



# Configuring Control Plane Policing

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## 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.

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.

## Restrictions for Control Plane Policing

The following restrictions apply while Configuring Control Plane Policing:

- Only six among the following protocols can be configured simultaneously: **rip**, **ospf-v6**, **eigrp-v6**, **rip-v6**, **dhcp-snoop-client-to-server**, **dhcp-snoop-server-to-client**, **ndp-router-solicitation**, **ndp-router-advertisement**, **ndp-redirect**, **dhcpv6-client-to-server**, **dhcpv6-server-to-client**, **igrp**.
- For **ospf**, **eigrp** and **ripv2** protocols, control packets which are destined to multicast Mac of the router are policed along with the "**reserve-multicast-group**" option.

## Control Plane Policing

Configure the Control Plane Policing (CoPP) feature on a predefined set of protocols to control the flow of traffic coming to the CPU. The CoPP allows you to set a rate limit on specific protocol packets. These packets are policed, and the packets that conform to the defined rate limit are permitted into the CPU. CoPP protects

the packets from being routed to the CPU at an undesired rate that might impact the performance of a switch and the network. In addition, the CoPP protects the CPU from denial of service (DoS) attacks and ensures routing stability, reachability, and packet delivery. You can use Multi-Layer Switching QoS CLI to set the rate limit and policing parameters on a specific protocol.



**Note** CoPP is supported only on LAN BASE, IP Lite, and IP Service licenses.

### Related Topics

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## Configuring Control Plane Policing

Configure the Control Plane Policing (CoPP) feature on a predefined set of protocols to control the flow of traffic coming into the CPU.

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<p><b>enable</b></p> <p><b>Example:</b></p> <pre>Switch&gt; enable</pre>	Enables privileged EXEC mode. Enter your password if prompted.
<b>Step 2</b>	<p><b>configure terminal</b></p> <p><b>Example:</b></p> <pre>Switch# configure terminal</pre>	Enters the global configuration mode.
<b>Step 3</b>	<p><b>mls qos copp protocol { autorp-announce   autorp-discovery   bgp   cdp   cgmp   dai   dhcp-snoop-client-to-server   dhcp-snoop-server-to-client   dhcpv6-client-to-server   dhcpv6-server-to-client   eigrp   eigrp-v6   energy-wise   igmp-gs-query   igmp-leave   igmp-query   igmp-report   igrp   ipv6-pimv2   lldp   mld-gs-query   mld-leave   mld-query   mld-report   ndp-redirect   ndp-router-advertisement   ndp-router-solicitation   ospf   ospf-v6   pimv1   pxe   rep-hfl   reserve-multicast-group   rip   rip-v6   rsvp-snoop   stp } police {pps   bps} police rate</b></p> <p><b>Example:</b></p> <pre>Switch (config)# mls qos copp protocol cdp</pre>	<p>Configures a packet policer for the specified protocol.</p> <p>For more details about the various parameters, please refer <i>Consolidated Platform Command Reference, Cisco IOS Release 15.2(4)E</i> .</p>

	Command or Action	Purpose
	<pre>police bps 10000 Switch(config)# mls qos copp protocol cdp police pps 500</pre>	
<b>Step 4</b>	<pre>end</pre> <p><b>Example:</b></p> <pre>Switch(config)# end</pre>	Returns to privileged EXEC mode.
<b>Step 5</b>	<pre>show mls qos copp protocols</pre> <p><b>Example:</b></p> <pre>Switch# show mls qos copp protocols</pre>	Displays the CoPP parameters and counters for all the configured protocol.
<b>Step 6</b>	<pre>copy running-config startup-config</pre> <p><b>Example:</b></p> <pre>Switch# copy running-config startup-config</pre>	(Optional) Saves your entries in the configuration file.

**What to Do Next**

To clear the CoPP statistics, use the **clear copp counters** command.

**Related Topics**

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# Examples: Configuring CoPP

The following example shows how to enable Control Plane Policing (CoPP) for a specific protocol:

```
Switch (config)# mls qos copp protocol cdp police bps ?
<8000-2000000000> Bits per second (postfix k, m, g optional; decimal point allowed)
Switch (config)# mls qos copp protocol cdp police bps 10000
Switch(config)# mls qos copp protocol cdp police pps ?
<100-100000> Packet per second
Switch(config)# mls qos copp protocol cdp police pps 500
```

The following example shows the CoPP parameters and counters for all the configured protocol:

```
Switch# show running-config | inc copp
Switch#show running-config | inc copp
mls qos copp protocol rep-hfl police pps 5600
mls qos copp protocol lldp police bps 908900
mls qos copp protocol cdp police pps 3434

/* Copp detailed output */
Switch#show mls qos copp protocols
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Protocol                               Mode          PolicerRate    PolicerBurst
```

InProfilePackets	OutProfilePackets		InProfileBytes	OutProfileBytes
rep-hfl 0	0	pps	5600 0	5600 0
lldp 0	0	bps	908900 0	908900 0
cdp 45172	0	pps	3434 2891008	3434 0

**Related Topics**

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