# QoS Configuration Commands

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# Chapter 1 QoS Configuration Commands

## 1.1 QoS Configuration Commands

QoS configuration commands include:

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### 1.1.1 cos default

#### Syntax

To configure the default COS value, run cos default cos.

**cos default** *cos*

**no cos default**

#### Parameters

| Parameters | Description |
|---|---|
| *cos* | The COS value ranges between 0 and 7. |

#### Default Value

The default COS value is 0.

### Usage Guidelines

This command is run in layer-2 interface configuration mode or in global configuration mode.

If this command is run in global configuration mode, default CoS in all ports are affected. If this command is run on a layer-2 interface, the CoS on this interface will be affected.

### Example

The following example shows how to set the CoS value of the untagged frame received by interface g0/1 to 4.

Switch_config#inter g0/1

Switch_config_g0/1#cos default 4

## 1.1.2 cos map

### Syntax

To set the CoS priority queues, use the cos map command.

**cos map** *quid cos1..cosn*

**no cos map**

### Parameters

| Parameters | Description |
|---|---|
| *quid* | Stands for the ID of the CoS priority queue, 1 to 8. |
| *cos1..cosn* | CoS value defined by IEEE802.1p, ranging between 0 and 7 |

### Default Value

| CoS Value | S Priority Queue |
|---|---|
| 0 | 1 |
| 1 | 2 |
| 2 | 3 |
| 3 | 4 |
| 4 | 5 |
| 5 | 6 |
| 6 | 7 |
| 7 | 8 |

### Usage Guidelines

This command is run in layer-2 interface configuration mode or in global configuration mode.

If this command is run in global configuration mode, CoS priority queues in all ports are affected. If this command is run on a layer-2 interface, the CoS priority queues on this interface will be affected.

### Example

The following example shows how to map CoS 0-2 to CoS priority queue 1 and CoS 3 to CoS priority queue 2.

Switch_config # cos map 1 0 1 2

Switch_config # cos map 2 3

## 1.1.3 dscp map

### Syntax

To set the CoS priority queues according to dscp, use the cos map command.

**dscp map** *word* { **cos** *cos-value* }

**no dscp map**

### Parameters

| Parameters | Description |
|---|---|
| *word* | Dscp range table, for instance, (1,3,5,7)，(1, 3-5,7)，(1-7). |
| cos cos-value | The priority cos of Dscp mapping, 0-7. |

### Default Value

None

### Usage Guidelines

This command is run in global configuration mode.

### Example

The following example shows how to map dscp 0-2 to Cos priority queue.

Switch_config#dscp map 0-2 cos 1

### 1.1.4 scheduler weight bandwidth

#### Syntax

To set the bandwidth of the CoS priority queue, run the following command.

**scheduler weight bandwidth** *weight1...weightn*

**no scheduler weight bandwidth**

#### Parameters

| Parameters | Description |
|---|---|
| *weight1…weight8* | Values of eight CoS priority queues WRR/WFQ, ranging between 0 and 127. |

#### Default Value

The weight value of each CoS priority queue is same. All weight values of eight CoS priority queues are 1.

#### Usage Guidelines

This command is run in layer-2 interface configuration mode or in global configuration mode.

If this command is run, the bandwidth of all priority queues on all interfaces are affected. Before the command is run, only the bandwidth of the priority queue will be affected. This command validates only when the queue schedule mode is set to WRR/WFQ. This command decides the bandwidth weight value of the CoS priority queue when the WRR/WFQ schedule policy is used.

The weight of the queue after the third queue can be configured to 0. Once the weight of a queue is configured to 0, the queue after that is compelled to 0, then the hybrid mode will be applied.

#### Example

The following example shows how to set the weight values of eight CoS priority queues to 1, 2, 3, 4, 5, 6, 7 and 8 respectively.

Switch_config # scheduler weight bandwidth 1 2 3 4 5 6 7 8

### 1.1.5 scheduler policy

#### Syntax

To set CoS priority queue debug policy, use the scheduler policy command.

**scheduler policy** { **sp** | **wrr | wfq | fcfs** }

**no scheduler policy**

### Parameters

| Parameters | Description |
|---|---|
| **sp** | Uses the SP schedule policy. |
| **wrr** | Uses the WRR schedule policy. |
| **wfq** | Uses the WFQ schedule policy. |
| **fcfs** | Uses the FCFS schedule policy. |

### Default Value

The SP schedule policy is used by default.

### Usage Guidelines

This command can be used in layer-2 interface configuration mode or in global configuration mode.

If this command is run, the port queue schedule policy on all interfaces are affected. Before the command is run, only the belonging port queue schedule policy will be affected. No fcfs command for the interface.

After this command is configured, the schedule mode of the interface is set to the designated value.

### Example

The following example shows how to send transmission schedule mode to WRR.

Switch_config # scheduler policy wrr

## 1.1.6 policy-map

### Syntax

To set the QoS policy map, run policy-map name.

**policy-map** *name*

**no policy-map** *name*

### Parameters

| Parameters | Description |
|---|---|
| *name* | Name of the QoS policy map, consisting of 1 to 20 characters. |

### Default Value

None

### Usage Guidelines

Global Configuration mode

After the command is entered, the system enters the QoS policy mapping configuration mode. In this mode, the following commands are used:

- **classify:** Used to set the QoS flow.
- **description**: Used to describe the QoS policy map.
- **exit**: Used to exit from the QoS policy mapping configuration mode.
- **no**: Used to cancel the previously-entered command.
- **action**: Used to define the QoS action.

### Example

The following example shows how to set the QoS policy map.

Switch_config # policy-map myqos

## 1.1.7 classify

### Syntax

To configurethe matchup data flow of the QoSpolicy map, run the following command. To return to the default setting, use the no form of this command.

**classify** {**any** | **cos** *cos* | **icos** *icos* | **vlan** *vlanid* | **ivlan** *ivlanid* | **ethernet-type** *ethernet-type* | **precedence** *precedence-value* | **dscp** *dscp-value* | **tos** *tos-value* | **diffserv** *diffserv-value* | **ip** *ip-access-list* | **ipv6** *ipv6-access-list* | **mac** *mac-access-list* }

**no classify** { **cos** | **icos** | **vlan** | **ivlan** | **ethernet-type** | **precedence** | **dscp** | **tos** | **diffserv** | **ip** | **ipv6** | **mac** }

| Parameters | Description |
|---|---|
| **any** | Matches up with any packet. |

| | |
|---|---|
| **cos** *cos* | Configures the matching COS value; the valid range is 0 to 7 |
| **icos** *icos* | Configures the matching interior tag COS value; the valid range is 0 to 7. |
| **vlan** *vlanid* | Configures the matching VLAN; the valid range is 1 to 4094 |
| **ivlan** *ivlanid* | Configures interior tag vlan id. 1-4094. |
| **ethernet-type** *ethernet-type* | Configures the packet type, 0x0600-0xFFFF |
| **precedence** *precedence-value* | The priority field in tos of ip packet (5-7 of tos), 0-7. |
| **dscp** *dscp-value* | Dscp field in tos of ip packet (2-7 of tos), 0~63. |
| **tos** *tos-value* | tos in the ip packet represents delay, throughput, reliability and cost field (1-4 of tos), 0~15. |
| **diffserv** *diffserv-value* | All tos field in Ip packet: 8, 0-255. |
| **ip** *ip-access-list* | Configures the name of the matched IP access list.. The name has 1 to -20 characters. |
| **ipv6** *ipv6-access-list* | Configures the name of the matched IPV6 access list. The name has 1 to 20 characters. |
| **mac** *mac-access-list* | Configures the name of the matched MAC access list. The name has 1 to 20 characters. |

## Default Value

Any packet is matched by default.

## Usage Guidelines

QoS policy map configuration mode

All data flows in a QoS policy map must have the same mask value. The port number in the IP access list must be a definite value, not a value range.

The IP access list and the MAC access list which are used to match up with the data flows can be configured no more than 16 regulations, or the configuration will fail. When the action in the regulation is permit, the regulation is used to differentiate the data flows; when the action in the regulation is deny, the regulation has no function.

When the QinQ mode is enabled, that is, when the dot1q-tunnel command is configured, the ivlan and icos commands need be configured when the vlan or the cos value of the source packet is matched.

## Example

Switch-policy-map#classify vlan 4

## 1.1.8 action

### Syntax

To configure the data flow policy of a QoS policy map, run the following commands.

**action**{**bandwidth** *max-band* | **cos** *cos* **| drop | dscp** *dscp-value* **| precedence** *precedence-value* **| forward | icos** *icos* **| ivlanID** { **add** *addivlanid* | *ivlanid*}**| monitor** *session-value* **| quequ** *quequ-value* **| redirect** *interface-id* **| stat-packet | stat-byte | vlanID** { **add** *addvlanid* | *vlanid*} **| copy-to-cpu**}

**no action** {**bandwidth | cos | drop | dscp | precedence | forward | | icos | ivlanID | monitor | quequ | redirect | stat-packet | stat-byte | vlanID | copy-to-cpu**}

### Parameters

| Parameters | Description |
|---|---|
| **bandwidth** *max-band* | Maximum bandwidth to a class, the range is 1 to 163840. Unit: 64Kbps. |
| **cos** *cos* | Sets the matched COS field to cos-value 0-7. |
| **drop** | Drops the matched packets. |
| **dscp** *dscp-value* | Sets the matched DSCP field to dscp-value 0~63. |
| **precedence** *precedence-value* | The priority field in tos of ip packet (5~7 of tos). 0-7. |
| **forward** | Conducts no operations to the matched packets. |
| **icos** *icos* | Sets the matched COS field to cos-value 0-7. |
| **ivlan** {**add** *ivlanid* **|** *ivlanid*} | Sets replacing or adding interior vlanid; the range is 1-4094. |
| **monitor** *session-value* | Sends the packets to monitor interface; the range is 1-4. |
| **quequ** *quequ-value* | Sets the queue mapping value 1-8. |
| **redirect** *interface-id* | Redirects the egress port of the matched flow. |
| **stat-packet** | Calculates the number of packets. |
| **stat-byte** | Calculates the number of bytes. |
| **vlanID** { **add** *vlanid* | *vlanid* } | Sets replacing or adding exterior vlanid; the range is 1-4094. |
| **copy-to-cpu** | Sets forwarding the packet to CPU. |

### Default Value

None

### Usage Guidelines

QoS policy map configuration mode

After enabling dot1q function, vlan and cos on the downlink port takes effect only when ivlan and icos are configured.

When Monitor is applied to the egress, an independent policymap must be configured. Otherwise, the result may turn to abnormal.

In igress direction, the action of vlan and ivlan conflicts with dscp, precedence, bandwidth, cir, mirror, stat or redirect. They cannot be configured simultaneously.

In igress direction, the action of cos and ivlan conflicts with dscp, precedence, bandwidth, cir, mirror, stat or redirect. They cannot be configured simultaneously.

In egress direction, the action of cos and ivlan conflicts with dscp, precedence, bandwidth, cir, mirror, stat or redirect. They cannot be configured simultaneously.

### Example

Switch-policy-map#action redirect g0/1

## 1.1.9 qos policy

### Syntax

To configure the QoS policy of a port, run the following command.

[**no**] **qos policy** *name* { **ingress**}

### Parameters

| Parameters | Description |
|---|---|
| *name* | Stands for the name of QoS policy mapping. |
| **ingress** | Functions on the ingress port. |

### Default Value

None

### Usage Guidelines

This command can be used in layer-2 interface configuration mode or in global configuration mode.

The flow of most actions in the igress direction can be correctly matched up when they are known unicasts.

### Example

The following example shows how to configure the pmap QoS policy on interface g0/1.

```
Switch_config#inter g0/1
Switch_config_g0/1# qos policy pmap ingress
```

## 1.1.10 show policy-map

### Syntax

To display all or some designated QoS policy maps, run the following command.

**show policy-map** {*policy-map-name* | **interface** [*interface-id*] | **global** }

### Parameters

| Parameters | Description |
|---|---|
| *policy-map-name* | Stands for the name of a QoS policy map. |
| **interface** [*interface-id*] | Stands for the policy of interface application |
| **global** | Stands for the policy of global configuration |

### Default Value

None

### Usage Guidelines

None

### Example

The following example shows how to display all QoS policy maps.

```
Switch_config#show policy-map
policy-map        1
    classify any
    action redirect g0/1
policy-map        11
    classify any
    action
Switch_config#
```

## 1.1.11 trust

### Syntax

To show how to set the trust mode, run the following command.

[**no**]**qos trust {** *cos* **|** *dscp* **|** *untrust* **}**

### Parameters

| Parameters | Description |
|---|---|
| *cos* | Stands for the trust mode. |
| *dscp* | The trust mode. |
| *untrust* | The untrust mode. |

### Default Value

None

### Usage Guidelines

The command is applicable in the global configuration mode.

### Example

The following example shows how to set the trust mode cos.

Switch_config#qos trust cos