Getting Started with Configuring Cisco IOS NetFlow and NetFlow Data Export

First Published: June 19, 2006
Last Updated: August 09, 2010

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 this feature 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.

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the "Feature Information for Configuring NetFlow and NetFlow Data Export" section on page 14.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

Contents

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 packets or MPLS packets as they leave the router.

The Egress NetFlow Accounting feature counts CEF-switched packets only. Process-switched transit packets are not counted.

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

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. The 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

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

Perform this 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	`enable`
	
	Example:
	`Router> enable`
		(Required) Enables privileged EXEC mode.
		
		• Enter your password if prompted.

Step 2	`configure terminal`
	
	Example:
	`Router# configure terminal`
		(Required) Enters global configuration mode.

Step 3	`ip flow-export destination` {*ip-address* | *hostname*} *udp-port* **Example:** `Router(config)# ip flow-export destination 172.16.10.2 99`	(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. **Note** The workstation is running an application such as NetFlow Collection Engine (NFC) that is used to analyze the exported data.
Step 4	Repeat Step 3 once to configure a second NetFlow export destination.	(Optional) You can configure a maximum of two export destinations for NetFlow.

Step 5	`ip flow-export version 9`
	
	Example:
	`Router(config)# ip flow-export version 9`
		(Optional) Enables the export of information in NetFlow cache entries.
		
		• The **version 9** keyword specifies that the export packet uses the Version 9 format.
		
		⚠
		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.

	Command or Action	Purpose
Step 6	**interface** *interface-type interface-number* **Example:** Router(config)# interface ethernet 0/0	(Required) Specifies the interface that you want to enable NetFlow on and enters interface configuration mode.
Step 7	**ip flow** {**ingress** | **egress**} **Example:** Router(config-if)# ip flow ingress or **Example:** Router(config-if)# ip flow egress	(Required) Enables NetFlow on the interface. • **ingress**—Captures traffic that is being received by the interface. • **egress**—Captures traffic that is being transmitted by the interface.
Step 8	**exit** **Example:** Router(config-if)# exit	(Optional) Exits interface configuration mode and returns to global configuration mode. **Note** You only need to use this command if you want to enable NetFlow on another interface.
Step 9	Repeat Steps 6 through 8 to enable NetFlow on other interfaces	(Optional) —
Step 10	**end** **Example:** Router(config-if)# end	(Required) Exits the current configuration mode and returns to privileged EXEC mode.

Verifying That NetFlow Is Operational and View NetFlow Statistics

To verify that NetFlow is working properly, perform this optional task.

SUMMARY STEPS

1. **show ip flow interface**
2. **show ip cache flow**
3. **show ip cache verbose flow**

DETAILED STEPS

Step 1 **show ip flow interface**

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
```

Step 2 **show ip cache flow**

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 ager 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

Step 3   **show ip cache verbose flow**

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

      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
  2992518 ager 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	6.6	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
```

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. **show ip flow export**

DETAILED STEPS

Step 1   **show ip flow export**

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
```

Configuration Examples for Configuring NetFlow and NetFlow Data Export

Example: Configuring Egress NetFlow Accounting

The following example shows how to configure Egress NetFlow Accounting:

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

Example: Configuring NetFlow Subinterface Support

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.

Example: Configuring NetFlow Multiple Export Destinations

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.

Example: Configuring 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
!
```

Example: Configuring 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 on the physical interface that is configured with VLAN encapsulation. For example, if you configure NetFlow on the physical interface that 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:

```
interface Virtual-Template 1
 ip unnumbered ethernet 0
 encapsulation ppp
 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

Related Documents

Related Topic	Document Title
Cisco IOS commands	*Cisco IOS Master Commands List, All Releases*
Overview of Cisco IOS NetFlow	*Cisco IOS NetFlow Overview*
NetFlow Feature Roadmap	*Cisco IOS NetFlow Features Roadmap*
Tasks for configuring NetFlow to capture and export network traffic data	*Configuring NetFlow and NetFlow Data Export*
Tasks for configuring Configuring MPLS Aware NetFlow	*Configuring MPLS Aware NetFlow*
Tasks for configuring MPLS egress NetFlow accounting	*Configuring MPLS Egress NetFlow Accounting and Analysis*
Tasks for configuring NetFlow input filters	*Using NetFlow Filtering or Sampling to Select the Network Traffic to Track*

Related Topic	Document Title
Tasks for configuring random sampled NetFlow	*Using NetFlow Filtering or Sampling to Select the Network Traffic to Track*
Tasks for configuring NetFlow aggregation caches	*Configuring NetFlow Aggregation Caches*
Tasks for configuring NetFlow BGP next hop support	*Configuring NetFlow BGP Next Hop Support for Accounting and Analysis*
Tasks for configuring NetFlow multicast support	*Configuring NetFlow Multicast Accounting*
Tasks for detecting and analyzing network threats with NetFlow	*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*
Configuration commands for NetFlow	*Cisco IOS NetFlow Command Reference*

Standards

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

MIBs

MIBs	MIBs Link
No new or modified MIBs are supported, and support for existing MIBs has not been modified.	To locate and download MIBs for selected platforms, Cisco software 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, and support for existing RFCs has not been modified .	—

Technical Assistance

Description	Link
The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for Configuring NetFlow and NetFlow Data Export

Table 1 lists the features in this module and provides links to specific configuration information.

Use Cisco Feature Navigator to find information about platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release, feature set, or platform. To access Cisco Feature Navigator, go to http://www.cisco.com/go/cfn. An account on Cisco.com is not required.

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

Table 1   *Feature Information for Configuring NetFlow and NetFlow Data Export*

Feature Name	Releases	Feature Configuration Information
Egress NetFlow Accounting	12.3(11)T 15.0(1)S	The Egress NetFlow Accounting feature allows NetFlow statistics to be gathered on egress traffic that is exiting the router. Previous versions of NetFlow allow statistics to be gathered only on ingress traffic that is entering the router. The following section provides information for configuring this feature: • Example: Configuring Egress NetFlow Accounting If you want more detailed information about this feature, please refer to *Configuring NetFlow and NetFlow Data Export.* The following commands were introduced by this feature: **ip flow egress** and **ip flow-egress input-interface**. The following commands were modified by this feature: **flow-sampler**, **match**, **show ip cache flow**, **show ip cache verbose flow**, and **show ip flow interface**.
NetFlow Multiple Export Destinations	12.0(19)S 12.2(2)T 12.2(14)S 15.0(1)S	The NetFlow Multiple Export Destinations feature enables configuration of multiple destinations of the NetFlow data. The following section provides information for configuring this feature: • Example: Configuring NetFlow Multiple Export Destinations If you want more detailed information about this feature, please refer to *Configuring NetFlow and NetFlow Data Export.* The following commands were modified by this feature: **ip flow-aggregation cache**, **ip flow-export destination**, and **show ip flow export**.

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

Feature Name	Releases	Feature Configuration Information
NetFlow Subinterface Support	12.0(22)S 12.2(14)S 12.2(15)T	The NetFlow Subinterface Support feature provides the ability to enable NetFlow on a per-subinterface basis. The following section provides information for configuring this feature: • Example: Configuring NetFlow Subinterface Support If you want more detailed information about this feature, please refer to *Configuring NetFlow and NetFlow Data Export.* The following command was introduced by this feature: **ip flow ingress**. The following command was modified by this feature: **show ip interface**.
NetFlow v9 Export Format	12.0(24)S 12.2(18)S 12.2(27)SBC 12.2(18)SXF 12.3(1) 15.0(1)S	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. The following section provides information for configuring this feature: • Example: Configuring NetFlow and NetFlow Data Export Using the Version 9 Export Format If you want more detailed information about this feature, please refer to *Configuring NetFlow and NetFlow Data Export.* The following commands were modified by this feature: **debug ip flow export**, **export**, **ip flow-export**, and **show ip flow export**.

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.