

PPPoGEC Per Session QoS

The PPPoGEC Per Session QoS feature supports the configuration of specific QoS policies on PPPoE sessions on the PPP Termination and Aggregation (PTA), L2TP Access Concentrator (LAC), or L2TP Network Server (LNS) devices in a PPPoE /L2TP environment (broadband deployments). PPPoE sessions with Etherchannel Active/Standby functionality is also supported on Cisco ASR 1000 Series Routers acting as PTA, LAC, or LNS devices in a PPPoE/L2TP environment.

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Information About PPPoGEC Per Session QoS

Restrictions for PPPoGEC Per Session QoS

- QoS policy-maps cannot be configured on member links, a port-channel main interface, or a port-channel subinterface that is associated with the transmit path for PPPoE sessions with QoS.

PPPoGEC Sessions with Active/Standby Etherchannel

PPPoE sessions with active/standby Etherchannel support one-level or two-level hierarchical output policy-maps (with queueing settings) also support flat input policy-maps (without queueing settings). The policy-maps are configured using previously defined class maps. The traffic classes must be configured using the **class-map** command.

The output hierarchical policy-map and the input policy-map can be associated with the PPPoE sessions in one of the following ways:

- Configuration settings on a virtual template interface
- Dynamic configuration settings via external tools configured in the authentication, authorization, and accounting (AAA) model (for example, a radius server). For more information, see the *Intelligent Services Gateway Configuration Guide* and the *Cisco ASR 1000 Series Aggregation Services Routers Software Configuration Guide*.

The port-channel main interface must contain the following commands that create an active/standby scenario. Such a configuration will allow only a single interface to be active and forwarding traffic at any time.

- **interface port-channel1**
- **lacp fast-switchover**
- **lacp max-bundle 1**

How to Configure PPPoGEC Per Session QoS

Configuring QoS on PPPoE Sessions with Etherchannel Active/Standby

To configure QoS on PPPoE sessions, you must specify the virtual template to use for PPP sessions on the Etherchannel interface, specify the name of the service policy that is applied to input traffic, and specify the output traffic. This configuration shows how to associate the output hierarchical policy-map and the input policy-map with the PPPoE sessions by defining a virtual template interface.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface virtual-template** *number*
4. **service-policy output** *policy-map-name*
5. **service-policy input** *policy-map-name*
6. **end**

DETAILED STEPS

Procedure

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**interface virtual-template** *number* **Example:** `Device(config)# interface virtual-template 99`	Creates a virtual template interface that can be configured and applied dynamically in creating virtual access interfaces, and enters interface configuration mode. • Specify the virtual template to use for PPP sessions on the Etherchannel interface.

	Command or Action	Purpose
Step 4	**service-policy output** *policy-map-name* **Example:** `Device(config-if)# service-policy output session_parent`	Specifies the name of the service policy that is applied to output traffic.
Step 5	**service-policy input** *policy-map-name* **Example:** `Device(config-if)# service-policy input session_ingress`	Specifies the name of the service policy that is applied to input traffic.
Step 6	**end** **Example:** `Device(config-if)# end`	Exits interface configuration mode and returns to privileged EXEC mode.

Configuration Examples for PPPoGEC Per Session QoS

Example: QoS on PPPoE Sessions with Etherchannel Active/Standby

The following example shows the session_parent hierarchical policy-map and the session_ingress policy-map. These policy-maps are attached to a virtual template interface using the **service-policy** command.

```
policy-map session_child
  class voice
    priority level 1
    police cir 256000
    set precedence 5
  class web
    bandwidth remaining ratio 10
  class p2p
    bandwidth remaining ratio 1
    set precedence 1
  class class-default
    set precedence 2
    bandwidth remaining ratio 5
!
policy-map session_parent
  class class-default
    bandwidth remaining ratio 1
    shape average 25000000
    service-policy session_child
!
policy-map session_ingress
  class voip
    police cir 256000
  class p2p
    police cir 256000 pir 512000
      conform-action set-prec-transmit 1
```

```
      exceed  set-prec-transmit 0
      violate drop
  class class-default
    police cir 5000000
      conform-action set-prec-transmit 2
      exceed  drop
!
interface Virtual-template 99
 service-policy output session_parent
 service-policy input session_ingress
```

Additional References for PPPoGEC Per Session QoS

Related Documents

Related Topic	Document Title
Cisco IOS commands	*Cisco IOS Master Command List, All Releases*
QoS commands: complete command syntax, command modes, command history, defaults, usage guidelines, and examples	*Cisco IOS Quality of Service Solutions Command Reference*
Modular Quality of Service Command-Line Interface	"Applying QoS Features Using the MQC" module
Configuring RADIUS-based policing	*Intelligent Services Gateway Configuration Guide*
CISCO ASR 1000 Series software configuration	*Cisco ASR 1000 Series Aggregation Services Routers Software Configuration Guide*

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.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for PPPoGEC Per Session QoS

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://cfnng.cisco.com/. An account on Cisco.com is not required.

Table 1: Feature Information for PPPoGEC Per Session QoS

Feature Name	Releases	Feature Information
PPPoGEC: Per Session QoS	Cisco IOS XE Release 3.7S	This feature supports the configuration of specific QoS policies on PPPoE sessions on the PTA, LAC, and LNS for broadband deployments. This feature was introduced on Cisco ASR 1000 Series Routers. In Cisco IOS XE Release 3.8S, support was added for per-session QoS in 1:1 mode for PPPoGEC. Also, support for Point-to-Point Protocol (PPP) and IP over PPPoE was also added for PPPoGEC. In Cisco IOS XE Release 3.9S, support was added for IP session over GEC in 1:1 mode.