



# Policer Enhancement — Multiple Actions

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## Feature History

Release	Modification
12.2(8)T	This feature was introduced.

This document describes the Policer Enhancement — Multiple Actions feature in Cisco IOS Release 12.2(8)T. It includes the following sections:

- [Feature Overview, page 1](#)
- [Supported Platforms, page 3](#)
- [Supported Standards, MIBs, and RFCs, page 4](#)
- [Prerequisites, page 5](#)
- [Configuration Tasks, page 5](#)
- [Monitoring and Maintaining the Multiple Policer Actions, page 6](#)
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## Feature Overview

This feature further extends the functionality of the Cisco IOS Traffic Policing feature (a single-rate policer) and the Two-Rate Policer feature. The Traffic Policing and Two-Rate Policer features are traffic policing mechanisms that allow you to control the maximum rate of traffic sent or received on an interface. Both of these traffic policing mechanisms mark packets as either conforming to, exceeding, or violating a specified rate. After a packet is marked, you can specify an action to be taken on the packet based on that marking.

With both the Traffic Policing feature and the Two-Rate Policer feature, you can specify only one conform action, one exceed action, and one violate action. Now with the new Policer Enhancement — Multiple Actions feature, you can specify multiple conform, exceed, and violate actions for the marked packets.

You specify the multiple actions by using the *action* argument of the **police** command. The resulting actions are listed in [Table 1](#).

**Table 1** *police Command Action Arguments*

Specified Action	Result
<b>drop</b>	Drops the packet.
<b>set-clp-transmit</b>	Sets the ATM Cell Loss Priority (CLP) bit from 0 to 1 on the ATM cell and transmits the packet.
<b>set-dscp-transmit</b> <i>new-dscp</i>	Sets the IP differentiated services code point (DSCP) value and transmits the packet with the ATM CLP bit set to 1.
<b>set-frde-transmit</b>	Sets the Frame Relay Discard Eligibility (DE) bit from 0 to 1 on the Frame Relay frame and transmits the packet.
<b>set-mpls-exp-transmit</b>	Sets the Multiprotocol Label Switching (MPLS) experimental (EXP) bits from 0 to 7 and transmits the packet.
<b>set-prec-transmit</b> <i>new-prec</i>	Sets the IP Precedence level and transmits the packet.
<b>set-qos-transmit</b> <i>new-qos</i>	Sets the Quality of Service (QoS) group value and transmits the packet.
<b>transmit</b>	Transmits the packet.

For more information about the **police** command and how to use it with the Policer Enhancement — Multiple Actions feature, see the “[Command Reference](#)” section of this document.

For more information about the Cisco IOS Traffic Policing feature, refer to the “Policing and Shaping” section of the *Cisco IOS Quality of Service Solutions Configuration Guide*, Release 12.2. For more information about the Two-Rate Policer feature, refer to the new features for Release 12.2(4)T on Cisco.com.

## Benefits

Before this feature, you could specify only *one* marking action for a packet, in addition to transmitting the packet. This feature provides enhanced flexibility by allowing you to specify *multiple* marking actions for a packet, as required. For example, if you know the packet will be transmitted through both a TCP/IP and a Frame Relay environment, you can change the DSCP value of the exceeding or violating packet, and also set the Frame Relay Discard Eligibility (DE) bit from 0 to 1 to indicate lower priority.

## Restrictions

- On a Cisco 7500 series router, traffic policing can monitor Cisco Express Forwarding (CEF) or distributed CEF (dCEF) switching paths only. To use the Two-Rate Policer, CEF or dCEF must be configured on both the interface receiving the packet and the interface sending the packet.
- On a Cisco 7500 series router, traffic policing cannot be applied to packets that originated from or are destined to a router.
- Multiple policer actions can be configured on an interface, a subinterface, a Frame Relay data-link connection identifier (DLCI), and an ATM permanent virtual circuit (PVC) only.

- When using this feature, you can specify a maximum of four actions at one time.
- Multiple policer actions are not supported on the following interfaces:
  - Fast EtherChannel
  - PRI
  - Any interface on a Cisco 7500 series router that does not support CEF or dCEF

## Related Features and Technologies

- Modular Quality of Service Command-Line Interface (Modular QoS CLI)
- Class-Based Weighted Fair Queueing (CBWFQ)
- Class-Based Packet Marking
- Traffic Policing
- Two-Rate Policing

## Related Documents

- *Cisco IOS Quality of Service Solutions Configuration Guide*, Release 12.2
- *Cisco IOS Quality of Service Solutions Command Reference*, Release 12.2
- *Cisco IOS Switching Services Configuration Guide*, Release 12.2
- *Two-Rate Policer*, Cisco IOS Release 12.2(4)T feature module
- RFC 2697, *A Single Rate Three Color Marker*
- RFC 2698, *A Two Rate Three Color Marker*

## Supported Platforms

- Cisco 1700 series
- Cisco 2600 series
- Cisco 3620
- Cisco 3640
- Cisco 3660
- Cisco 7100 series
- Cisco 7200 series
- Cisco 7500 series (VIP-based platform only)
- Cisco MC3810

**Note**

To use the *set-clp-transmit* action available with this feature, the Enhanced ATM Port Adapter (PA-A3) is required. Therefore, the *set-clp-transmit* action is not supported on any platform that does not support the PA-A3 adapter (such as the Cisco 2600 series router and the Cisco 3640 router). For more information, refer to the documentation for your specific router.

**Determining Platform Support Through Cisco Feature Navigator**

Cisco IOS software is packaged in feature sets that support specific platforms. To get updated information regarding platform support for this feature, access Cisco Feature Navigator. Cisco Feature Navigator dynamically updates the list of supported platforms as new platform support is added for the feature.

Cisco Feature Navigator is a web-based tool that enables you to quickly determine which Cisco IOS software images support a specific set of features and which features are supported in a specific Cisco IOS image. You can search by feature or release. Under the release section, you can compare releases side by side to display both the features unique to each software release and the features in common.

To access Cisco Feature Navigator, you must have an account on Cisco.com. If you have forgotten or lost your account information, send a blank e-mail to [cco-locksmith@cisco.com](mailto:cco-locksmith@cisco.com). An automatic check will verify that your e-mail address is registered with Cisco.com. If the check is successful, account details with a new random password will be e-mailed to you. Qualified users can establish an account on Cisco.com by following the directions at <http://www.cisco.com/register>.

Cisco Feature Navigator is updated regularly when major Cisco IOS software releases and technology releases occur. For the most current information, go to the Cisco Feature Navigator home page at the following URL:

<http://www.cisco.com/go/fn>

## Supported Standards, MIBs, and RFCs

**Standards**

No new or modified standards are supported by this feature.

**MIBs**

- CISCO-CLASS-BASED-QOS-MIB
- CISCO-CLASS-BASED-QOS-CAPABILITY-MIB

To obtain lists of supported MIBs by platform and Cisco IOS release, and to download MIB modules, go to the Cisco MIB website on Cisco.com at the following URL:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml>

**RFCs**

- RFC 2697, *A Single Rate Three Color Marker*
- RFC 2698, *A Two Rate Three Color Marker*

## Prerequisites

- Before configuring the Policer Enhancement — Multiple Actions feature, you should read and understand the following:
  - *Cisco IOS Quality of Service Solutions Configuration Guide*, Release 12.2  
Specifically, the “Configuring Traffic Policing” chapter and the “Policing and Shaping Overview” chapter.
  - *Two-Rate Policer*, Cisco IOS Release 12.2(4)T feature module
- On a Cisco 7500 series router, CEF or dCEF must be configured on the interface before you can use the Policer Enhancement — Multiple Actions feature. For additional information on CEF or dCEF, refer to the *Cisco IOS Switching Services Configuration Guide*, Release 12.2.
- To configure the Policer Enhancement — Multiple Actions feature, a traffic class and a service policy must be created, and the service policy must be attached to a specified interface. These tasks are performed using the Modular QoS CLI. For information on the Modular QoS CLI, refer to the “Modular Quality of Service Command-Line Interface Overview” chapter of the *Cisco IOS Quality of Service Solutions Configuration Guide*, Release 12.2.

## Configuration Tasks

See the following sections for configuration tasks for the Police Enhancement — Multiple Actions feature. Each task in the list is identified as either required or optional.

- [Configuring Multiple Policer Actions](#) (required)
- [Verifying the Multiple Policer Actions Configuration](#) (optional)

## Configuring Multiple Policer Actions

To configure multiple policer actions, use the following commands beginning in global configuration mode:

	Command	Purpose
Step 1	Router(config)# <b>policy-map</b> <i>policy-map-name</i>	Creates a policy map. Enters policy-map configuration mode.
Step 2	Router(config-pmap)# <b>class</b> <i>class-default</i>	Specifies the default traffic class for a service policy. Enters policy-map class configuration mode.
Step 3	Router(config-pmap-c)# <b>police</b> { <i>cir cir</i> } [ <b>bc</b> <i>conform-burst</i> ] { <b>pir</b> <i>pir</i> } [ <b>be</b> <i>peak-burst</i> ] [ <b>conform-action</b> <i>action</i> [ <b>exceed-action</b> <i>action</i> [ <b>violate-action</b> <i>action</i> ]]]	Configures traffic policing and specifies multiple actions applied to packets marked as conforming to, exceeding, or violating a specific rate. Use one line per action that you want to specify. Enters policy-map class police configuration mode.

## Verifying the Multiple Policer Actions Configuration

To verify that the multiple policer actions have been configured on the interface, use the following command in EXEC or privileged EXEC mode:

Command	Purpose
Router# <b>show policy-map interface</b>	Displays statistics and configurations of all input and output policies attached to an interface.

## Troubleshooting Tips

- Check the interface type. Verify that your interface is not listed as a nonsupported interface in the “[Restrictions](#)” section of this document.
- For input traffic policing on a Cisco 7500 series router, verify that CEF or dCEF is configured on the interface on which traffic policing is configured.
- For output traffic policing on a Cisco 7500 series router, ensure that the incoming traffic is CEF-switched or dCEF-switched. Traffic policing cannot be used on the switching path unless CEF or dCEF switching is enabled.

## Monitoring and Maintaining the Multiple Policer Actions

To monitor and maintain the multiple policer actions, use the following EXEC or privileged EXEC mode commands, as needed:

Command	Purpose
Router# <b>show policy-map</b>	Displays all configured policy maps.
Router# <b>show policy-map</b> <i>policy-map-name</i>	Displays the user-specified policy map.
Router# <b>show policy-map interface</b>	Displays statistics and configurations of all input and output policies that are attached to an interface.

# Configuration Examples

This section provides the following configuration examples:

- [Multiple Actions in a Two-Rate Policer Example](#)
- [Verifying the Multiple Policer Actions Example](#)

## Multiple Actions in a Two-Rate Policer Example

In the following example, a policy map called police is configured to use a two-rate policer to police traffic leaving an interface. Two rates, a committed information rate (CIR) of 1 Mbps and a peak information rate (PIR) of 2 Mbps, have been specified.

```
Router(config)# policy-map police
Router(config-pmap)# class class-default
Router(config-pmap-c)# police cir 1000000 pir 2000000
Router(config-pmap-c-police)# conform-action transmit
Router(config-pmap-c-police)# exceed-action set-prec-transmit 4
Router(config-pmap-c-police)# exceed-action set-frde
Router(config-pmap-c-police)# violate-action set-prec-transmit 2
Router(config-pmap-c-police)# violate-action set-frde-transmit
Router(config-pmap-c-police)# end
```

The following actions will be performed on packets associated with the policy map called police:

- All packets marked as conforming to these rates (that is, packets conforming to the CIR) will be transmitted unaltered.
- All packets marked as exceeding these rates (that is, packets exceeding the CIR but not exceeding the PIR) will be assigned an IP Precedence level of 4, the DE bit will be set to 1, and then transmitted.
- All packets marked as violating the rate (that is, exceeding the PIR) will be assigned an IP Precedence level of 2, the DE bit will be set to 1, and then transmitted.

## Verifying the Multiple Policer Actions Example

The following sample output of the **show policy-map** command displays the configuration for a service policy called police. In this service policy, multiple actions for packets marked as exceeding the specified CIR rate have been configured. For those packets, the IP Precedence level is set to 4, the DE bit is set to 1, and the packet is transmitted. Multiple actions for packets marked as violating the specified PIR rate have also been configured. For those packets, the IP Precedence level is set to 2, the DE bit is set to 1, and the packet is transmitted.

```
Router# show policy-map police

Policy Map police
Class class-default
  police cir 1000000 bc 31250 pir 2000000 be 31250
    conform-action transmit
    exceed-action set-prec-transmit 4
    exceed-action set-frde-transmit
    violate-action set-prec-transmit 2
    violate-action set-frde-transmit
```

# Command Reference

This section documents modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.2 command reference publications.

- [police](#)
- [show policy-map](#)
- [show policy-map interface](#)

# police

To configure traffic policing, use the **police** command in policy-map class configuration mode. To remove traffic policing from the configuration, use the **no** form of this command.

```
police { cir cir} [bc conform-burst] { pir pir} [be peak-burst] [conform-action action
exceed-action action violate-action action]]
```

```
no police { cir cir} [bc conform-burst] { pir pir} [be peak-burst] [conform-action action
exceed-action action violate-action action]]
```

Syntax Description	
<b>cir</b>	The committed information rate (CIR) at which the first token bucket is updated.
<i>cir</i>	Specifies the CIR value in bits per second.
<b>bc</b>	(Optional) The conform burst size (bc) used by the first token bucket for policing.
<i>conform-burst</i>	(Optional) Specifies the bc value in bytes.
<b>pir</b>	The peak information rate (PIR) at which the second token bucket is updated.
<i>pir</i>	Specifies the PIR value in bits per second.
<b>be</b>	(Optional) The peak burst size (be) used by the second token bucket for policing.
<i>peak-burst</i>	(Optional) Specifies the be size in bytes.
<b>conform-action</b>	(Optional) Action to take on packets that conform to the CIR and PIR. The default action is to transmit the packet.
<b>exceed-action</b>	(Optional) Action to take on packets that conform to the PIR but not the CIR. The default action is to drop the packet.
<b>violate-action</b>	(Optional) Action to take on packets that exceed the PIR. The default action is to use the <b>exceed-action</b> .
<i>action</i>	(Optional) Action to take on packets. Specify one of the following arguments: <ul style="list-style-type: none"> <li>• <b>drop</b>—Drops the packet.</li> <li>• <b>set-clp-transmit</b>—Sets the ATM Cell Loss Priority (CLP) bit from 0 to 1 on the ATM cell and transmits the packet with the ATM CLP bit set to 1.</li> <li>• <b>set-dscp-transmit</b> <i>new-dscp</i>—Sets the IP differentiated services code point (DSCP) value and transmits the packet.</li> <li>• <b>set-frde-transmit</b>—Sets the Frame Relay Discard Eligibility (DE) bit from 0 to 1 on the Frame Relay frame and transmits the packet.</li> <li>• <b>set-mpls-exp-transmit</b>—Sets the Multiprotocol Label Switching (MPLS) experimental (EXP) bits from 0 to 7 and transmits the packet.</li> <li>• <b>set-prec-transmit</b> <i>new-prec</i>—Sets the IP Precedence level and transmits the packet.</li> <li>• <b>set-qos-transmit</b> <i>new-qos</i>—Sets the Quality of Service (QoS) group value and transmits the packet.</li> <li>• <b>transmit</b>—Transmits the packet.</li> </ul>

**Defaults**

This command is disabled by default.

**Command Modes**

Policy-map class configuration (when specifying a single action to be applied to a marked packet)  
 Policy-map class police configuration (when specifying multiple actions to be applied to a marked packet)

**Command History**

Release	Modification
11.1 CC	The <b>rate-limit</b> command was introduced.
12.0(5)XE	The <b>police</b> command, which was closely related to the <b>rate-limit</b> command, was introduced.
12.1(1)E	This command was integrated into Cisco IOS Release 12.1(1)E.
12.1(5)T	This command was integrated into Cisco IOS Release 12.1(5)T. The <b>violate-action</b> keyword became available.
12.2(2)T	The following <i>action</i> arguments were added to the <b>police</b> command: <ul style="list-style-type: none"> <li>• <b>set-clp-transmit</b></li> <li>• <b>set-frde-transmit</b></li> <li>• <b>set-mpls-exp-transmit</b></li> </ul> <p><b>Note</b> The <b>set-frde-transmit</b> option is not supported for Any Transport over Multiprotocol Label Switching (MPLS) (AToM) traffic in this release. Also, the <b>set-frde-transmit</b> option is supported only when Frame Relay is implemented on a physical interface without encapsulation.</p>
12.2(4)T	This command was integrated into Cisco IOS Release 12.2. Two keywords, <b>cir</b> and <b>pir</b> , were added to the <b>police</b> command to accommodate two-rate traffic policing.
12.2(8)T	The command was modified for the Policer Enhancement — Multiple Actions feature. This command can now accommodate multiple actions for packets marked as conforming to, exceeding, or violating a specific rate.

**Usage Guidelines**

When using the **police** command, note the following points:

- You can specify a maximum of four actions at one time.
- You cannot specify contradictory actions such as **conform-action transmit** and **conform-action drop**.

**Examples**

In the following example, a policy map called police is configured to use a Two-Rate policer to police traffic leaving an interface. Two rates, a CIR of 1 Mbps and a PIR of 2 Mbps, have been specified.

```
Router(config)# policy-map police
Router(config-pmap)# class class-default
Router(config-pmap-c)# police cir 1000000 pir 2000000
Router(config-pmap-c-police)# conform-action transmit
Router(config-pmap-c-police)# exceed-action set-prec-transmit 4
Router(config-pmap-c-police)# exceed-action set-frde
Router(config-pmap-c-police)# violate-action set-prec-transmit 2
Router(config-pmap-c-police)# violate-action set-frde-transmit
Router(config-pmap-c-police)# end
```

The following actions will be performed on packets associated with the policy map called police:

- All packets marked as conforming to these rates (that is, packets conforming to the CIR) will be transmitted unaltered.
- All packets marked as exceeding these rates (that is, packets exceeding the CIR but not exceeding the PIR) will be assigned an IP Precedence level of 4, the DE bit will be set to 1, and then transmitted.
- All packets marked as violating the rate (that is, exceeding the PIR) will be assigned an IP Precedence level of 2, the DE bit will be set to 1, and then transmitted.

Related Commands	Command	Description
	<b>policy-map</b>	Creates or modifies a policy map that can be attached to one or more interfaces to specify a service policy.
	<b>service-policy</b>	Attaches a policy map to an input interface or an output interface to be used as the service policy for that interface.
	<b>show policy-map</b>	Displays the configuration of all classes for a specified service policy map or all classes for all existing policy maps.
	<b>show policy-map interface</b>	Displays the configuration of all classes configured for all service policies on the specified interface or displays the classes for the service policy for a specific PVC on the interface.

# show policy-map

To display the configuration of all classes for a specified service policy map or all classes for all existing policy maps, use the **show policy-map** command in EXEC or privileged EXEC mode.

```
show policy-map [policy-map]
```

<b>Syntax Description</b>	<i>policy-map</i>	(Optional) Name of the service policy map whose complete configuration is to be displayed.
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**Defaults** All existing policy map configurations are displayed.

**Command Modes** EXEC or privileged EXEC

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	12.0(5)T	This command was introduced.
	12.0(5)XE	This command was integrated into Cisco IOS Release 12.0(5)XE.
	12.0(7)S	This command was integrated into Cisco IOS Release 12.0(7)S.
	12.1(1)E	This command was integrated into Cisco IOS Release 12.1(1)E.
	12.2(4)T	This command was modified for the Two-Rate Policer. It now can display burst parameters and associated actions.
	12.2(8)T	The command was modified for the Policer Enhancement — Multiple Actions feature. This command now displays the multiple actions configured for packets marked as conforming to, exceeding, or violating a specific rate.

**Usage Guidelines** The **show policy-map** command displays the configuration of a service policy map created using the **policy-map** command. You can use the **show policy-map** command to display all class configurations comprising any existing service policy map, whether or not that service policy map has been attached to an interface.

**Examples** The following sample output of the **show policy-map** command displays the configuration for a service policy called police. In this service policy, traffic policing has been configured to allow multiple actions for packets marked as conforming to, exceeding, or violating the committed information rate (CIR) or the peak information rate (PIR) shown in the example.

```
Router# show policy-map police

Policy Map police
  Class class-default
    police cir 1000000 bc 31250 pir 2000000 be 31250
      conform-action transmit
      exceed-action set-prec-transmit 4
      exceed-action set-frde-transmit
```

```
violate-action set-prec-transmit 2
violate-action set-frde-transmit
```

Packets conforming to the specified CIR (1000000 bps) are marked as conforming packets. These are transmitted unaltered.

Packets exceeding the specified CIR (but not the specified PIR, 2000000 bps) are marked as exceeding packets. For these packets, the IP Precedence level is set to 4, the Discard Eligibility (DE) bit is set to 1, and the packet is transmitted.

Packets exceeding the specified PIR are marked as violating packets. For these packets, the IP Precedence level is set to 2, the DE bit is set to 1, and the packet is transmitted.

**Note**

Actions are specified by using the *action* argument of the **police** command. For more information about the available actions, see [Table 1](#) in the “[Command Reference](#)” section of this document.

[Table 2](#) describes the significant fields shown in this display.

**Table 2** *show policy-map Field Descriptions*

Field	Description
police	Indicates that the <b>police</b> command has been configured to enable traffic policing. Also, displays the specified CIR, conform burst size (BC), PIR, and peak burst size (BE) used for marking packets.
conform-action	Displays the one or more actions to be taken on packets conforming to a specified rate.
exceed-action	Displays the one or more actions to be taken on packets exceeding a specified rate.
violate-action	Displays the one or more actions to be taken on packets violating a specified rate.

**Related Commands**

Command	Description
<b>policy-map</b>	Creates or modifies a policy map that can be attached to one or more interfaces to specify a service policy.
<a href="#">show policy-map class</a>	Displays the configuration for the specified class of the specified policy map.
<a href="#">show policy-map interface</a>	Displays the configuration of all classes configured for all service policies on the specified interface or displays the classes for the service policy for a specific PVC on the interface.

## show policy-map interface

To display the configuration of all classes configured for all service policies on the specified interface or to display the classes for the service policy for a specific permanent virtual circuit (PVC) on the interface, use the **show policy-map interface** command in EXEC or privileged EXEC mode.

```
show policy-map interface interface-name [vc [vpi] vci] [dlci dlci]
```

Syntax	Description
<i>interface-name</i>	Name of the interface or subinterface whose policy configuration is to be displayed.
<b>vc</b>	(Optional) For ATM interfaces only, shows the policy configuration for a specified PVC. The name can be up to 16 characters long.
<i>vpi</i>	(Optional) ATM network virtual path identifier (VPI) for this PVC. The absence of the “/” and a <i>vpi</i> value defaults the <i>vpi</i> value to 0.  On the Cisco 7200 and 7500 series routers, this value ranges from 0 to 255.  The <i>vpi</i> and <i>vci</i> arguments cannot both be set to 0; if one is 0, the other cannot be 0.  If this value is omitted, information for all virtual circuits (VCs) on the specified ATM interface or subinterface is displayed.
<i>vci</i>	(Optional) ATM network virtual channel identifier (VCI) for this PVC. This value ranges from 0 to 1 less than the maximum value set for this interface by the <b>atm vc-per-vc</b> command. Typically, lower values 0 to 31 are reserved for specific traffic (F4 Operation, Administration, and Maintenance (OAM), switched virtual circuit (SVC) signaling, Integrated Local Management Interface (ILMI), and so on) and should not be used.  The VCI is a 16-bit field in the header of the ATM cell. The VCI value is unique only on a single link, not throughout the ATM network, because it has local significance only.  The <i>vpi</i> and <i>vci</i> arguments cannot both be set to 0; if one is 0, the other cannot be 0.
<b>dlci</b>	(Optional) Indicates a specific PVC for which policy configuration will be displayed.
<i>dlci</i>	(Optional) A specific data-link connection identifier (DLCI) number used on the interface. Policy configuration for the corresponding PVC will be displayed when a DLCI is specified.

**Defaults** This command has no default behavior or values.

**Command Modes** EXEC or privileged EXEC

Command History	Release	Modification
	12.0(5)T	This command was introduced.
	12.0(5)XE	This command was integrated into Cisco IOS Release 12.0(5)XE.
	12.0(7)S	This command was integrated into Cisco IOS Release 12.0(7)S.
	12.1(1)E	This command was integrated into Cisco IOS Release 12.1(1)E.
	12.1(2)T	This command was integrated into Cisco IOS Release 12.1(2)T. This command was modified to display information about the policy for all Frame Relay PVCs on the interface, or, if a DLCI is specified, the policy for that specific PVC. This command was also modified to display the total number of packets marked by the QoS set action.
	12.1(3)T	This command was integrated into Cisco IOS Release 12.1(3)T. This command was modified to display per-class accounting statistics.
	12.2(4)T	This command was modified for the Two-Rate Policer. It now can display burst parameters and associated actions.
	12.2(8)T	The command was modified for the Policer Enhancement — Multiple Actions feature. This command now displays the multiple actions configured for packets conforming to, exceeding, or violating a specific rate.

### Usage Guidelines

The **show policy-map interface** command displays the configuration for classes on the specified interface or the specified PVC only if a service policy has been attached to the interface or the PVC.

You can use the *interface-name* argument to display output for a PVC only for Enhanced ATM port adapters (PA-A3) that support per-VC queueing.

The counters displayed after the **show policy-map interface** command is entered are updated only if congestion is present on the interface.

### Examples

The following sample output of the **show policy-map interface** command displays the statistics for the serial 3/2 interface, to which a service policy called police (configured as shown below) is attached.

```

policy-map police
  class class-default
    police cir 1000000 pir 2000000
      conform-action transmit
      exceed-action set-prec-transmit 4
      exceed-action set-frde-transmit
      violate-action set-prec-transmit 2
      violate-action set-frde-transmit

Router# show policy-map interface s3/2
Serial3/2: DLCI 100 -

Service-policy output: police

Class-map: class-default (match-any)
  172984 packets, 42553700 bytes
  5 minute offered rate 960000 bps, drop rate 277000 bps
Match: any
police:
  cir 1000000 bps, bc 31250 bytes, pir 2000000 bps, be 31250 bytes
  conformed 59679 packets, 14680670 bytes; actions:
  transmit

```

## show policy-map interface

```

exceeded 59549 packets, 14649054 bytes; actions:
  set-prec-transmit 4
  set-frde-transmit
violated 53758 packets, 13224468 bytes; actions:
  set-prec-transmit 2
  set-frde-transmit
conformed 340000 bps, exceed 341000 bps, violate 314000 bps

```

The sample output of **show policy-map interface** command shows the following:

- 59679 packets were marked as conforming packets (that is, packets conforming to the CIR) and were transmitted unaltered.
- 59549 packets were marked as exceeding packets (that is, packets exceeding the CIR but not exceeding the PIR). Therefore, the IP Precedence value of these packets was changed to an IP Precedence level of 4, the Discard Eligibility (DE) bit was set to 1, and the packets were transmitted with these changes.
- 53758 packets were marked as violating packets (that is, exceeding the PIR). Therefore, the IP Precedence value of these packets was changed to an IP Precedence level of 2, the DE bit was set to 1, and the packets were transmitted with these changes.



### Note

Actions are specified by using the *action* argument of the **police** command. For more information about the available actions, see [Table 1](#) in the “[Feature Overview](#)” section of this document.

[Table 3](#) describes the fields associated with the Policer Enhancement — Multiple Actions feature shown in this display. For more information about the other fields shown in this display, refer to the documentation for the **show policy-map interface** command in the *Cisco IOS Quality of Service Solutions Command Reference*, Release 12.2.

**Table 3** *show policy-map interface* Field Descriptions

Field	Description
police	Indicates that the <b>police</b> command has been configured to enable traffic policing. Also, displays the specified CIR, conform burst size (BC), PIR, and peak burst size (BE) used for marking packets.
conformed, packets, bytes, actions	Displays the number of packets (also shown in bytes) marked as conforming to a specified rate and the actions taken on the packet. If there are multiple actions, each action is listed separately.
exceeded, packets, bytes, actions	Displays the number of packets (also shown in bytes) marked as exceeding a specified rate and the actions taken on the packet. If there are multiple actions, each action is listed separately.
violated, packets, bytes, actions	Displays the number of packets (also shown in bytes) marked as violating a specified rate and the actions taken on the packet. If there are multiple actions, each action is listed separately.

### Related Commands

Command	Description
<a href="#">show policy-map</a>	Displays the configuration of all classes for a specified service policy map or all classes for all existing policy maps.
<a href="#">show policy-map class</a>	Displays the configuration for the specified class of the specified policy map.