the following key fields:

- Source IP address
- Destination IP address

- Source port number
- Destination port number
- Layer 3 protocol type
- Type of service (ToS)
- Input logical interface

These seven key fields define a unique flow. If a packet has one key field different from another packet, it is considered to belong to another flow. A flow might contain other accounting fields (such as the AS number in the NetFlow export Version 5 flow format) that depend on the export record version that you configure. Flows are stored in the NetFlow cache.

NetFlow Data Export Using the Version 9 Export Format

NetFlow Data Export format Version 9 is a flexible and extensible format, which provides the versatility needed for support of new fields and record types. This format accommodates new NetFlow-supported technologies such as Multicast, Multiprotocol Label Switching (MPLS), and Border Gateway Protocol (BGP) next hop. Version 9 export format enables you to use the same version for main and aggregation caches, and the format is extendable, so you can use the same export format with future features.

How to Configure NetFlow and NetFlow Data Export

This section contains instructions for configuring NetFlow to capture and export network traffic data. Perform the following tasks to configure NetFlow to capture and export network traffic data:

- [Configure NetFlow and NetFlow Data Export Using the Version 9 Export Format, page 4](#) (required)
- [Verify that NetFlow is Operational and View NetFlow Statistics, page 6](#) (optional)
- [Verifying that NetFlow Data Export is Operational, page 8](#) (optional)

Configure NetFlow and NetFlow Data Export Using the Version 9 Export Format


Perform the steps in this required task to configure NetFlow and NetFlow Data Export Using the Version 9 Export Format.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ip flow-export destination** *{{ip-address | hostname} udp-port}*
4. Repeat Step 3 once to configure an additional export destination
5. **ip flow-export version 9**
6. **interface** *interface-type interface-number*
7. **ip flow** *{ingress | egress}*
8. **exit**

9. Repeat Steps 6 through 8 to enable NetFlow on other interfaces
10. end

DETAILED STEPS

	Command or Action	Purpose
Step 1	<p>enable</p> <p>Example: Router> enable</p>	<p>(Required) Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	<p>configure terminal</p> <p>Example: Router# configure terminal</p>	<p>(Required) Enters global configuration mode.</p>
Step 3	<p>ip flow-export destination {{ip-address hostname} udp-port}</p> <p>Example: Router(config)# ip flow-export destination 172.16.10.2 99</p>	<p>(Optional) IP address or hostname of the workstation to which you want to send the NetFlow information and the number of the UDP port on which the workstation is listening for this input.</p> <p>Note The workstation is running an application such as NetFlow Collection Engine (NFC) that is used to analyze the exported data.</p>
Step 4	<p>Repeat Step 3 once to configure a second NetFlow export destination.</p>	<p>(Optional) You can configure a maximum of two export destinations for NetFlow.</p>
Step 5	<p>ip flow-export version 9</p> <p>Example: Router(config)# ip flow-export version 9</p>	<p>(Optional) Enables the export of information in NetFlow cache entries.</p> <ul style="list-style-type: none"> • The <code>version 9</code> keyword specifies that the export packet uses the Version 9 format. <p> Caution Entering this command on a Cisco 12000 Series Internet Router causes packet forwarding to stop for a few seconds while NetFlow reloads the route processor and line card CEF tables. To avoid interruption of service to a live network, apply this command during a change window, or include it in the startup-config file to be executed during a router reboot.</p>
Step 6	<p>interface interface-type interface-number</p> <p>Example: Router(config)# interface ethernet 0/0</p>	<p>(Required) Specifies the interface that you want to enable NetFlow on and enters interface configuration mode.</p>

	Command or Action	Purpose
Step 7	<p><code>ip flow {ingress egress}</code></p> <p>Example: Router(config-if)# ip flow ingress or</p> <p>Example: Router(config-if)# ip flow egress</p>	<p>(Required) Enables NetFlow on the interface.</p> <ul style="list-style-type: none"> —captures traffic that is being received by the interface —captures traffic that is being transmitted by the interface.
Step 8	<p><code>exit</code></p> <p>Example: Router(config-if)# exit</p>	<p>(Optional) Exits interface configuration mode and returns to global configuration mode.</p> <p>Note You only need to use this command if you want to enable NetFlow on another interface.</p>
Step 9	Repeat Steps 6 through 8 to enable NetFlow on other interfaces	(Optional) —
Step 10	<p><code>end</code></p> <p>Example: Router(config-if)# end</p>	(Required) Exits the current configuration mode and returns to privileged EXEC mode.

Verify that NetFlow is Operational and View NetFlow Statistics

To verify that NetFlow is working properly perform the steps in this optional task.

SUMMARY STEPS

- 1.
- 2.
- 3.

DETAILED STEPS

Step 1

Use this command to display the NetFlow configuration for an interface. The following is sample output from this command:

```
Router# show ip flow interface
Ethernet0/0
  ip flow ingress
Router#
```

Step 2

Use this command to verify that NetFlow is operational, and to display a summary of the NetFlow statistics. The following is sample output from this command:

```

Router# show ip cache flow
IP packet size distribution (1103746 total packets):
  1-32   64   96  128  160  192  224  256  288  320  352  384  416  448  480
    .249 .694 .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 .027 .000 .027 .000 .000 .000 .000 .000 .000

IP Flow Switching Cache, 278544 bytes
  35 active, 4061 inactive, 980 added
  2921778 age polls, 0 flow alloc failures
  Active flows timeout in 30 minutes
  Inactive flows timeout in 15 seconds
IP Sub Flow Cache, 21640 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
TCP-FTP	108	0.0	1133	40	2.4	1799.6	0.9
TCP-FTPD	108	0.0	1133	40	2.4	1799.6	0.9
TCP-WWW	54	0.0	1133	40	1.2	1799.6	0.8
TCP-SMTP	54	0.0	1133	40	1.2	1799.6	0.8
TCP-BGP	27	0.0	1133	40	0.6	1799.6	0.7
TCP-NNTP	27	0.0	1133	40	0.6	1799.6	0.7
TCP-other	297	0.0	1133	40	6.8	1799.7	0.8
UDP-TFTP	27	0.0	1133	28	0.6	1799.6	1.0
UDP-other	108	0.0	1417	28	3.1	1799.6	0.9
ICMP	135	0.0	1133	427	3.1	1799.6	0.8
Total:	945	0.0	1166	91	22.4	1799.6	0.8

```

SrcIf      SrcIPAddress      DstIf      DstIPAddress      Pr SrcP DstP  Pkts
-----
Et0/0     192.168.67.6      Et1/0.1    172.16.10.200    01 0000 0C01  51
Et0/0     10.10.18.1        Null       172.16.11.5      11 0043 0043  51
Et0/0     10.10.18.1        Null       172.16.11.5      11 0045 0045  51
Et0/0     10.234.53.1       Et1/0.1    172.16.10.2      01 0000 0800  51
Et0/0     10.10.19.1        Null       172.16.11.6      11 0044 0044  51
Et0/0     10.10.19.1        Null       172.16.11.6      11 00A2 00A2  51
Et0/0     192.168.87.200    Et1/0.1    172.16.10.2      06 0014 0014  50
Et0/0     192.168.87.200    Et1/0.1    172.16.10.2      06 0015 0015  52
.
.
.
Et0/0     172.16.1.84       Et1/0.1    172.16.10.19     06 0087 0087  50
Et0/0     172.16.1.84       Et1/0.1    172.16.10.19     06 0050 0050  51
Et0/0     172.16.1.85       Et1/0.1    172.16.10.20     06 0089 0089  49
Et0/0     172.16.1.85       Et1/0.1    172.16.10.20     06 0050 0050  50
Et0/0     10.251.10.1       Et1/0.1    172.16.10.2      01 0000 0800  51
Et0/0     10.162.37.71     Null       172.16.11.3      06 027C 027C  49
Router#

```

Step 3

Use this command to verify that NetFlow is operational and to display a detailed summary of the NetFlow statistics. The following is sample output from this command:

```

Router# show ip cache verbose flow
IP packet size distribution (1130681 total packets):
  1-32   64   96  128  160  192  224  256  288  320  352  384  416  448  480
    .249 .694 .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 .027 .000 .027 .000 .000 .000 .000 .000 .000 .000

```

```

IP Flow Switching Cache, 278544 bytes
  35 active, 4061 inactive, 980 added
  2992518 aged polls, 0 flow alloc failures
  Active flows timeout in 30 minutes
  Inactive flows timeout in 15 seconds
IP Sub Flow Cache, 21640 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
TCP-FTP          108     0.0     1133   40     2.4     1799.6   0.9
TCP-FTPD        108     0.0     1133   40     2.4     1799.6   0.9
TCP-WWW          54      0.0     1133   40     1.2     1799.6   0.8
TCP-SMTP         54      0.0     1133   40     1.2     1799.6   0.8
TCP-BGP          27      0.0     1133   40     0.6     1799.6   0.7
TCP-NNTP         27      0.0     1133   40     0.6     1799.6   0.7
TCP-other        297     0.0     1133   40     6.6     1799.7   0.8
UDP-TFTP         27      0.0     1133   28     0.6     1799.6   1.0
UDP-other        108     0.0     1417   28     3.0     1799.6   0.9
ICMP             135     0.0     1133   427    3.0     1799.6   0.8
Total:           945     0.0     1166   91     21.9    1799.6   0.8

SrcIf            SrcIPAddress    DstIf            DstIPAddress     Pr  TOS Flgs  Pkts
Port Msk AS      Port Msk AS     NextHop          B/Pk Active
Et0/0            192.168.67.6   Et1/0.1          172.16.10.200   01 00 10    799
0000 /0 0        0C01 /0 0       0.0.0.0         28 1258.1
Et0/0            10.10.18.1     Null             172.16.11.5     11 00 10    799
0043 /0 0        0043 /0 0       0.0.0.0         28 1258.0
Et0/0            10.10.18.1     Null             172.16.11.5     11 00 10    799
0045 /0 0        0045 /0 0       0.0.0.0         28 1258.0
Et0/0            10.234.53.1    Et1/0.1          172.16.10.2     01 00 10    799
0000 /0 0        0800 /0 0       0.0.0.0         28 1258.1
Et0/0            10.10.19.1     Null             172.16.11.6     11 00 10    799
0044 /0 0        0044 /0 0       0.0.0.0         28 1258.1
.
.
.
Et0/0            172.16.1.84    Et1/0.1          172.16.10.19   06 00 00    799
0087 /0 0        0087 /0 0       0.0.0.0         40 1258.1
Et0/0            172.16.1.84    Et1/0.1          172.16.10.19   06 00 00    799
0050 /0 0        0050 /0 0       0.0.0.0         40 1258.0
Et0/0            172.16.1.85    Et1/0.1          172.16.10.20   06 00 00    798
0089 /0 0        0089 /0 0       0.0.0.0         40 1256.5
Et0/0            172.16.1.85    Et1/0.1          172.16.10.20   06 00 00    799
0050 /0 0        0050 /0 0       0.0.0.0         40 1258.0
Et0/0            10.251.10.1    Et1/0.1          172.16.10.2     01 00 10    799
0000 /0 0        0800 /0 0       0.0.0.0         1500 1258.1
Et0/0            10.162.37.71   Null             172.16.11.3     06 00 00    798
027C /0 0        027C /0 0       0.0.0.0         40 1256.4
Router#

```

Verifying that NetFlow Data Export is Operational

To verify that NetFlow data export is operational and to view the statistics for NetFlow data export perform the step in this optional task.

SUMMARY STEPS

1.

DETAILED STEPS

Step 1

Use this command to display the statistics for the NetFlow data export, including statistics for the main cache and for all other enabled caches. The following is sample output from this command:

```
Router# show ip flow export
Flow export v9 is enabled for main cache
  Exporting flows to 172.16.10.2 (99)
  Exporting using source interface Ethernet0/0
  Version 9 flow records
  0 flows exported in 0 udp datagrams
  0 flows failed due to lack of export packet
  0 export packets were sent up to process level
  0 export packets were dropped due to no fib
  0 export packets were dropped due to adjacency issues
  0 export packets were dropped due to fragmentation failures
  0 export packets were dropped due to encapsulation fixup failures
Router#
```

Configuration Examples for Configuring NetFlow and NetFlow Data Export

This section contains basic NetFlow configuration examples:

- [Configuring Egress NetFlow Accounting: Example, page 9](#)
- [Configuring NetFlow Subinterface Support: Example, page 9](#)
- [Configuring NetFlow Multiple Export Destinations: Example, page 10](#)
- [Configure NetFlow and NetFlow Data Export Using the Version 9 Export Format, page 10](#)
- [Configure NetFlow for Analyzing PPPoE Session Traffic, page 11](#)

Configuring Egress NetFlow Accounting: Example

The following example shows how to configure Egress NetFlow Accounting:

```
configure terminal
!
interface ethernet 0/0
 ip flow egress
!
```

Configuring NetFlow Subinterface Support: Example

The following examples show how to configure NetFlow Subinterface Support:

- [NetFlow Subinterface Support for ingress \(received\) traffic on a subinterface, page 10](#)
- [NetFlow SubInterface Support for egress \(transmitted\) traffic on a subinterface, page 10](#)

NetFlow Subinterface Support for ingress (received) traffic on a subinterface

```
configure terminal
!
interface ethernet 0/0.1
 ip flow ingress
!
```

NetFlow SubInterface Support for egress (transmitted) traffic on a subinterface

```
configure terminal
!
interface ethernet 1/0.1
 ip flow egress
!
```



Note

NetFlow performs additional checks for the status of each subinterface that requires more CPU processing time and bandwidth. If you have several subinterfaces configured and you want to configure NetFlow data capture on all of them, we recommend that you configure NetFlow on the main interface instead of on the individual subinterfaces.

Configuring NetFlow Multiple Export Destinations: Example

The following example shows how to configure NetFlow Multiple Export Destinations:

```
configure terminal
!
ip flow-export destination 10.10.10.10 9991
ip flow-export destination 172.16.10.2 9991
!
```



Note

You can configure a maximum of two export destinations for the main cache and for each aggregation cache.

Configure NetFlow and NetFlow Data Export Using the Version 9 Export Format

The following example shows how to configure NetFlow and NetFlow data export using the Version 9 export format:

```
configure terminal
!
ip flow-export destination 10.10.10.10 9991
ip flow-export version 9
!
```

Configure NetFlow for Analyzing PPPoE Session Traffic

If you want to obtain accurate NetFlow traffic statistics for PPPoE sessions, you must configure NetFlow on the virtual-template interface, not the physical interface that is configured with VLAN encapsulation. For example, if you configure NetFlow on the physical interface which is configured for VLAN encapsulation as shown in the following configuration, the NetFlow traffic statistics will not be an accurate representation of the traffic on the PPPoE sessions.

```
!
interface GigabitEthernet2/0/0.10
encapsulation dot1Q 10
ip flow egress
pppoe enable
```

The following example shows how to configure egress NetFlow on a virtual template interface so that you can accurately analyze the packet size distribution statistics of the traffic that the router is sending to the end user over the PPOE session:

```
configure terminal
Router(config)# interface Virtual-Template 1
Router(config-if)# ip unnumbered ethernet 0
Router(config-if)# encapsulation ppp
Router(config-if)# ip flow egress
```

The following display output from the `show ip cache flow` command shows that this PPPoE session traffic is comprised primarily of 1536 byte packets.

```
Router# show ip cache flow
IP packet size distribution (11014160 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 .000 .999 .000 .000 .000 .000 .000 .000
```

Additional References

The following sections provide references related to the configuring of NetFlow to capture and export netflow traffic data.

Related Documents

Related Topic	Document Title
Overview of Cisco IOS NetFlow	“Cisco IOS NetFlow Overview”
List of the features documented in the <i>NetFlow Configuration Guide</i>	
	Detecting and Analyzing Network Threats With NetFlow
Tasks for configuring NetFlow Reliable Export With SCTP	NetFlow Reliable Export With SCTP
Tasks for configuring NetFlow Layer 2 and Security Monitoring Exports	“NetFlow Layer 2 and Security Monitoring Exports”
Tasks for configuring the SNMP NetFlow MIB	“Configuring SNMP and using the NetFlow MIB to Monitor NetFlow Data”
Tasks for configuring the NetFlow MIB and Top Talkers feature	“Configuring NetFlow Top Talkers using Cisco IOS CLI Commands or SNMP Commands”
Information for installing, starting, and configuring the CNS NetFlow Collection Engine	“Cisco CNS NetFlow Collection Engine Documentation”

Standards

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

MIBs

MIBs	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by 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: http://www.cisco.com/go/mibs

RFCs

RFCs	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	—

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.	http://www.cisco.com/techsupport

Glossary

AS—autonomous system. A collection of networks under a common administration sharing a common routing strategy. Autonomous systems are subdivided by areas. An autonomous system must be assigned a unique 16-bit number by the Internet Assigned Numbers Authority (IANA).

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

BGP—Border Gateway Protocol. An interdomain routing protocol that replaces Exterior Gateway Protocol (EGP). A BGP system exchanges reachability information with other BGP systems. BGP is defined by RFC 1163.

BGP next hop—IP address of the next hop to be used by a router to reach a certain destination.

dCEF—distributed Cisco Express Forwarding. A type of CEF switching in which line cards (such as Versatile Interface Processor (VIP) line cards) maintain identical copies of the forwarding information base (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.

export packet—Type of packet built by a device (for example, a router) with NetFlow services enabled that is addressed to another device (for example, the NetFlow Collection Engine). The packet contains NetFlow statistics. The other device processes the packet (parses, aggregates, and stores information on IP flows).

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

flow—A set of packets with the same source IP address, destination IP address, protocol, source/destination ports, and type-of-service, and the same interface on which the flow is monitored. Ingress flows are associated with the input interface, and egress flows are associated with the output interface.

MPLS—Multiprotocol Label Switching. An emerging industry standard for the forwarding of packets along a normally routed path (sometimes called MPLS hop-by-hop forwarding).

NetFlow—A Cisco IOS application that provides statistics on packets flowing through the router. It is emerging as a primary network accounting and security technology.

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 Collection Engine. This feature lowers bandwidth requirements for NetFlow export data and reduces platform requirements for NetFlow data collection devices.

NetFlow Collection Engine (formerly NetFlow FlowCollector)—Cisco application that is used with NetFlow on Cisco routers and Catalyst 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 for carrying 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.

RP—Route Processor. A processor module in the Cisco 7000 series routers that contains the CPU, system software, and most of the memory components that are used in the router. Sometimes called a Supervisory Processor.

Feature Information for Configuring NetFlow and NetFlow Data Export

Table 1 lists the features in this module and provides links to specific configuration information. Only features that were introduced or modified in Cisco IOS Release 12.2(1) or 12.0(3)S or a later release appear in the table.

Not all commands may be available in your Cisco IOS software release. For details on when support for a specific command was introduced, see the command reference documentation.

For information on a feature in this technology that is not documented here, see the “[Cisco IOS NetFlow Features Roadmap](#)” module.

Cisco IOS software images are specific to a Cisco IOS software release, a feature set, and a platform. 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.



Note

Table 1 lists only the Cisco IOS software release that introduced support for a given feature in a given Cisco IOS software release train. Unless noted otherwise, subsequent releases of that Cisco IOS software release train also support that feature.

Table 1 Feature Information for Configuring NetFlow and NetFlow Data Export (continued)

Feature Name	Releases	Feature Configuration Information
NetFlow Multiple Export Destinations:	12.0(19)S, 12.2(2)T, 12.2(14)S Cisco IOS XE Release 2.1	<p>The NetFlow Multiple Export Destinations feature enables configuration of multiple destinations of the NetFlow data.</p> <p>In Cisco IOS XE Release 2.1, this feature was introduced on Cisco ASR 1000 Series Routers.</p> <p>The following section provides information for configuring this feature:</p> <ul style="list-style-type: none"> • Configuring NetFlow Multiple Export Destinations: Example <p>If you want more detailed information about this feature please refer to the “Configuring NetFlow and NetFlow Data Export” module.</p> <p>The following commands were modified by this feature:</p> <p style="text-align: center;">, and</p>
NetFlow v9 Export Format	12.0(24)S, 12.3(1), 12.2(18)S, 12.2(27)SBC, 12.2(18)SXF Cisco IOS XE Release 2.1	<p>The NetFlow v9 Export Format is flexible and extensible, which provides the versatility needed to support new fields and record types. This format accommodates new NetFlow-supported technologies such as Multicast, MPLS, NAT, and BGP next hop.</p> <p>In Cisco IOS XE Release 2.1, this feature was introduced on Cisco ASR 1000 Series Routers.</p> <p>The following section provides information for configuring this feature:</p> <ul style="list-style-type: none"> • Configure NetFlow and NetFlow Data Export Using the Version 9 Export Format <p>If you want more detailed information about this feature please refer to the “Configuring NetFlow and NetFlow Data Export” module.</p> <p>The following commands were modified by this feature:</p> <p style="text-align: center;">, , , , and</p>

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