



## Flexible NetFlow – Full Flow support

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The Flexible NetFlow - Full Flow support feature enables Flexible NetFlow to collect flow records for every packet.

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### Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and 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 table at the end of this module.

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

### Information About Flexible NetFlow Full Flow support

#### Flexible NetFlow - Full Flow support Overview

The Flexible NetFlow - Full Flow support feature enables Flexible NetFlow to collect flow records for every packet.

The feature is enabled by applying a flow monitor in input (ingress) and output (egress) mode on the device.

If you configure a Flexible NetFlow exporter for the flow monitors you use for the Flexible NetFlow - Full Flow support feature, the device will export the captured flows to the configured collector devices in the provider network.

# How to Configure Flexible NetFlow Full Flow Support

## Configuring a Flow Exporter for the Flow Monitor

Perform this optional task to configure a flow exporter for the flow monitor in order to export the data that is collected by Flexible NetFlow to a remote system for further analysis and storage.

Flow exporters are used to send the data that you collect with Flexible NetFlow to a remote system such as a NetFlow Collection Engine. Exporters use UDP as the transport protocol and use the Version 9 export format.



### Note

Each flow exporter supports only one destination. If you want to export the data to multiple destinations, you must configure multiple flow exporters and assign them to the flow monitor.

You can export to a destination using either an IPv4 or IPv6 address.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **flow exporter** *exporter-name*
4. **description** *description*
5. **destination** {*hostname* | *ip-address*} [**vrf** *vrf-name*]
6. **export-protocol** {*netflow-v5* | *netflow-v9* | *ipfix*}
7. **transport** **udp** *udp-port*
8. **exit**
9. **flow monitor** *flow-monitor-name*
10. **exporter** *exporter-name*
11. **end**
12. **show flow exporter** *exporter-name*
13. **show running-config flow exporter** *exporter-name*

### DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Device> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>

	Command or Action	Purpose
<b>Step 2</b>	<b>configure terminal</b>  <b>Example:</b> Device# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>flow exporter <i>exporter-name</i></b>  <b>Example:</b> Device(config)# flow exporter EXPORTER-1	Creates a flow exporter and enters Flexible NetFlow flow exporter configuration mode.  • This command also allows you to modify an existing flow exporter.
<b>Step 4</b>	<b>description <i>description</i></b>  <b>Example:</b> Device(config-flow-exporter)# description Exports to datacenter	(Optional) Creates a description for the flow exporter.
<b>Step 5</b>	<b>destination {<i>hostname</i>   <i>ip-address</i>} [<i>vrf vrf-name</i>]</b>  <b>Example:</b> Device(config-flow-exporter)# destination 172.16.10.2	Specifies the hostname or IP address of the system to which the exporter sends data.  <b>Note</b> You can export to a destination using either an IPv4 or IPv6 address.
<b>Step 6</b>	<b>export-protocol {<i>netflow-v5</i>   <i>netflow-v9</i>   <i>ipfix</i>}</b>  <b>Example:</b> Device(config-flow-exporter)# export-protocol netflow-v9	Specifies the version of the NetFlow export protocol used by the exporter.  • Default: <b>netflow-v9</b> .
<b>Step 7</b>	<b>transport udp <i>udp-port</i></b>  <b>Example:</b> Device(config-flow-exporter)# transport udp 65	Configures UDP as the transport protocol and specifies the UDP port on which the destination system is listening for exported Flexible NetFlow traffic.
<b>Step 8</b>	<b>exit</b>  <b>Example:</b> Device(config-flow-exporter)# exit	Exits Flexible NetFlow flow exporter configuration mode and returns to global configuration mode.
<b>Step 9</b>	<b>flow monitor <i>flow-monitor-name</i></b>  <b>Example:</b> Device(config)# flow monitor FLOW-MONITOR-1	Enters Flexible NetFlow flow monitor configuration mode for the flow monitor that you created previously.

	Command or Action	Purpose
<b>Step 10</b>	<b>exporter</b> <i>exporter-name</i>  <b>Example:</b> <pre>Device(config-flow-monitor)# exporter EXPORTER-1</pre>	Specifies the name of an exporter that you created previously.
<b>Step 11</b>	<b>end</b>  <b>Example:</b> <pre>Device(config-flow-monitor)# end</pre>	Exits Flexible NetFlow flow monitor configuration mode and returns to privileged EXEC mode.
<b>Step 12</b>	<b>show flow exporter</b> <i>exporter-name</i>  <b>Example:</b> <pre>Device# show flow exporter FLOW_EXPORTER-1</pre>	(Optional) Displays the current status of the specified flow exporter.
<b>Step 13</b>	<b>show running-config flow exporter</b> <i>exporter-name</i>  <b>Example:</b> <pre>Device&lt;# show running-config flow exporter FLOW_EXPORTER-1</pre>	(Optional) Displays the configuration of the specified flow exporter.

## Creating a Flow Monitor

Perform this required task to create a customized flow monitor.

Each flow monitor has a separate cache assigned to it. Each flow monitor requires a record to define the contents and layout of its cache entries. These record formats can be a user-defined format. An advanced user can create a customized format using the **flow record** command.

### Before You Begin

If you want to use a customized record, you must create the customized record before you can perform this task. If you want to add a flow exporter to the flow monitor for data export, you must create the exporter before you can complete this task.



#### Note

You must use the **no ip flow monitor** command to remove a flow monitor from all of the interfaces to which you have applied it before you can modify the parameters for the **record** command on the flow monitor. For information about the **ip flow monitor** command, refer to the *Cisco IOS Flexible NetFlow Command Reference*.

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **flow monitor** *monitor-name*
4. **description** *description*
5. **record** {*record-name*}
6. **cache** {**timeout** {*active*} *seconds* | **type** { **normal** }
7. Repeat Step 6 as required to finish modifying the cache parameters for this flow monitor.
8. **exporter** *exporter-name*
9. **end**
10. **show flow monitor** [[*name*] *monitor-name* [**cache** [**format** {*csv* | **record** | **table**}]] ]
11. **show running-config flow monitor** *monitor-name*

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> <pre>&gt; enable</pre>	Enables privileged EXEC mode.  • Enter your password if prompted.
Step 2	<b>configure terminal</b>  <b>Example:</b> <pre># configure terminal</pre>	Enters global configuration mode.
Step 3	<b>flow monitor</b> <i>monitor-name</i>  <b>Example:</b> <pre>(config)# flow monitor FLOW-MONITOR-1</pre>	Creates a flow monitor and enters Flexible NetFlow flow monitor configuration mode.  • This command also allows you to modify an existing flow monitor.
Step 4	<b>description</b> <i>description</i>  <b>Example:</b> <pre>(config-flow-monitor)# description Used for basic ipv4 traffic analysis</pre>	(Optional) Creates a description for the flow monitor.
Step 5	<b>record</b> { <i>record-name</i> }  <b>Example:</b> <pre>(config-flow-monitor)# record FLOW-RECORD-1</pre>	Specifies the record for the flow monitor.
Step 6	<b>cache</b> { <b>timeout</b> { <i>active</i> } <i>seconds</i>   <b>type</b> { <b>normal</b> }	

	Command or Action	Purpose
	<p><b>Example:</b></p> <pre>Device(config-flow-monitor)# cache type normal</pre>	
<b>Step 7</b>	Repeat Step 6 as required to finish modifying the cache parameters for this flow monitor.	—
<b>Step 8</b>	<p><b>exporter</b> <i>exporter-name</i></p> <p><b>Example:</b></p> <pre>(config-flow-monitor)# exporter EXPORTER-1</pre>	(Optional) Specifies the name of an exporter that was created previously.
<b>Step 9</b>	<p><b>end</b></p> <p><b>Example:</b></p> <pre>(config-flow-monitor)# end</pre>	Exits Flexible NetFlow flow monitor configuration mode and returns to privileged EXEC mode.
<b>Step 10</b>	<p><b>show flow monitor</b> [[<b>name</b>] <i>monitor-name</i> [<b>cache</b> [<b>format</b> {<b>csv</b>   <b>record</b>   <b>table</b>}]] ]</p> <p><b>Example:</b></p> <pre># show flow monitor FLOW-MONITOR-2 cache</pre>	(Optional) Displays the status for a Flexible NetFlow flow monitor.
<b>Step 11</b>	<p><b>show running-config flow monitor</b> <i>monitor-name</i></p> <p><b>Example:</b></p> <pre># show running-config flow monitor FLOW_MONITOR-1</pre>	(Optional) Displays the configuration of the specified flow monitor.

## Applying a Flow Monitor to an Interface

Before it can be activated, a flow monitor must be applied to at least one interface. Perform this required task to activate a flow monitor.

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type number*
4. **{ip | ipv6} flow monitor** *monitor-name* **{input | output}**
5. Repeat Steps 3 and 4 to activate a flow monitor on any other interfaces in the device over which you want to monitor traffic.
6. **end**
7. **show flow interface** *type number*
8. **show flow monitor name** *monitor-name* **cache format record**

## DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b>  <b>Example:</b> Device> enable	Enables privileged EXEC mode.  • Enter your password if prompted.
Step 2	<b>configure terminal</b>  <b>Example:</b> Device# configure terminal	Enters global configuration mode.
Step 3	<b>interface</b> <i>type number</i>  <b>Example:</b> Device(config)# interface GigabitEthernet 0/0/0	Specifies an interface and enters interface configuration mode.
Step 4	<b>{ip   ipv6} flow monitor</b> <i>monitor-name</i> <b>{input   output}</b>  <b>Example:</b> Device(config-if)# ip flow monitor FLOW-MONITOR-1 input	Activates a flow monitor that was created previously by assigning it to the interface to analyze traffic.
Step 5	Repeat Steps 3 and 4 to activate a flow monitor on any other interfaces in the device over which you want to monitor traffic.	—
Step 6	<b>end</b>  <b>Example:</b> Device(config-if)# end	Exits interface configuration mode and returns to privileged EXEC mode.

	Command or Action	Purpose
<b>Step 7</b>	<b>show flow interface</b> <i>type number</i>  <b>Example:</b> Device# show flow interface GigabitEthernet 0/0/0	Displays the status of Flexible NetFlow (enabled or disabled) on the specified interface.
<b>Step 8</b>	<b>show flow monitor name</b> <i>monitor-name</i> <b>cache</b> <b>format record</b>  <b>Example:</b> Device# show flow monitor name FLOW_MONITOR-1 cache format record	Displays the status, statistics, and flow data in the cache for the specified flow monitor.

## Configuration Examples for Flexible NetFlow Full Flow Support

### Example: Configuring Full Flow Accounting for IPv4 and IPv6 Traffic

The following example shows how to configure Flexible NetFlow full flow accounting for IPv4 and IPv6 traffic.

This example starts in global configuration mode.

```

!
flow record v4_r1
match ipv4 tos
match ipv4 protocol
match ipv4 source address
match ipv4 destination address
match transport source-port
match transport destination-port
collect counter bytes long
collect counter packets long
!
flow record v6_r1
match ipv6 traffic-class
match ipv6 protocol
match ipv6 source address
match ipv6 destination address
match transport source-port
match transport destination-port
collect counter bytes long
collect counter packets long
!
flow monitor FLOW-MONITOR-1
record v4_r1
exit
!
!
flow monitor FLOW-MONITOR-2
record v6_r1
exit
!
!

```



```

flow monitor FLOW-MONITOR-3
 record v4_r1
 exit
!
!
flow monitor FLOW-MONITOR-4
 record v6_r1
 exit
!
ip cef
ipv6 cef
!
interface GigabitEthernet0/0/0
 ip address 172.16.6.2 255.255.255.0
 ipv6 address 2001:DB8:2:ABCD::2/48
 ip flow monitor FLOW-MONITOR-1 output
 ipv6 flow monitor FLOW-MONITOR-2 output
 ip flow monitor FLOW-MONITOR-3 input
 ipv6 flow monitor FLOW-MONITOR-4 input
!

```

## Additional References

### Related Documents

Related Topic	Document Title
Cisco IOS commands	<a href="#">Cisco IOS Master Command List, All Releases</a>
Flexible NetFlow conceptual information and configuration tasks	<i>Flexible NetFlow Configuration Guide</i>
Flexible NetFlow commands	<i>Cisco IOS Flexible NetFlow Command Reference</i>

### Standards/RFCs

Standard	Title
No new or modified standards/RFCs are supported by this feature.	—

### MIBs

MIB	MIBs Link
None	To locate and download MIBs for selected platforms, Cisco software 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>

**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.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for Flexible NetFlow - Full Flow support

The following table provides release information about the feature or features described in this module. This table 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.

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**Table 1: Feature Information for Flexible NetFlow - Full Flow support**

Feature Name	Releases	Feature Information
Flexible NetFlow - Full Flow support	Cisco IOS XE Release 3.1S Cisco IOS XE Release 3.2SE	This feature enables Flexible NetFlow to collect flow records for every packet.  No commands were introduced or modified by this feature.