

Configuring MQC Support for IP Sessions

The MQC Support for IP Sessions feature provides modular quality of service (QoS) command-line interface (CLI) provisioning on Cisco Intelligent Services Gateway (ISG) IP sessions. It makes the full set of modular QoS CLI (MQC) syntax available for the sessions, whether they are configured locally or downloaded from a remote authentication, authorization, and accounting (AAA) server.

- Restrictions for MQC Support for IP Sessions, on page 1
- Information About MQC Support for IP Sessions, on page 2
- How to Configure MQC Support for IP Sessions, on page 3
- Configuration Examples for MQC Support for IP Sessions, on page 4
- Additional References, on page 5
- Feature Information for MQC Support for IP Sessions, on page 6

Restrictions for MQC Support for IP Sessions

General Restrictions

- Creation of IP sessions over PPP sessions is not supported.

Note This document uses the generic term PPP to cover all protocol types. Examples of protocols include PPP over Ethernet (PPPoE) and PPP over ATM (PPPoA).

- Only the marking and policing features work in upstream traffic. All queuing, policing, and marking MQC features work in downstream traffic.
- Class-level queues are allowed only at the child level in session policy maps. All other levels must have a single-level policy and use the default queues.
- Because IP sessions cannot be load-balanced, load balancing is not supported on any system.

Note Restrictions that are applicable to PPPoGEC with per-session QoS are also applicable to IPoGEC with per-session QoS. For more information, see PPPoGEC: Per Session QoS chapter of the *QoS Modular QoS Command-Line Interface Configuration Guide, Cisco IOS XE Release 3S (Cisco ASR 1000)*.

Information About MQC Support for IP Sessions

ISG Policers

You can create configurations to work on an IP session with multiple traffic classes, and with one or more of the traffic classes acting as a policer. ISG policer is retained for backward compatibility and is fully supported if you do not want to migrate to MQC now. Note that ISG policing is supported on traffic classes, but MQC is not supported for traffic classes.

An ISG session can be configured with the ISG policer (also called dynamic rate limiting) or MQC, but not both. You should either use the ISG policer or migrate fully to MQC. If you do not migrate fully from ISG policer to MQC, a misconfiguration will occur.

Precedence Order in Policy Maps

A policy map can be attached to one or more interfaces to specify a service policy. Configuration sources combined with context determines which QoS policy map is applied. The three configuration sources and their general order of precedence are as follows:

1. Per-user (per-subscriber) configuration
2. Service profile
3. Interface configuration

This order of precedence shows the general condition, that is, service profiles and per-user configurations have higher priority than interface configurations.

However, a change of authorization (CoA) per-user push replaces the current per-user configuration for any overlapping or common feature. Similarly, when a new service logs in, its configuration replaces any overlapping feature, from previously configured service profiles, that is not already in effect from a per-user configuration source

If the new service then logs off, the previously existing configuration is reapplied if no higher-precedence configuration source is in effect.

Given those precedence qualifications, the policy map is determined as follows:

- If there is no policy map on the session, the incoming policy map is not applied.
- If an existing policy map is configured from a higher priority source than an incoming one, the incoming policy map is not applied.
- If an existing policy map is configured from a lower priority source than an incoming one, the incoming policy map replaces it.

How to Configure MQC Support for IP Sessions

Configuring Local Subscriber Profile for MQC Support

To configure a QoS policy map to define a service policy, perform the following steps.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **policy-map type service** *service-name*
4. **service-policy** *policy-name*

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**policy-map type service** *service-name* **Example:** `Router# (config)# policy-map type service service1`	Enters policy-map configuration mode. Specifies the policy-map name and its service configuration.
Step 4	**service-policy** *policy-name* **Example:** `Router# (config-service-policymap)# service-policy service-policy1`	Configures the service policy.

What to do next

For information about configuring a local service profile, see the section “Configuring Per-Session QoS Using the ISG Framework” in the "Configuring ISG Control Policies" chapter in the *Intelligent Services Gateway Configuration Guide*.

Configuring ISG QoS for IP Sessions

To associate a previously configured traffic class with a policy map, perform these steps:

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **policy-map type service** *service-name*
4. **class type traffic** *class-name*

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Router> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Router# configure terminal`	Enters global configuration mode.
Step 3	**policy-map type service** *service-name* **Example:** `Router# (config)# policy-map type service`	Enters policy-map configuration mode. Specifies the policy-map name and its service configuration.
Step 4	**class type traffic** *class-name* **Example:** `Router# (config-service-policymap)# class type traffic`	Associates a previously configured traffic class with the policy map.

Configuration Examples for MQC Support for IP Sessions

QoS Policy-Map Service Profile and Command Policy-Map Configurations Example

The following example shows how to configure a QoS policy map, a service profile, and a command policy map. The command policy map is then configured onto interface GigabitEthernet 0/0/0 with the **service-policy** keyword.

```
Router# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)# class-map match-any EF-customer
Router(config-cmap)# match access-group name CUSTOMER-EF
Router(config-cmap)# class-map match-any EF-WAN
Router(config-cmap)# match qos-group 6
Router(config-cmap)# policy-map PREMIUM_MARK_IN
Router(config-pmap)# class EF-customer
Router(config-pmap-c)# set cos 6
Router(config-pmap-c)# set dscp ef
Router(config-pmap-c)# set qos-group 6
Router(config-pmap-c)# class class-default
Router(config-pmap-c)# set dscp af11
Router(config-pmap-c)# set qos-group 1
Router(config-pmap-c)# set cos 1
Router(config-pmap-c)# policy-map PREMIUM_UB_OUT
Router(config-pmap)# class EF-WAN
Router(config-pmap-c)# police cir 200000000
Router(config-pmap-c-police)# priority
Router(config-pmap-c)# class class-default
Router(config-pmap-c)# policy-map type service PREMIUM_SERVICE
Router(config-service-policymap)# service-policy input PREMIUM_MARK_IN
Router(config-service-policymap)# service-policy output PREMIUM_UB_OUT
Router(config-service-policymap)# policy-map type control INT
Router(config-control-policymap)# class type control always event account-logon
Router(config-control-policymap-class-control)# 1 service-policy type service name
PREMIUM_SERVICE
Router(config-control-policymap-class-control)# interface GigabitEthernet0/0/0
Router(config-if)# ip address 10.0.0.1 255.255.255.0
Router(config-if)# pppoe enable group global
Router(config-if)# service-policy type control INT
```

Additional References

Related Documents

Related Topic	Document Title
How to configure ISG control policies	"Configuring ISG Control Policies module in this guide
How to configure QoS policies using the MQC	*Cisco IOS Quality of Service Solutions Configuration Guide*
ISG commands	Cisco IOS Intelligent Services Gateway Command Reference

MIBs

MIB	MIBs Link
No new or modified MIBs are supported by this feature.	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

Technical Assistance

Description	Link
The Cisco Support website provides extensive online resources, including documentation and tools for troubleshooting and resolving technical issues with Cisco products and technologies. To receive security and technical information about your products, you can subscribe to various services, such as the Product Alert Tool (accessed from Field Notices), the Cisco Technical Services Newsletter, and Really Simple Syndication (RSS) Feeds. Access to most tools on the Cisco Support website requires a Cisco.com user ID and password.	http://www.cisco.com/techsupport

Feature Information for MQC Support for IP Sessions

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 www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1: Feature Information for MQC Support for IP Sessions

Feature Name	Releases	Feature Information
MQC Support for IP Sessions	Cisco IOS XE Release 2.2	Provides MQC provisioning on Cisco ISG IP sessions. The following commands were introduced or modified: **policy-map** and **service-policy**.