



QoS: Enhancements to Single QoS Policy Definition for a Physical Interface (L3/1C/nD) Including Match FR-DLCI

The L3/1C/nD feature allows you to provision multiple Frame Relay DLCI subinterfaces under the same policy map on a physical port. The enhanced **match fr-dlci** class-map configuration command now permits a range of DLCIs to be specified on a single command line. This feature is intended for service providers.

Feature History

Release	Modification
12.0(28)S	This feature was introduced for select Cisco 12000 Series ISE (E3) line cards.

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Prerequisites

Knowledge of how to use the Cisco Modular Quality of Service Command line Interface (MQC) is required to create Quality of Service (QoS) class maps, policy maps. See the [“Related Documents” section on page 11](#) for further information.

The QoS: Enhancements to Single QoS Policy Definition for a Physical Interface (L3/1C/nD) Including Match FR-DLCI is supported on the following Cisco 12000 Series ISE line cards:

Supported Cisco 12000 Series Internet Services Engine (E3) Line Cards

- 1-Port Channelized OC-12/STM-4 (DS1/E1) ISE Line Card
Product Number: CHOC12/DS1-IR-SC=
- 1-Port Channelized OC-48/STM-16 (DS3/E3, OC-3c/STM-1c, OC-12c/STM-4c) POS/SDH ISE Line Card
Product Number: CHOC48/DS3-SR-SC=
- 4-Port Channelized OC-12/STM-4 (DS3/E3, OC-3c/STM-1c) POS/SDH ISE Line Card
Product Number: 4CHOC12/DS3-I-SCB=
- 16-Port OC-3c/STM-1c POS/SDH ISE Line Card
Product Numbers: 6OC3X/POS-I-LC-B=, 16OC3X/POS-M-MJ-B=

Information About L3/1C/nD Including Match FR-DLCI

The L3/1C/nD feature provides a mechanism whereby a physical interface is provided to a single customer (1C) and multiple Frame Relay DLCIs (nD) are provisioned for that customer. Each DLCI supports a logically separate service at Layer 3 (L3). The aggregate bandwidth of all DLCIs can be a subrate of the physical interface. A single Modular Quality of Service Command line interface (MQC) policy can be applied at the physical interface level rather than at each DLCI level to shape the aggregate rate and enforce the service policy, but still maintain policing or shaping behavior appropriate to the class of traffic. Quality of Service (QoS) features can be applied to the inbound and outbound directions that include an enhanced **match fr-dlci** class-map configuration command.

How to Implement L3/1C/nD Including Match FR-DLCI

This section contains the following procedures:

- [“Configuring Class Maps” section on page 2](#) (required)
- [“Configuring and Attaching Policy Maps to a Main Interface” section on page 4](#) (required)

Configuring Class Maps

An implementation of the L3/1C/nD feature may require configuring multiple class maps. To configure class maps, complete the following procedure.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **class-map** [**match-all** | **match-any**] *class-map-name*
4. **match ip precedence** *number*
5. **match fr-dlci** *dlci-number* [- *dlci-number*]
6. **exit**
7. Repeat Steps 3 through 5 for each class that you want to create.
8. **exit**
9. **show class-map**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: Router# configure terminal	Enters global configuration mode.
Step 3	class-map [match-all match-any] <i>class-map-name</i> Example: Router(config)# class-map match-all prec1	Specifies the name of the class map to be created and enters class-map configuration mode. <ul style="list-style-type: none"> • Enter the class map name. <p>If the match-all or match-any keyword is not specified, traffic must match all the match criteria to be classified as part of the traffic class.</p>
Step 4	match ip precedence <i>number</i> Example: Router#(config-cmap)# match ip precedence 1	Configures the class map created above to match traffic based on the IP precedence number or the packet.
Step 5	match fr-dlci <i>dlci-number</i> [- <i>dlci-number</i>] Example: Router#(config-cmap)# match fr-dlci 17-19	Configures the class map created above to match traffic based on the Frame Relay DLCI number associated with the packet. Enter the DLCI numbers or DLCI ranges. Enter as many DLCI numbers, DLCI ranges, or both as needed.
Step 6	exit Example: Router#(config-cmap)# exit	(Optional) Exits class-map configuration mode.

	Command or Action	Purpose
Step 7	Repeat Steps 3 through 5 for each class that you want to create.	
Step 8	<code>show class-map</code> Router# <code>show class-map</code>	Display all class maps and their match criteria.

Configuring and Attaching Policy Maps to a Main Interface

After a policy map is created, the next step is to attach the policy map to an interface. Policy maps can be attached to either the input or output direction of the interface.

To attach the policy map to an interface, perform the following steps:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **policy-map** *policy-map-name*
4. **class** *class-name*
5. **shape average** **20000000**
6. **service-policy** *policy-map-name*
7. **exit**
8. **exit**
9. **interface serial0**
10. **encapsulation** {**frame-relay** | **hdlc** | **ppp**}
11. **service-policy** {**history** | **input** | **output**} *policy-map-name*
12. **exit**
13. **show running-config interface serial0**

DETAILED STEPS

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

	Command or Action	Purpose
Step 3	<code>policy-map <i>policy-map-name</i></code> Example: Router(config)# <code>policy-map parent</code>	Specifies the name of the policy map to be created or modified. Enters policy-map configuration mode.
Step 4	<code>class <i>class-map-name</i></code> Example: Router(config-pmap)# <code>class class-default</code>	Specifies a class map name. Enters policy-map class configuration mode.
Step 5	<code>shape average</code> Example: Router(config-pmap-c)# <code>shape average 20000000</code>	Specifies the traffic-shaping method for the class being configured.
Step 6	<code>service-policy <i>policy-map-name</i></code> Example: Router(config-pmap-c)# <code>service-policy child</code>	Specifies the name of a policy map to be nested within the one being configured.
Step 7	<code>exit</code> Example: Router#(config-pmap-c)# <code>exit</code>	(Optional) Exits policy-map class configuration mode.
Step 8	<code>exit</code> Example: Router#(config-pmap)# <code>exit</code>	(Optional) Exits policy-map configuration mode.
Step 9	<code>interface serial0</code> Example: Router(config)# <code>interface serial0</code>	Configures an interface (or subinterface) type and enters interface configuration mode. <ul style="list-style-type: none"> • Enter the interface type number.
Step 10	<code>encapsulation {frame-relay hdlc ppp}</code> Example: Router(config-inf)# <code>encapsulation frame-relay</code>	Specifies the level 2 encapsulation method.

	Command or Action	Purpose
Step 11	<pre>service-policy {input output} policy-map-name</pre> <p>Example: Router(config-inf)# service-policy output parent</p>	<p>Specifies the name of the policy map to be attached to the input or output direction of the interface.</p> <p>Note Policy maps can be configured on ingress or egress routers. They can also be attached in the input or output direction of an interface. The direction (input or output) and the router (ingress or egress) to which the policy map should be attached varies according your network configuration. When using the service-policy command to attach the policy map to an interface, be sure to choose the router and the interface direction that are appropriate for your network configuration.</p> <ul style="list-style-type: none"> • Enter the policy map name.
Step 12	<pre>exit</pre> <p>Example: Router(config-inf)# exit</p>	<p>(Optional) Exits interface configuration mode.</p>
Step 13	<pre>show running-config interface serial0</pre> <p>Example: Router# show running-config interface serial0</p>	<p>(Optional) Displays parameters and the current policies attached to the specified interface.</p> <ul style="list-style-type: none"> • Use this command to verify the configuration.

Restrictions

- If an L3/1C/nD policy is applied to a main interface, any policies applied to any subinterfaces associated with the main interface are disallowed.
- If no policy is configured on the main interface, policies can be applied to subinterfaces.
- If a hierarchical policy map is applied to a Frame Relay Main interface, only a single class with portshaping is supported (class-default). No other classes can be configured as part of the hierarchical policy.
- The legacy **rate-limit** interface configuration command cannot be applied to a subinterface if an L3/1C/nD service policy is applied to the main interface.
- No **match fr-dlci** support exists for extended DLCI identifiers.
- A policy attached to the main interface is associated (or shared) with all the corresponding subinterfaces.
- Policies attached to subinterfaces are not associated or shared with the main interface. No statistics of individual classes under the main interface policy associated to the subinterfaces are provided.
- The **match protocol** class-map configuration command is not supported.

Configuration Examples for L3/1C/nD Including Match FR-DLCI

**Note**

Better performance can be derived by using contiguous DLCI numbers in class maps.

In the following example, a hierarchical policy map named “parent” calls a policy map named “child.” The policy map “child” defines three service classes that filter traffic by IP precedence on Frame Relay DLCIs configured on the subinterfaces. The policy map “parent” is applied to the main interface.

Creating the Classes

```
Router# configure terminal
Router(config)# class-map match-all prec0
Router(config-cmap)# match ip precedence 0
Router(config-cmap)# match fr-dlci 16
Router#(config-cmap)# exit
```

```
Router(config)# class-map match-all prec1
Router#(config-cmap)# match ip precedence 1
Router#(config-cmap)# match fr-dlci 17-19
Router#(config-cmap)# exit
```

```
Router(config)# class-map match-all prec2
Router(config-cmap)# match ip precedence 2
Router(config-cmap)# match fr-dlci 20
Router#(config-cmap)# exit
```

Creating the Policy Maps

```
Router(config)# policy-map parent
Router(config-pmap)# class class-default
Router(config-pmap-c)# shape average 20000000
Router(config-pmap-c)# service-policy child
Router#(config-pmap-c)# exit
Router#(config-pmap)# exit
```

```
Router(config)# policy-map child
Router(config-pmap)# class prec0
Router(config-pmap-c)# shape average 4000000
Router(config-pmap-c)# queue-limit 1000 packets
Router(config-pmap-c)# exit
```

```
Router(config-pmap)# class prec1
Router(config-pmap-c)# bandwidth 4000
Router(config-pmap-c)# random-detect
Router(config-pmap-c)# random-detect precedence 1 1000 packets 2000 packets 1
Router(config-pmap-c)# exit
```

```
Router(config-pmap)# class prec2
Router(config-pmap-c)# shape average percent 20
Router(config-pmap-c)# exit
Router(config-pmap)# exit
```

Configuring the Interface and Subinterfaces

```
Router(config)# interface serial0
Router(config-inf)# encapsulation frame-relay IETF
Router(config-inf)# service-policy output parent
Router(config-inf)# exit
```

```
Router(config)# interface Serial0.1 point-to-point
```

```

Router(config-inf)# description Intranet Service
Router(config-inf)# frame-relay interface-dlci 16
Router(config-inf)# exit

Router(config)# interface Serial0.2 point-to-point
Router(config-inf)# description Internet Service
Router(config-inf)# frame-relay interface-dlci 17
Router(config-inf)# exit

Router(config)# interface Serial0.3 point-to-point
Router(config-inf)# description Internet Service
Router(config-inf)# frame-relay interface-dlci 18
Router(config-inf)# exit

Router(config)# interface Serial0.4 point-to-point
Router(config-inf)# description Internet Service
Router(config-inf)# frame-relay interface-dlci 19
Router(config-inf)# exit

Router(config)# interface Serial0.5 point-to-point
Router(config-inf)# description Managed VoIP Service
Router(config-inf)# frame-relay interface-dlci 20
Router(config-inf)# exit
Router(config)# exit

```

Verifying the Configuration

```

Router# show run interface serial0
Building configuration...
Current configuration : 156 bytes
!
interface serial0
no ip address
no ip directed-broadcast
encapsulation frame-relay
service-policy output parent
end

Router# show running-config interface serial0.1
Building configuration...
Current configuration : 156 bytes
!
interface serial0.1 point-to-point
ip address 192.168.14.1 255.255.255.0
no ip directed-broadcast
frame-relay interface-dlci 16
end

Router# show running-config interface serial0.2
Building configuration...
Current configuration : 140 bytes
!
interface serial0.2 point-to-point
ip address 192.168.18.1 255.255.255.0
no ip directed-broadcast

frame-relay interface-dlci 20
end

```


L3/1C/nD Service Provider Configuration Example 1

```

class-map match-all real-time
  match fr-dlci 100
  match ip dscp 46
  match access-group <acl>
class-map match-any bursty-low
  match ip dscp 18 20
  match access-group <acl>
class-map match-any bursty-high
  match ip dscp 26 28
  match access-group <acl>
class-map match-all best-effort
  match fr-dlci 101
  match ip dscp 0
  match access-group <acl>
policy-map parent-out
class class-default
  shape average percent <%> <ms> ms
  service-policy child
policy-map child
class real-time
  priority
  police cir percent <%> [bc <ms> ms] /* using shaped rate */
class bursty-high
  bandwidth percent <%> /* using shaped rate */
  random-detect [precedence-based | dscp-based | discard-class-based]
  random-detect {precedence | dscp | discard-class} <num> <min_th> ms <max_th> ms [mpd]
/* using shaped rate */
  police cir percent <%> [bc <ms> ms] /* using shaped rate */
class bursty-low
  bandwidth percent <%>
  random-detect [precedence-based | dscp-based | discard-class-based]
  random-detect {precedence | dscp | discard-class} <num> <min_th> ms <max_th> ms [mpd]
/* using shaped rate */
  police cir percent <%> [bc <ms> ms]
class class-default /* best effort */
  bandwidth percent <%>
  random-detect [precedence-based | dscp-based | discard-class-based]
  random-detect {precedence | dscp | discard-class} <num> <min_th> ms <max_th> ms [mpd]
/* using shaped rate */
  set ip dscp 0

```

L3/1C/nD Service Provider Configuration Example 2

```

class-map match-all real-time
  match fr-dlci 100
  match ip dscp 46
  match qos-group <x>
class-map match-any bursty-low
  match ip dscp 18 20
  match qos-group <x>
class-map match-any bursty-high
  match ip dscp 26 28
  match qos-group <x>
class-map match-all best-effort
  match fr-dlci 101
  match ip dscp 0
  match qos-group <x>
policy-map parent-out
class class-default

```

```

    shape average percent <%> <ms> ms
    service-policy child
policy-map child
class real-time
priority
police cir percent <%> [bc <ms> ms] /* using shaped rate */
class bursty-high
bandwidth percent <%>
random-detect [precedence-based | dscp-based | discard-class-based]
random-detect {precedence | dscp | discard-class} <num> <min_th> ms <max_th> ms [mpd] /*
using shaped rate */
class bursty-low
bandwidth percent <%>
random-detect [precedence-based | dscp-based | discard-class-based]
random-detect {precedence | dscp | discard-class} <num> <min_th> ms <max_th> ms [mpd] /*
using shaped rate */
class class-default /* best effort */
bandwidth percent <%>
random-detect [precedence-based | dscp-based | discard-class-based]
random-detect {precedence | dscp | discard-class} <num> <min_th> ms <max_th> ms [mpd] /*
using shaped rate */
interface POS3/0
encapsulation frame-relay
service-policy output parent-out
service-policy input input-policer
end
interface POS3/0.100 point-to-point
frame-relay interface-dlci 100
description e.g. VoIP VPN
ip vrf forwarding voip-vpn
end
interface POS3/0.101 point-to-point
frame-relay interface-dlci 101
description e.g. Internet service
end
interface POS3/0.102 point-to-point
frame-relay interface-dlci 102
description e.g. Intranet VPN
ip vrf forwarding intra-vpn
end
end

```

Additional References

The following sections provide references related to QoS: Enhancements to Single QoS Policy Definition for a Physical Interface (L3/1C/nD) Including Match FR-DLCI.

Related Documents

Related Topic	Document Title
Information on the extended match fr-dlci command	<i>Packet Classification Using the Frame Relay DLCI Number</i>
Modular QoS Command-Line Interface (CLI) (MQC)	<i>Cisco IOS Quality of Service Solutions Configuration Guide</i>
Information about attaching policy maps to interfaces	<i>Cisco IOS Quality of Service Solutions Configuration Guide</i>
Information about attaching policy maps to Frame Relay DLCIs	<i>Cisco IOS Wide-Area Networking Configuration Guide</i>
Additional match criteria that can be used for packet classification	<i>Cisco IOS Quality of Service Solutions Configuration Guide</i>
Frame Relay configuration information and information about DLCIs	<i>Cisco IOS Wide-Area Networking Configuration Guide</i>
Frame Relay commands: complete command syntax, command modes, command history, defaults, usage guidelines, and examples	<i>Cisco IOS Wide-Area Networking Command Reference, Release 12.3T</i>

Standards

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

MIBs

MIBs	MIBs Link
<ul style="list-style-type: none"> CISCO-CLASS-BASED-QOS-MIB CISCO-CLASS-BASED-QOS-CAPABILITY-MIB 	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

RFCs

RFCs	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
Technical Assistance Center (TAC) home page, containing 30,000 pages of searchable technical content, including links to products, technologies, solutions, technical tips, and tools. Registered Cisco.com users can log in from this page to access even more content.	http://www.cisco.com/public/support/tac/home.shtml

Command Reference

This section documents modified commands. All other commands used with this feature are documented in the Cisco IOS Release 12.3 command reference publications.

- [match fr-dlci](#)
- [show class-map](#)
- [show policy-map interface](#)

match fr-dlci

To specify the Frame Relay data-link connection identifier (DLCI) number as a match criterion in a class map, use the **match fr-dlci** command in class-map configuration mode. To remove a previously specified DLCI number as a match criterion, use the **no** form of this command.

match fr-dlci *dlci-number* [- *dlci-number*]

no match fr-dlci *dlci-number* [- *dlci-number*]

Syntax Description		
	<i>dlci-number</i>	DLCI number associated with the packet. DLCI numbers can be in the range of 16 to 1007.
	-	(Optional) Indicates that a range of DLCI numbers will be specified.
	<i>dlci-number</i>	(Optional) Specifies DLCI number at the end of the specified range.

Defaults No default behavior or values

Command Modes Class-map configuration

Command History	Release	Modification
	12.2(13)T	This command was introduced.
	12.0(26)S	This command was integrated into Cisco IOS Release 12.0(26)S and modified to include support for the Cisco 7200 and 7500 series routers.
	12.0(28)S	This command was modified to allow specifying a range of DLCI numbers as match criteria.

Usage Guidelines This match criterion can be used in main interfaces and point-to-multipoint subinterfaces in Frame Relay networks, and it can also be used in hierarchical policy maps.

Enter as many individual DLCI numbers or DLCI ranges as needed. Individual DLCI and DLCI ranges can be used together when configuring this command.

Examples In the following example a class map called “class1” has been created; and the Frame Relay DLCI numbers 233, 510 to 516, 600, 612 to 615 and 700 have been specified as match criteria. Packets matching this criteria are placed in class1.

```
Router# configure terminal
Router(config)# class-map class1
Router(config-cmap)# match fr-dlci 233 510-516 600 612-615 700
Router(config-cmap)# end
```

■ match fr-dlci

Related Commands	Command	Description
	show class-map	Displays all class maps and their matching criteria.
	show policy-map interface	Displays the packet statistics of all classes that are configured for all service policies either on the specified interface or subinterface or on a specific PVC on the interface.

show class-map

To display all class maps and their matching criteria, use the **show class-map** command in EXEC mode.

show class-map [*class-map-name*]

Syntax Description	<i>class-map-name</i>	(Optional) Name of the class map. The class map name can be a maximum of 40 alphanumeric characters.
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Defaults	No default behavior or values
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Command Modes	EXEC
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Command History	Release	Modification
	12.0(5)T	This command was introduced.
	12.2(13)T	This command was modified to display the Frame Relay data-link connection identified (DLCI) number as a criterion for matching traffic inside a class map.
	12.0(26)S	This command was integrated into Cisco IOS Release 12.0(26)S and modified to include support for the Cisco 7200 and 7500 Series routers.
	12.0(28)S	This command was modified to display a range of Frame Relay DLCI numbers using match criteria.

Usage Guidelines	You can use the show class-map command to display all class maps and their matching criteria. If you enter the optional <i>class-map-name</i> argument, the specified class map and its matching criteria are displayed.
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Examples	In the following example, a class map called “c1” has been defined, and Frame Relay DLCI numbers 311, 355, 550 to 570, 600, and 612 to 650 have been specified as match criteria:
-----------------	---

```
Router# show class-map

class map match-all c1
  match fr-dlci 311 355 550-570 600 612-650
```

Table 1 describes the significant fields shown in the display.

Table 1 *show class-map Field Descriptions*

Field	Description
class-map	Class of traffic being displayed. Output is displayed for each configured class map in the policy. The choice for implementing class matches (for example, match-all or match-any) can also appear next to the traffic class.
match	Match criteria specified for the class map. Choices include criteria such as the Frame Relay DLCI numbers and ranges, Layer 3 packet length, IP precedence, IP differentiated services code point (DSCP) value, Multiprotocol Label Switching (MPLS) experimental value, access groups, and quality of service (QoS) groups.

Related Commands

Command	Description
class-map	Creates a class map to be used for matching packets to a specified class.
match fr-dlci	Specifies the Frame Relay DLCI number as a match criterion in a class map.
show policy-map interface	Displays the packet statistics of all classes that are configured for all service policies either on the specified interface or subinterface or on a specific PVC on the interface.

show policy-map interface

To display the packet statistics of all classes that are configured for all service policies either on the specified interface or subinterface or on a specific permanent virtual circuit (PVC) on the interface, use the **show policy-map interface** command in EXEC mode.

show policy-map interface *interface-name* [**vc** [*vpi/*] *vci*] [**dlci** *dlci*] [**input** | **output**]

Syntax Description		
	<i>interface-name</i>	Name of the interface or subinterface whose policy configuration is to be displayed.
	vc	(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. 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.
	<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 atm vc-per-vp command. Typically, the 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.
	dlci	(Optional) Indicates a specific PVC for which policy configuration is displayed.
	<i>dlci</i>	(Optional) A specific data-link connection identifier (DLCI) number used on the interface. Policy configuration for the corresponding PVC is displayed when a DLCI is specified.
	input	(Optional) Indicates that the statistics for the attached input policy are displayed.
	output	(Optional) Indicates that the statistics for the attached output policy are displayed.

Defaults

The absence of both the forward slash (/) and a *vpi* value causes the *vpi* value to default to 0. If this value is omitted, information for all virtual circuits (VCs) on the specified ATM interface or subinterface is displayed.

Command Modes

EXEC

■ show policy-map interface

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 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 modified to display per-class accounting statistics.
	12.2(4)T	This command was modified for the Two-Rate Policer to display burst parameters and associated actions.
	12.2(8)T	The command was modified for the Policer Enhancement — Multiple Actions feature to display the multiple actions configured for packets conforming to, exceeding, or violating a specific rate.
	12.2(13)T	This command was modified to display the Frame Relay DLCI number as a criterion for matching traffic inside a class map.
	12.0(26)S	This command was modified to include support for the Cisco 7200 and 7500 series routers.
	12.0(28)S	This command was modified to display a range of Frame Relay DLCI numbers using match criteria.

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.

Examples

The following sample output of the **show policy-map interface** command displays the statistics for the Serial4/0/2 interface, to which a service policy called “p1” is attached. The Frame Relay DLCI numbers 311, 500 to 505, 600, and 610 to 630 have been specified as the match criteria for the traffic in the class called “c1”.

```
Router# show policy-map interface

Serial4/0/2

Service-policy input: p1

Class-map: c1 (match-all)
 45 packets, 4680 bytes
 5 minute offered rate 0 bps
 Match: fr-dlci 311 500-505 600 610-630

Class-map: class-default (match-any)
 0 packets, 0 bytes
 5 minute offered rate 0 bps, drop rate 0 bps
 Match: any
 0 packets, 0 bytes
 5 minute rate 0 bps
```

Table 2 describes the significant fields shown in the display.

Table 2 *show policy-map interface Field Descriptions*

Field	Description
Service-policy input	Name of the input service policy applied to the specified interface or VC.
Class-map	Class of traffic being displayed. Statistics are displayed for each configured class in the policy. The choice for implementing class matches (for example, match-all or match-any) can also appear next to the traffic class.
packets and bytes	Number of packets (also shown in bytes) identified as belonging to the class of traffic being displayed.
offered rate	Rate, in kbps, of packets coming into the class.
drop rate	Rate, in kbps, at which packets are dropped from the class. The drop rate is calculated by subtracting the number of successfully transmitted packets from the offered rate.
Match	Match criteria specified and packet matching statistics for the class of traffic. Choices include criteria such as the Frame Relay DLCI number or range, Layer 3 packet length, IP precedence, IP differentiated services code point (DSCP) value, Multiprotocol Label Switching (MPLS) experimental (EXP) value, access groups, and quality of service (QoS) groups.

Related Commands

Command	Description
match fr-dlci	Specifies the Frame Relay DLCI number as a match criterion in a class map.
show class-map	Displays all class maps and their matching criteria.
show frame-relay pvc	Displays statistics about PVCs for Frame Relay interfaces.
show policy-map class	Displays the configuration for the specified class of the specified policy map.

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■ show policy-map interface