



## Set ATM CLP Bit Using Policer

The Set ATM CLP Bit Using Policer feature allows you to police and then mark outbound PPP over ATM (PPPoA) traffic. You can set the ATM cell loss priority (CLP) bit using either of the following methods:

- A policed threshold
- Matching a class
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## Prerequisites for Set ATM CLP Bit Using Policer

If you are setting the ATM CLP bit by a policed threshold, ensure that a policy-map includes the **set-clp-transmit** action. The new policer action conditionally marks PPPoA traffic in the matched class for a higher drop probability in the ATM network when traffic exceeds a given rate.

If you are setting the ATM CLP bit strictly by matching a class, ensure that a policy-map includes the **set atm-clp** action. The set directive marks all traffic in the matched class for higher drop probability in the ATM network.

You can attach policy-maps with the **set-clp-transmit** or **set atm-clp** actions to a virtual template. This template is cloned when PPPoA sessions are created or by dynamic assignment.

## Information About Set ATM CLP Bit Using Policer

### ATM CLP Bit

The ATM CLP bit shows the drop priority of the ATM cell. During ATM network congestion, the router discards ATM cells with the CLP bit set to 1 before discarding cells with a CLP bit setting of 0.

Using the Set ATM CLP Bit Using Policer feature, you can configure the **police** command to enable the ATM CLP bit in cell headers. The ATM CLP bit can be explicitly marked by a set directive.

The Set ATM CLP Bit Using Policer feature supports the **set-clp-transmit** policing action in the following types of policies:

- Single-rate policing
- Dual-rate policing
- Hierarchical

## How to Set the ATM CLP Bit Using Policer

### Configuring PPPoA Broadband Traffic Policing

#### Before you begin

Before configuring the policy-map, ensure that you have defined any class maps used to classify traffic.

#### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **policy-map** *policy-map-name*
4. **class** *{class-name}* **class-default**
5. **police** [**cir** *cir*] [**conform-action** *action*] [**exceed-action** *action*]
6. **end**

#### DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b>  Device> enable	Enables privileged EXEC mode.  • Enter your password if prompted.
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b>  Device# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>policy-map</b> <i>policy-map-name</i> <b>Example:</b>  Device(config)# policy-map parent-policy	Enters policy-map configuration mode and creates a policy-map.
<b>Step 4</b>	<b>class</b> <i>{class-name}</i> <b>class-default</b>	Enters policy-map class configuration mode.

	Command or Action	Purpose
	<p><b>Example:</b></p> <pre>Device(config-pmap)# class class-default</pre>	<p>Specifies the name of the class whose policy you want to create or change or specifies the default class (commonly known as the class-default class) before you configure its policy. Repeat this command as many times as necessary to specify the child or parent classes that you are creating or modifying:</p> <ul style="list-style-type: none"> <li>• <b>class name</b> --Name of the class to be configured or whose policy is to be modified. The class name is used for both the class map and to configure a policy for the class in the policy-map.</li> <li>• <b>class-default</b> --Specifies the default class so that you can configure or modify its policy.</li> </ul>
<b>Step 5</b>	<p><b>police [cir cir] [conform-action action] [exceed-action action]</b></p> <p><b>Example:</b></p> <pre>Device(config-pmap-c)# police 1000000</pre> <p><b>Example:</b></p> <pre>Router(config-pmap-c-police)# conform-action</pre> <p><b>Example:</b></p> <pre>transmit</pre> <p><b>Example:</b></p> <pre>Device(config-pmap-c-police)# exceed-action</pre> <p><b>Example:</b></p> <pre>set-clp-transmit</pre>	<p>Configures traffic policing and specifies multiple actions applied to packets marked as conforming to, exceeding, or violating a specific rate.</p> <ul style="list-style-type: none"> <li>• Enters policy-map class police configuration mode. Use one line per action that you want to specify: <ul style="list-style-type: none"> <li>• <b>cir</b>--(Optional) Committed information rate. Indicates that the CIR will be used for policing traffic.</li> <li>• <b>conform-action</b>--(Optional) Action to take on packets when the rate is less than the conform burst.</li> <li>• <b>exceed-action</b>--(Optional) Action to take on packets whose rate is within the conform and conform plus exceed burst.</li> </ul> </li> </ul>
<b>Step 6</b>	<p><b>end</b></p> <p><b>Example:</b></p> <pre>Device(config-pmap-c)# end</pre>	<p>(Optional) Returns to privileged EXEC mode.</p>

### Example

The following example shows you how to set the ATM CLP using a policer:

```
policy-map egress_atm_clp_policer
class prec0
  police cir 5000000
class prec1
  police cir 3000000 conform-action transmit exceed-action set-clp-transmit
```

```
class class-default
  police cir 1000000 conform-action transmit exceed-action set-clp-transmit
```

## Marking the ATM CLP Bit

### Before you begin

Before configuring the policy-map, ensure that you have defined any class maps used to classify traffic.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **policy-map policy-map-name**
4. **class {class-name| class-default}**
5. **set atm-clp**
6. **end**

### DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b> Router# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>policy-map policy-map-name</b> <b>Example:</b> Router(config)# policy-map parent-policy	Enters policy-map configuration mode and creates a policy-map.
<b>Step 4</b>	<b>class {class-name  class-default}</b> <b>Example:</b> Router(config-pmap)# class class-default	Enters policy-map class configuration mode. <p>Specifies the name of the class whose policy you want to create or change or specifies the default class (commonly known as the class-default class) before you configure its policy. Repeat this command as many times as necessary to specify the child or parent classes that you are creating or modifying:</p> <ul style="list-style-type: none"> <li>• <i>class name</i> --Name of the class to be configured or whose policy is to be modified. The class name is used for both the class map and to configure a policy for the class in the policy-map.</li> </ul>

	Command or Action	Purpose
		<ul style="list-style-type: none"> <li>• <b>class-default</b> --Specifies the default class so that you can configure or modify its policy.</li> </ul>
<b>Step 5</b>	<b>set atm-clp</b> <b>Example:</b> <pre>Router(config-pmap-c) # set atm-clp</pre>	Configures marking of the ATM CLP bit for all traffic matching this class.
<b>Step 6</b>	<b>end</b> <b>Example:</b> <pre>Router(config-pmap-c) # end</pre>	(Optional) Returns to privileged EXEC mode.

### Example

The following example shows you how to set the ATM CLP using explicit marking:

```
policy-map egress_atm_clp_policer
  class prec0
    police cir 5000000
  class class-default
    set atm-clp
```

## Configuration Examples for Set ATM CLP Bit Using Policer

### Example Marking the ATM CLP by Policer Action Matching a Class

This example shows how to do the following:

- Define traffic classes.
- Configure a two-layer policy-map.
- Apply the policy-map to PPPoA sessions.

This policy conditionally marks the ATM CLP bit on the traffic in the matching `low_interest` class once traffic on the class exceeds a given rate.

```
class-map voice
  match precedence 4
!
class-map web
  match precedence 3
!
class low_interest
  match precedence 1 0
!
policy-map child
```

```

child class voice
  police cir 256000
  priority level 1
class web
  bandwidth remaining ratio 10
class low_interest
  police cir 1000000 conform-action transmit exceed-action set-clp-transmit
class class-default
  bandwidth remaining ratio 1
!
policy-map parent
  class class-default
    shape average 15000000
    service-policy child

```

Policy-maps attached to virtual templates are cloned and used to create a virtual access interface for each PPPoA session:

```

interface Virtual-Template1
  ip unnumbered Loopback1
  load-interval 30
  peer default ip address pool POOL1
  ppp authentication chap ppp
  ipcp address required
  service-policy output parent

```

## Example Marking the ATM CLP by Policer Action Policed Threshold

This example shows how to do the following:

- Define traffic classes.
- Configure a two-layer policy-map.
- Apply the policy-map to PPPoA sessions.

This policy marks all non-essential traffic with the ATM CLP bit so that it is eligible for dropping if the ATM network becomes congested.

```

class-map video
  match precedence 5
!
class-map voice
  match precedence 4
!
class-map web
  match precedence 3
!
policy-map child
  child class voice
    police cir 256000
    priority level 1
  class video
    police cir 4000000
    priority level 2
  class web
    set atm-clp
    bandwidth remaining ratio 10
  class class-default
    bandwidth remaining ratio 1

```

```

    set atm-clp
!
interface Virtual-Template1
 ip unnumbered Loopback1
 load-interval 30
 peer default ip address pool POOL1
 ppp authentication chap ppp
 ipcp address required
 service-policy output parent

```

## Additional References

### Related Documents

Related Topic	Document Title
Cisco IOS commands	<a href="#">Cisco IOS Master Commands List, All Releases</a>
Quality of Service commands	<i>Cisco IOS Quality of Service Command Reference</i>

### Standards

Standard	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	--

### MIBs

MIB	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	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>

### RFCs

RFC	Title
No new or modified RFCs are supported by this feature, and support for existing RFCs has not been modified by this feature.	--

**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 Set ATM CLP Bit Using Policer

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 <https://cfng.cisco.com/>. An account on Cisco.com is not required.

**Table 1: Feature Information for Set ATM CLP Bit Using Policer**

Feature Name	Releases	Feature Information
Set ATM CLP Bit Using Policer	Cisco IOS Release XE 3.3S  Cisco IOS Release XE 3.14S	The Set ATM CLP Bit Using Policer feature allows you to police and then mark outbound PPPoA traffic.  In Cisco IOS Release XE 3.14S, support for this feature was added on the Cisco 4451-X Integrated Services Router.  The following commands were introduced or modified: <b>set atm-clpand police.</b>