Configuring QoS on Interfaces

This chapter contains the following sections:

Information About Interface QoS

Trust Boundaries

The trust boundary is enforced by the incoming interface as follows:

- By default, all Ethernet interfaces are trusted interfaces.The 802.1p CoS and DSCP are preserved unless the marking is configured. There is no default CoS to queue and DSCP to queue mapping. You can define and apply a policy to create these mappings. By default, without a user defined policy, all traffic is assigned to the default queue.

- Any packet that is not tagged with an 802.1p CoS value is classified into the default drop system class. If the untagged packet is sent over a trunk, it is tagged with the default untagged CoS value, which is zero.

- You can override the default untagged CoS value for an Ethernet interface or port channel.

After the system applies the untagged CoS value, QoS functions the same as for a packet that entered the system tagged with the CoS value.

Policy for Fibre Channel Interfaces

The egress queues are not configurable for native Fibre Channel interfaces. Two queues are available as follows:

- A strict priority queue to serve high-priority control traffic.

- A queue to serve all data traffic and low-priority control traffic.

Configuring Interface QoS

Configuring Untagged CoS

Any incoming packet not tagged with an 802.1p CoS value is assigned the default untagged CoS value of zero (which maps to the default Ethernet drop system class). You can override the default untagged CoS value for an Ethernet or EtherChannel interface.

Procedure

	Command or Action	**Purpose**
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface** {**ethernet** [*chassis/*]*slot*/*port* | **port-channel** *channel-number*}	Enters the configuration mode for the specified interface or port channel.
Step 3	switch(config-if)# **untagged cos** *cos-value*	Configures the untagged CoS value. Values can be from 1 to 7.

Example

The following example shows how to set the CoS value to 4 for untagged frames received on an interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/2
switch(config-if)# untagged cos 4
```

Configuring an Interface Service Policy

An input qos policy is a service policy applied to incoming traffic on an Ethernet interface for classification. For type queuing, the output policy is applied to all outgoing traffic that matches the specified class.

Procedure

	Command or Action	**Purpose**
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface** {**ethernet** [*chassis/*]*slot*/*port* | **port-channel** *channel-number*}	Enters the configuration mode for the specified interface. **Note** The service policy on a port channel applies to all member interfaces.
Step 3	switch(config-if)# **service-policy input** *policy-name*	Applies the policy map to the interface.

	Command or Action	Purpose
		Note There is a restriction that system type qos policy cannot be the same as any the type qos policy applied to an interface or EtherChannel.

Example

This example shows how to apply a policy to an Ethernet interface:

```
switch# configure terminal

switch(config)# interface ethernet 1/1

switch(config-if)# service-policy type qos input policy1
```

Configuring a Service Policy for a Layer 3 Interface

You can configure a service policy for a Layer 3 interface.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface ethernet** *slot*/*port*	Enters the configuration mode for the specified interface.
Step 3	switch(config-if)# **no switchport**	Selects the Layer 3 interface.

Example

The following example shows how to attach a queuing policy map to a Layer 3 interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport
switch(config-if)# service-policy type queuing output my_output_q_policy
switch(config-if)#
```

The following example shows how to attach an input qos policy map to a Layer 3 interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# no switchport
switch(config-if)# service-policy type qos input my_input_qos_policy
switch(config-if)#
```

Changing the Bandwidth Allocated to Unicast and Multicast Traffic

You can change the bandwidth allocated to unicast and multicast traffic by assigning weighted round-robin (WRR) weights as a percentage of the interface data rate to the egress queues.

Procedure

	Command or Action	Purpose
Step 1	switch# **configure terminal**	Enters global configuration mode.
Step 2	switch(config)# **interface ethernet** *slot*/*port*	Enters configuration mode for the specified interface.
Step 3	switch(config-if)# **wrr unicast-bandwidth** percentage-value	Changes the bandwidth allocated to unicast and multicast traffic on traffic congestion. The bandwidth-value percentage ranges from 0 to 100 percent.

Example

This example shows how to attach a queuing policy map to a Layer 3 interface:

```
switch# configure terminal
switch(config)# interface ethernet 1/5
switch(config-if)# wrr unicast-bandwidth 75
switch(config-if)#
```

Verifying the Interface QoS Configuration

Use one of the following commands to verify the configuration:

Command	Purpose
show class-map	Displays the class maps defined on the switch.
show policy-map [*name*]	Displays the policy maps defined on the switch. Optionally, you can display the named policy only.
show policy-map interface [*interface number*]	Displays the policy map settings for an interface or all interfaces.
show queuing interface *[interface slot\port]*	Displays the queue configuration and statistics.
show interface flowcontrol [**module** *numbef*]	Displays the detailed listing of the flow control settings on all interfaces.
show interface [*interface slot/port*] **priority-flow-control** [**module** *number*]	Displays the priority flow control details for a specified interface.
show interface untagged-cos [**module** *number*]	Displays the untagged CoS values for all interfaces.

Command	Purpose
running-config ipqos	Displays information about the running configuration for QoS.
startup-config ipqos	Displays information about the startup configuration for QoS.