



Flexible NetFlow - Layer 2 Fields

The Flexible NetFlow - Layer 2 Fields feature enables collecting statistics for Layer 2 fields such as MAC addresses and virtual LAN (VLAN) IDs from traffic.

- [Finding Feature Information, page 1](#)
- [Information About Flexible NetFlow Layer 2 Fields , page 1](#)
- [How to Configure Flexible NetFlow Layer 2 Fields, page 2](#)
- [Configuration Examples for Flexible NetFlow Layer 2 Fields, page 7](#)
- [Additional References, page 8](#)
- [Feature Information for Flexible NetFlow - Layer 2 Fields, page 9](#)

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. An account on Cisco.com is not required.

Information About Flexible NetFlow Layer 2 Fields

Flexible NetFlow - Layer 2 Fields Overview

The Flexible NetFlow - Layer 2 Fields feature enables collecting statistics for Layer 2 fields such as MAC addresses and virtual LAN (VLAN) IDs from traffic.

How to Configure Flexible NetFlow Layer 2 Fields

Configuring a Flow Record

Perform this task to configure a customized flow record.

Customized flow records are used to analyze traffic data for a specific purpose. A customized flow record must have at least one **match** criterion for use as the key field and typically has at least one **collect** criterion for use as a nonkey field.

There are hundreds of possible permutations of customized flow records. This task shows the steps that are used to create one of the possible permutations. Modify the steps in this task as appropriate to create a customized flow record for your requirements.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **flow record** *record-name*
4. **description** *description*
5. **match** {**ipv4** | **ipv6**} {**destination** | **source**} **address**
6. Repeat Step 5 as required to configure additional key fields for the record.
7. **collect interface** {**input** | **output**}
8. Repeat Step 7 as required to configure additional nonkey fields for the record.
9. **end**
10. **show flow record** *record-name*
11. **show running-config flow record** *record-name*

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Device> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.

	Command or Action	Purpose
Step 3	<p>flow record <i>record-name</i></p> <p>Example:</p> <pre>Device(config)# flow record FLOW-RECORD-1</pre>	<p>Creates a flow record and enters Flexible NetFlow flow record configuration mode.</p> <ul style="list-style-type: none"> This command also allows you to modify an existing flow record.
Step 4	<p>description <i>description</i></p> <p>Example:</p> <pre>Device(config-flow-record)# description Used for basic traffic analysis</pre>	(Optional) Creates a description for the flow record.
Step 5	<p>match {<i>ipv4</i> <i>ipv6</i>} {<i>destination</i> <i>source</i>} <i>address</i></p> <p>Example:</p> <pre>Device(config-flow-record)# match ipv4 destination address</pre>	<p>Note This example configures the IPv4 destination address as a key field for the record. For information about the other key fields available for the match ipv4 command, and the other match commands that are available to configure key fields, refer to the <i>Cisco IOS Flexible NetFlow Command Reference</i>.</p>
Step 6	Repeat Step 5 as required to configure additional key fields for the record.	—
Step 7	<p>collect interface {<i>input</i> <i>output</i>}</p> <p>Example:</p> <pre>Device(config-flow-record)# collect interface input</pre>	<p>Configures the input interface as a nonkey field for the record.</p> <p>Note This example configures the input interface as a nonkey field for the record. For information on the other collect commands that are available to configure nonkey fields, refer to the <i>Cisco IOS Flexible NetFlow Command Reference</i>.</p>
Step 8	Repeat Step 7 as required to configure additional nonkey fields for the record.	—
Step 9	<p>end</p> <p>Example:</p> <pre>Device(config-flow-record)# end</pre>	Exits Flexible NetFlow flow record configuration mode and returns to privileged EXEC mode.
Step 10	<p>show flow record <i>record-name</i></p> <p>Example:</p> <pre>Device# show flow record FLOW_RECORD-1</pre>	(Optional) Displays the current status of the specified flow record.
Step 11	<p>show running-config flow record <i>record-name</i></p> <p>Example:</p> <pre>Device# show running-config flow record FLOW_RECORD-1</pre>	(Optional) Displays the configuration of the specified flow record.

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	enable Example: > enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.

	Command or Action	Purpose
Step 2	<p>configure terminal</p> <p>Example:</p> <pre># configure terminal</pre>	Enters global configuration mode.
Step 3	<p>flow monitor <i>monitor-name</i></p> <p>Example:</p> <pre>(config)# flow monitor FLOW-MONITOR-1</pre>	<p>Creates a flow monitor and enters Flexible NetFlow flow monitor configuration mode.</p> <ul style="list-style-type: none"> • This command also allows you to modify an existing flow monitor.
Step 4	<p>description <i>description</i></p> <p>Example:</p> <pre>(config-flow-monitor)# description Used for basic ipv4 traffic analysis</pre>	(Optional) Creates a description for the flow monitor.
Step 5	<p>record {<i>record-name</i>}</p> <p>Example:</p> <pre>(config-flow-monitor)# record FLOW-RECORD-1</pre>	Specifies the record for the flow monitor.
Step 6	<p>cache {<i>timeout {active} seconds</i> type { normal }</p> <p>Example:</p> <pre>Device(config-flow-monitor)# cache type normal</pre>	
Step 7	Repeat Step 6 as required to finish modifying the cache parameters for this flow monitor.	—
Step 8	<p>exporter <i>exporter-name</i></p> <p>Example:</p> <pre>(config-flow-monitor)# exporter EXPORTER-1</pre>	(Optional) Specifies the name of an exporter that was created previously.
Step 9	<p>end</p> <p>Example:</p> <pre>(config-flow-monitor)# end</pre>	Exits Flexible NetFlow flow monitor configuration mode and returns to privileged EXEC mode.
Step 10	<p>show flow monitor [[<i>name</i>] <i>monitor-name</i> [cache [format {csv record table}]]]</p> <p>Example:</p> <pre># show flow monitor FLOW-MONITOR-2 cache</pre>	(Optional) Displays the status for a Flexible NetFlow flow monitor.

	Command or Action	Purpose
Step 11	show running-config flow monitor <i>monitor-name</i> Example: <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	enable Example: <pre>Device> enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: <pre>Device# configure terminal</pre>	Enters global configuration mode.
Step 3	interface <i>type number</i> Example: <pre>Device(config)# interface GigabitEthernet 0/0/0</pre>	Specifies an interface and enters interface configuration mode.

	Command or Action	Purpose
Step 4	<p>{ip ipv6} flow monitor <i>monitor-name</i> {input output}</p> <p>Example:</p> <pre>Device(config-if)# ip flow monitor FLOW-MONITOR-1 input</pre>	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	<p>end</p> <p>Example:</p> <pre>Device(config-if)# end</pre>	Exits interface configuration mode and returns to privileged EXEC mode.
Step 7	<p>show flow interface <i>type number</i></p> <p>Example:</p> <pre>Device# show flow interface GigabitEthernet 0/0/0</pre>	Displays the status of Flexible NetFlow (enabled or disabled) on the specified interface.
Step 8	<p>show flow monitor name <i>monitor-name</i> cache format record</p> <p>Example:</p> <pre>Device# show flow monitor name FLOW_MONITOR-1 cache format record</pre>	Displays the status, statistics, and flow data in the cache for the specified flow monitor.

Configuration Examples for Flexible NetFlow Layer 2 Fields

Example: Configuring Flexible NetFlow for Monitoring MAC and VLAN Statistics

The following example shows how to configure Flexible NetFlow for monitoring MAC and VLAN statistics.

This example starts in global configuration mode.

```
!
flow record LAYER-2-FIELDS-1
match ipv4 source address
match ipv4 destination address
match datalink dot1q vlan output
match datalink mac source address input
match datalink mac source address output
match datalink mac destination address input
match flow direction
!
```

```

!
!
flow monitor FLOW-MONITOR-4
 record LAYER-2-FIELDS-1
 exit
!
ip cef
!
interface GigabitEthernet0/0/1
 ip address 172.16.6.2 255.255.255.0
 ip flow monitor FLOW-MONITOR-1 input
!

```

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	Cisco IOS Master Command List, All Releases
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: http://www.cisco.com/go/mibs

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 Flexible NetFlow - Layer 2 Fields

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.

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. An account on Cisco.com is not required.

Table 1: Feature Information for Flexible NetFlow - Layer 2 Fields

Feature Name	Releases	Feature Information
Flexible NetFlow - Layer 2 Fields	12.2(33)SRE 12.4(22)T Cisco IOS XE Release 3.2SE	Enables collecting statistics for Layer 2 fields such as MAC addresses and virtual LAN (VLAN) IDs from traffic. Support for this feature was added for Cisco 7200 and 7300 Network Processing Engine (NPE) series routers in Cisco IOS Release 12.2(33)SRE. The following commands were introduced or modified: collect datalink dot1q vlan, collect datalink mac, match datalink dot1q vlan, match datalink mac.

