Configuring Control Plane Policing

- Finding Feature Information, on page 1
- Restrictions for Control Plane Policing, on page 1
- Control Plane Policing, on page 1
- Configuring Control Plane Policing, on page 2
- Examples: Configuring CoPP, on page 3

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**
- Configuring Control Plane Policing, on page 2
- Examples: Configuring CoPP, on page 3

**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**

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td><strong>enable</strong>&lt;br&gt;<strong>Example:</strong>&lt;br&gt;Switch&gt; enable</td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td><strong>configure terminal</strong>&lt;br&gt;<strong>Example:</strong>&lt;br&gt;Switch# configure terminal</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td><strong>mls qos copp protocol</strong> { autorp-announce</td>
</tr>
</tbody>
</table>
## 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
```
Examples: Configuring CoPP

/* Copp detailed output */
Switch#show mls qos copp protocols

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Mode</th>
<th>PolicerRate</th>
<th>PolicerBurst</th>
</tr>
</thead>
<tbody>
<tr>
<td>rep-hfl</td>
<td>pps</td>
<td>5600</td>
<td>5600</td>
</tr>
<tr>
<td>lldp</td>
<td>bps</td>
<td>908900</td>
<td>908900</td>
</tr>
<tr>
<td>cdp</td>
<td>pps</td>
<td>3434</td>
<td>3434</td>
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<tr>
<td>45172</td>
<td>pps</td>
<td>2891008</td>
<td>0</td>
</tr>
</tbody>
</table>

Related Topics

- Control Plane Policing, on page 1
- Configuring Control Plane Policing, on page 2