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QoS policy commands

Traffic class commands

description

Use **description** to configure a description for a traffic class.

Use **undo description** to restore the default.

Syntax

description *text*

undo description

Default

No description is configured for a traffic class.

Views

Traffic class view

Predefined user roles

network-admin

Parameters

text: Specifies a description, a case-sensitive string of 1 to 127 characters.

Usage guidelines

If you execute this command multiple times, the most recent configuration takes effect.

Examples

Configure the description as **classifier** for traffic class **class1**.

```
<Sysname> system-view
[Sysname] traffic classifier class1
[Sysname-classifier-class1] description classifier
```

display traffic classifier

Use **display traffic classifier** to display traffic classes.

Syntax

display traffic classifier user-defined [*classifier-name*] [**slot** *slot-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

user-defined: Specifies user-defined traffic classes.

classifier-name: Specifies a traffic class by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a traffic class, this command displays all traffic classes.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify a member device, this command displays the traffic classes for the master device.

Examples

Display all user-defined traffic classes.

```
<Sysname> display traffic classifier user-defined

  User-defined classifier information:

   Classifier: 1 (ID 100)
     Operator: AND
     Rule(s) :
      If-match acl 2000

   Classifier: 2 (ID 101)
     Operator: AND
     Rule(s) :
      If-match protocol ipv6

   Classifier: 3 (ID 102)
     Operator: AND
     Rule(s) :
      -none-
```

Table 1 Command output

Field	Description
Classifier	Traffic class name and its match criteria.
Operator	Match operator you set for the traffic class. If the operator is AND, the traffic class matches the packets that match all its match criteria. If the operator is OR, the traffic class matches the packets that match any of its match criteria.
Rule(s)	Match criteria.

if-match

Use **if-match** to define a match criterion.

Use **undo if-match** to delete a match criterion.

Syntax

if-match *match-criteria*

undo if-match *match-criteria*

Default

No match criterion is configured.

Views

Traffic class view

Predefined user roles

network-admin

Parameters

match-criteria: Specifies a match criterion. Table 2 shows the available match criteria.

Table 2 Available match criteria

Option	Description
acl [**ipv6** | **mac**] { *acl-number* | **name** *acl-name* }	Matches an ACL. The value range for the *acl-number* argument is as follows: • 2000 to 3999 for IPv4 ACLs. • 2000 to 3999 for IPv6 ACLs. • 4000 to 4999 for Layer 2 MAC ACLs. The *acl-name* argument is a case-insensitive string of 1 to 63 characters, which must start with an English letter. To avoid confusion, make sure the argument is not **all**.
any	Matches all packets.
destination-mac *mac-address*	Matches a destination MAC address. This option takes effect only on Ethernet interfaces.
dscp *dscp-value*&<1-8>	Matches DSCP values. The *dscp-value*&<1-8> argument specifies a space-separated list of up to eight DSCP values. The value range for the *dscp-value* argument is 0 to 63 or keywords shown in Table 4.
protocol *protocol-name*	Matches a protocol. The *protocol-name* argument can be **ip** or **ipv6**.
service-dot1p *dot1p-value*&<1-8>	Matches 802.1p priority values in outer VLAN tags. The *dot1p-value*&<1-8> argument specifies a space-separated list of up to eight 802.1p priority values. The value range for the *dot1p-value* argument is 0 to 7.
service-vlan-id *vlan-id-list*	Matches VLAN IDs in outer VLAN tags. The *vlan-id-list* argument specifies a space-separated list of up to 10 VLAN items. Each item specifies a VLAN or a range of VLANs in the form of *vlan-id1* **to** *vlan-id2*. The value for *vlan-id2* must be greater than or equal to the value for *vlan-id1*. The value range for the *vlan-id* argument is 1 to 4094. You can use this option to match single-tagged packets.
source-mac *mac-address*	Matches a source MAC address. This option takes effect only on Ethernet interfaces.

Usage guidelines

In a traffic class with the logical OR operator, you can configure multiple **if match** commands for any of the available match criteria.

When you configure a match criterion that can have multiple values in one **if-match** command, follow these restrictions and guidelines:

- You can specify up to eight values for any of the following match criteria in one **if-match** command:
  - 802.1p priority.
  - DSCP.
  - VLAN ID.
- If a packet matches one of the specified values, it matches the **if-match** command.
- To delete a criterion that has multiple values, the specified values in the **undo if-match** command must be the same as those specified in the **if-match** command. The order of the values can be different.

When you configure ACL-based match criteria, follow these restrictions and guidelines:

- The ACL must already exist.
- The ACL is used for classification only and the permit/deny actions in ACL rules are ignored. Actions taken on matching packets are defined in traffic behaviors.

You can use both AND and OR operators to define the match relationships between the criteria for a class. For example, you can define relationships among three match criteria in traffic class **classA** as follows:

```
traffic classifier classB operator and
if-match criterion 1
if-match criterion 2
traffic classifier classA operator or
if-match criterion 3
```

Examples

Define a match criterion for traffic class **class1** to match the packets with a destination MAC address of 0050-ba27-bed3.

```
<Sysname> system-view
[Sysname] traffic classifier class1
[Sysname-classifier-class1] if-match destination-mac 0050-ba27-bed3
```

Define a match criterion for traffic class **class2** to match the packets with a source MAC address of 0050-ba27-bed2.

```
<Sysname> system-view
[Sysname] traffic classifier class2
[Sysname-classifier-class2] if-match source-mac 0050-ba27-bed2
```

Define a match criterion for traffic class **class1** to match the packets with 802.1p priority 5 in the outer VLAN tag.

```
<Sysname> system-view
[Sysname] traffic classifier class1
[Sysname-classifier-class1] if-match service-dot1p 5
```

Define a match criterion for traffic class **class1** to match advanced ACL 3101.

```
<Sysname> system-view
[Sysname] traffic classifier class1
[Sysname-classifier-class1] if-match acl 3101
```

Define a match criterion for traffic class **class1** to match the ACL named **flow**.

```
<Sysname> system-view
[Sysname] traffic classifier class1
[Sysname-classifier-class1] if-match acl name flow
```

Define a match criterion for traffic class **class1** to match advanced IPv6 ACL 3101.

```
<Sysname> system-view
[Sysname] traffic classifier class1
[Sysname-classifier-class1] if-match acl ipv6 3101
```

Define a match criterion for traffic class **class1** to match the IPv6 ACL named **flow**.

```
<Sysname> system-view
[Sysname] traffic classifier class1
[Sysname-classifier-class1] if-match acl ipv6 name flow
```

Define a match criterion for traffic class **class1** to match all packets.

```
<Sysname> system-view
[Sysname] traffic classifier class1
[Sysname-classifier-class1] if-match any
```

Define a match criterion for traffic class **class1** to match the packets with a DSCP value of 1, 6, or 9.

```
<Sysname> system-view
[Sysname] traffic classifier class1 operator or
[Sysname-classifier-class1] if-match dscp 1 6 9
```

Define a match criterion for traffic class **class1** to match IP packets.

```
<Sysname> system-view
[Sysname] traffic classifier class1
[Sysname-classifier-class1] if-match protocol ip
```

Define a match criterion for traffic class **class1** to match the packets with VLAN ID 2, 7, or 10 in the outer VLAN tag.

```
<Sysname> system-view
[Sysname] traffic classifier class1 operator or
[Sysname-classifier-class1] if-match service-vlan-id 2 7 10
```

traffic classifier

Use **traffic classifier** to create a traffic class and enter its view, or enter the view of an existing traffic class.

Use **undo traffic classifier** to delete a traffic class.

Syntax

traffic classifier *classifier-name* [**operator** { **and** | **or** }]

undo traffic classifier *classifier-name*

Default

No traffic classes exist.

Views

System view

Predefined user roles

network-admin

Parameters

classifier-name: Specifies a name for the traffic class, a case-sensitive string of 1 to 31 characters.

operator: Sets the operator to logic AND (the default) or OR for the traffic class.

and: Specifies the logic AND operator. The traffic class matches the packets that match all its criteria.

or: Specifies the logic OR operator. The traffic class matches the packets that match any of its criteria.

Examples

Create a traffic class named **class1**.

```
<Sysname> system-view
[Sysname] traffic classifier class1
[Sysname-classifier-class1]
```

Related commands

display traffic classifier

Traffic behavior commands

accounting

Use **accounting** to configure a traffic accounting action in a traffic behavior.

Use **undo accounting** to restore the default.

Syntax

accounting { **byte** | **packet** }

undo accounting

Default

No traffic accounting action is configured.

Views

Traffic behavior view

Predefined user roles

network-admin

Parameters

byte: Counts traffic in bytes.

packet: Counts traffic in packets.

Examples

Configure a traffic accounting action in traffic behavior **database** to count traffic in bytes.

```
<Sysname> system-view
[Sysname] traffic behavior database
[Sysname-behavior-database] accounting byte
```

car

Use **car** to configure a CAR action in absolute value in a traffic behavior.

Use **undo car** to restore the default.

Syntax

car cir *committed-information-rate* [**cbs** *committed-burst-size* [**ebs** *excess-burst-size*]] [**green** *action* | **red** *action* | **yellow** *action*] *

car cir *committed-information-rate* [**cbs** *committed-burst-size*] **pir** *peak-information-rate* [**ebs** *excess-burst-size*] [**green** *action* | **red** *action* | **yellow** *action*] *

undo car

Default

No CAR action is configured.

Views

Traffic behavior view

Predefined user roles

network-admin

Parameters

cir *committed-information-rate*: Specifies the committed information rate (CIR) in the range of 8 to 160000000 kbps, in increments of 8.

cbs *committed-burst-size*: Specifies the committed burst size (CBS) in bytes. The value range for *committed-burst-size* is 512 to 256000000, in increments of 512. The default value for this argument is the product of 62.5 and the CIR and must be an integral multiple of 512. When the product is not an integral multiple of 512, it is rounded up to the nearest integral multiple of 512 that is greater than the product. A default value greater than 256000000 is converted to 256000000.

ebs *excess-burst-size*: Specifies the excess burst size (EBS) in bytes. The value range for *excess-burst-size* is 0 to 256000000, in increments of 512. If the PIR is configured, the default EBS is the product of 62.5 and the PIR and must be an integral multiple of 512. When the product is not an integral multiple of 512, it is rounded up to the nearest integral multiple of 512. A default value greater than 256000000 is converted to 256000000.

pir *peak-information-rate*: Specifies the peak information rate (PIR) in the range of 8 to 160000000 kbps, in increments of 8.

green *action*: Specifies the action to take on packets that conform to the CIR. The default setting is **pass**.

red *action*: Specifies the action to take on packets that conform to neither CIR nor PIR. The default setting is **discard**.

yellow *action*: Specifies the action to take on packets that conform to the PIR but not to the CIR. The default setting is **pass**.

action: Sets the action to take on the packet:

- **discard**: Drops the packet.
- **pass**: Permits the packet to pass through.
- **remark-dot1p-pass** *new-cos*: Sets the 802.1p priority value of the 802.1p packet to *new-cos* and permits the packet to pass through. The *new-cos* argument is in the range of 0 to 7.
- **remark-dscp-pass** *new-dscp*: Sets the DSCP value of the packet to *new-dscp* and permits the packet to pass through. The *new-dscp* argument is in the range of 0 to 63.
- **remark-lp-pass** *new-local-precedence*: Sets the local precedence value of the packet to *new-local-precedence* and permits the packet to pass through. The *new-local-precedence* argument is in the range of 0 to 7.

Usage guidelines

To use two rates for traffic policing, configure the **car** command with the **pir** *peak-information-rate* option. To use one rate for traffic policing, configure the **car** command without the **pir** *peak-information-rate* option.

If you execute the **car** command multiple times in the same traffic behavior, the most recent configuration takes effect.

Examples

Configure a CAR action in traffic behavior **database**.

```
<Sysname> system-view
[Sysname] traffic behavior database
[Sysname-behavior-database] car cir 200 cbs 51200 ebs 0 green pass red remark-dscp-pass
0
```

display traffic behavior

Use **display traffic behavior** to display traffic behaviors.

Syntax

display traffic behavior user-defined [*behavior-name*] [**slot** *slot-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

user-defined: Specifies user-defined traffic behaviors.

behavior-name: Specifies a behavior by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a traffic behavior, this command displays all traffic behaviors.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify a member device, this command displays the traffic behaviors for the master device.

Examples

Display all user-defined traffic behaviors.

```
<Sysname> display traffic behavior user-defined

  User-defined behavior information:

    Behavior: 1 (ID 100)
      Marking:
        Remark dscp 3
      Committed Access Rate:
        CIR 112 (kbps), CBS 5120 (Bytes), EBS 512 (Bytes)
        Green action  : pass
        Yellow action : pass
        Red action    : discard
```

```
Behavior: 2 (ID 101)
  Accounting enable: Packet
  Filter enable: Permit
  Redirecting:
    Redirect to the CPU

Behavior: 3 (ID 102)
  -none-
```

Table 3 Command output

Field	Description
Behavior	Name and contents of a traffic behavior.
Marking	Information about priority marking.
Remark dscp	Action of setting the DSCP value for packets.
Committed Access Rate	Information about the CAR action.
Green action	Action to take on green packets.
Yellow action	Action to take on yellow packets.
Red action	Action to take on red packets.
Accounting enable	Class-based accounting action.
Filter enable	Traffic filtering action.
Redirecting	Information about traffic redirecting.
Mirroring	Information about traffic mirroring.
none	No other traffic behavior is configured.

filter

Use **filter** to configure a traffic filtering action in a traffic behavior.

Use **undo filter** to restore the default.

Syntax

filter { **deny** | **permit** }

undo filter

Default

No traffic filtering action is configured.

Views

Traffic behavior view

Predefined user roles

network-admin

Parameters

deny: Drops packets.

permit: Transmits packets.

Examples

Configure a traffic filtering action as **deny** in traffic behavior **database**.

```
<Sysname> system-view
[Sysname] traffic behavior database
[Sysname-behavior-database] filter deny
```

nest top-most

Use **nest top-most** to configure an outer VLAN tag adding action in a traffic behavior.

Use **undo nest top-most** to restore the default.

Syntax

nest top-most vlan *vlan-id*

undo nest top-most

Default

No outer VLAN tag adding action is configured.

Views

Traffic behavior view

Predefined user roles

network-admin

Parameters

vlan-id *vlan-id*: Specifies the VLAN ID to be added in the outer VLAN tag, in the range of 1 to 4094.

Usage guidelines

If a QoS policy contains an outer VLAN tag adding action, apply it only to the incoming traffic of an interface.

If you execute the **nest top-most** command multiple times in the same traffic behavior, the most recent configuration takes effect.

Examples

Configure traffic behavior **b1** to add an outer VLAN tag with VLAN ID 123.

```
<Sysname> system-view
[Sysname] traffic behavior b1
[Sysname-behavior-b1] nest top-most vlan 123
```

redirect

Use **redirect** to configure a traffic redirecting action in a traffic behavior.

Use **undo redirect** to restore the default.

Syntax

redirect { **cpu** | **interface** *interface-type interface-number* }

undo redirect { **cpu** | **interface** *interface-type interface-number* }

Default

No traffic redirecting action is configured.

Views

Traffic behavior view

Predefined user roles

network-admin

Parameters

cpu: Redirects traffic to the CPU.

interface *interface-type interface-number*: Redirects traffic to an interface specified by its type and number.

Usage guidelines

If you execute the **redirect** command multiple times in the same traffic behavior, the most recent configuration takes effect.

A traffic redirecting action takes effect only when the QoS policy is applied to the inbound direction.

For traffic redirecting to an access port, make sure the PVID of the interfaces to which the QoS policy is applied is the same as the PVID of the access port. Otherwise, the access port drops redirected packets.

For traffic redirecting to a trunk port, make sure the PVID of the interfaces to which the QoS policy is applied is in the allowed VLAN list of the trunk port. Otherwise, the trunk port drops redirected packets.

If a QoS policy applied to a user profile contains the **redirect interface** action, make sure the interface and the incoming interface of packets are in the same VLAN.

Examples

Configure redirecting traffic to GigabitEthernet 1/0/1 in traffic behavior **database**.

```
<Sysname> system-view
[Sysname] traffic behavior database
[Sysname-behavior-database] redirect interface gigabitethernet 1/0/1
```

Related commands

classifier behavior

qos policy

traffic behavior

remark dot1p

Use **remark dot1p** to configure an 802.1p priority marking action or an inner-to-outer tag priority copying action in a traffic behavior.

Use **undo remark dot1p** to restore the default.

Syntax

remark [**green** | **red** | **yellow**] **dot1p** *dot1p-value*

undo remark [**green** | **red** | **yellow**] **dot1p**

remark dot1p customer-dot1p-trust

undo remark dot1p

Default

No 802.1p priority marking action or inner-to-outer tag priority copying action is configured.

Views

Traffic behavior view

Predefined user roles

network-admin

Parameters

green: Specifies green packets.

red: Specifies red packets.

yellow: Specifies yellow packets.

dot1p-value: Specifies the 802.1p priority to be marked for packets, in the range of 0 to 7.

customer-dot1p-trust: Copies the 802.1p priority value in the inner VLAN tag to the outer VLAN tag.

Usage guidelines

The **remark dot1p** and **remark dot1p customer-dot1p-trust** commands override each other in the same traffic behavior. The **remark dot1p customer-dot1p-trust** command does not take effect on single-tagged packets.

If you execute the **remark dot1p** command multiple times for the same color, the most recent configuration takes effect.

An 802.1p priority marking action takes effect only when the QoS policy is applied to the inbound direction.

Examples

Configure traffic behavior **database** to mark matching traffic with 802.1p 2.

```
<Sysname> system-view
[Sysname] traffic behavior database
[Sysname-behavior-database] remark dot1p 2
```

Configure an inner-to-outer tag priority copying action in traffic behavior **database**.

```
<Sysname> system-view
[Sysname] traffic behavior database
[Sysname-behavior-database] remark dot1p customer-dot1p-trust
```

remark dscp

Use **remark dscp** to configure a DSCP marking action in a traffic behavior.

Use **undo remark dscp** to restore the default.

Syntax

remark [**green** | **red** | **yellow**] **dscp** *dscp-value*

undo remark [**green** | **red** | **yellow**] **dscp**

Default

No DSCP marking action is configured.

Views

Traffic behavior view

Predefined user roles

network-admin

Parameters

green: Specifies green packets.

red: Specifies red packets.

yellow: Specifies yellow packets.

dscp-value: Specifies a DSCP value, which can be a number from 0 to 63 or a keyword in Table 4.

Table 4 DSCP keywords and values

Keyword	DSCP value (binary)	DSCP value (decimal)
af11	001010	10
af12	001100	12
af13	001110	14
af21	010010	18
af22	010100	20
af23	010110	22
af31	011010	26
af32	011100	28
af33	011110	30
af41	100010	34
af42	100100	36
af43	100110	38
cs1	001000	8
cs2	010000	16
cs3	011000	24
cs4	100000	32
cs5	101000	40
cs6	110000	48
cs7	111000	56
default	000000	0
ef	101110	46

Examples

Configure traffic behavior **database** to mark matching traffic with DSCP 6.

```
<Sysname> system-view
[Sysname] traffic behavior database
[Sysname-behavior-database] remark dscp 6
```

remark local-precedence

Use **remark local-precedence** to configure a local precedence marking action in a traffic behavior.

Use **undo remark local-precedence** to restore the default.

Syntax

remark local-precedence *local-precedence-value*

undo remark local-precedence

Default

No local precedence marking action is configured.

Views

Traffic behavior view

Predefined user roles

network-admin

Parameters

local-precedence-value: Specifies the local precedence to be marked for packets, in the range of 0 to 7.

Usage guidelines

A local precedence marking action takes effect only when the QoS policy is applied to the inbound direction.

Examples

Configure traffic behavior **database** to mark matching traffic with local precedence 2.

```
<Sysname> system-view
[Sysname] traffic behavior database
[Sysname-behavior-database] remark local-precedence 2
```

remark service-vlan-id

Use **remark service-vlan-id** to configure an SVLAN marking action in a traffic behavior.

Use **undo remark service-vlan-id** to restore the default.

Syntax

remark service-vlan-id *vlan-id*

undo remark service-vlan-id

Default

No SVLAN marking action is configured.

Views

Traffic behavior view

Predefined user roles

network-admin

Parameters

vlan-id: Specifies an SVLAN ID in the range of 1 to 4094.

Examples

Configure traffic behavior **b1** to mark matching packets with SVLAN 222.

```
<Sysname> system-view
[Sysname] traffic behavior b1
[Sysname-behavior-b1] remark service-vlan-id 222
```

traffic behavior

Use **traffic behavior** to create a traffic behavior and enter its view, or enter the view of an existing traffic behavior.

Use **undo traffic behavior** to delete a traffic behavior.

Syntax

traffic behavior *behavior-name*

undo traffic behavior *behavior-name*

Default

No traffic behaviors exist.

Views

System view

Predefined user roles

network-admin

Parameters

behavior-name: Specifies a name for the traffic behavior, a case-sensitive string of 1 to 31 characters.

Examples

Create a traffic behavior named **behavior1**.

```
<Sysname> system-view
[Sysname] traffic behavior behavior1
[Sysname-behavior-behavior1]
```

Related commands

display traffic behavior

QoS policy commands

classifier behavior

Use **classifier behavior** to associate a traffic behavior with a traffic class in a QoS policy.

Use **undo classifier** to delete a class-behavior association from a QoS policy.

Syntax

classifier *classifier-name* **behavior** *behavior-name* [**insert-before** *before-classifier-name*]

undo classifier *classifier-name*

Default

No traffic behavior is associated with a traffic class.

Views

QoS policy view

Predefined user roles

network-admin

Parameters

classifier-name: Specifies a traffic class by its name, a case-sensitive string of 1 to 31 characters.

behavior-name: Specifies a traffic behavior by its name, a case-sensitive string of 1 to 31 characters.

insert-before *before-classifier-name*: Inserts the new traffic class before an existing traffic class in the QoS policy. The *before-classifier-name* argument specifies an existing traffic class by its name, a case-sensitive string of 1 to 31 characters. If you do not specify the **insert-before** *before-classifier-name* option, the new traffic class is placed at the end of the QoS policy.

Usage guidelines

A traffic class can be associated only with one traffic behavior in a QoS policy.

If the specified traffic class or traffic behavior does not exist, the system defines a null traffic class or traffic behavior.

Examples

Associate traffic class **database** with traffic behavior **test** in QoS policy **user1**.

```
<Sysname> system-view
[Sysname] qos policy user1
[Sysname-qospolicy-user1] classifier database behavior test
```

Associate traffic class **database** with traffic behavior **test** in QoS policy **user1**, and insert traffic class **database** before an existing traffic class named **class-a**.

```
<Sysname> system-view
[Sysname] qos policy user1
[Sysname-qospolicy-user1] classifier database behavior test insert-before class-a
```

Related commands

qos policy

display qos policy

Use **display qos policy** to display QoS policies.

Syntax

display qos policy user-defined [*policy-name* [**classifier** *classifier-name*]] [**slot** *slot-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

user-defined: Specifies user-defined QoS policies.

policy-name: Specifies a QoS policy by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a QoS policy, this command displays all user-defined QoS policies.

classifier *classifier-name*: Specifies a traffic class by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a traffic class, this command displays all traffic classes.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify a member device, this command displays the QoS policies for the master device.

Examples

Display all user-defined QoS policies.

```
<Sysname> display qos policy user-defined

  User-defined QoS policy information:

  Policy: 1 (ID 100)
   Classifier: 1 (ID 100)
     Behavior: 1
      Marking:
        Remark dscp 3
      Committed Access Rate:
        CIR 112 (kbps), CBS 51200 (Bytes), EBS 512 (Bytes)
        Green action  : pass
        Yellow action : pass
        Red action    : discard
   Classifier: 2 (ID 101)
     Behavior: 2
      Accounting enable: Packet
      Filter enable: Permit
      Marking:
        Remark dot1p 4
   Classifier: 3 (ID 102)
     Behavior: 3
      -none-
```

Table 5 Command output

Field	Description
User-defined QoS policy information	Information about a user-defined QoS policy.
System-defined QoS policy information	Information about a system-defined QoS policy.

For the description of other fields, see Table 1 and Table 3.

display qos policy global

Use **display qos policy global** to display QoS policies applied globally.

Syntax

display qos policy global [**slot** *slot-number*] [**inbound** | **outbound**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

inbound: Specifies the QoS policy applied in the inbound direction.

outbound: Specifies the QoS policy applied in the outbound direction.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify a member device, this command displays global QoS policies for the master device.

Usage guidelines

If you do not specify a direction, this command displays both inbound and outbound global QoS policies.

Examples

Display QoS policies applied globally.

```
<Sysname> display qos policy global
  Direction: Inbound
  Policy: 1
   Classifier: 1
     Operator: AND
     Rule(s) :
      If-match acl 2000
     Behavior: 1
      Marking:
        Remark dscp 3
      Committed Access Rate:
        CIR 112 (kbps), CBS 51200 (Bytes), EBS 512 (Bytes)
        Green action  : pass
        Yellow action : pass
        Red action    : discard
        Green packets : 0 (Packets) 0 (Bytes)
        Yellow packets: 0 (Packets) 0 (Bytes)
        Red packets   : 0 (Packets) 0 (Bytes)
   Classifier: 2
     Operator: AND
     Rule(s) :
      If-match protocol ipv6
     Behavior: 2
      Accounting enable:
        0 (Packets)
      Filter enable: Permit
      Marking:
        Remark dscp 3
   Classifier: 3
     Operator: AND
     Rule(s) :
      -none-
     Behavior: 3
      -none-
```

Table 6 Command output

Field	Description
Direction	Direction in which the QoS policy is applied.
Green packets	Statistics about green packets.
Yellow packets	Statistics about yellow packets.
Red packets	Statistics about red packets.

For the description of other fields, see Table 1 and Table 3.

display qos policy interface

Use **display qos policy interface** to display the QoS policies applied to interfaces.

Syntax

display qos policy interface [*interface-type interface-number*] [**inbound** | **outbound**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type interface-number: Specifies an interface by its type and number.

inbound: Specifies the QoS policy applied to incoming traffic.

outbound: Specifies the QoS policy applied to outgoing traffic.

Usage guidelines

If you do not specify a direction, this command displays the QoS policy applied to incoming traffic and the QoS policy applied to outgoing traffic.

Examples

Display the QoS policy applied to the incoming traffic of GigabitEthernet 1/0/1.

```
<Sysname> display qos policy interface gigabitethernet 1/0/1 inbound
Interface: GigabitEthernet1/0/1
  Direction: Inbound
  Policy: 1
   Classifier: 1
     Matched : 0 (Packets) 0 (Bytes)
     5-minute statistics:
      Forwarded: 0/0 (pps/bps)
      Dropped  : 0/0 (pps/bps)
     Operator: AND
     Rule(s) :
      If-match acl 2000
     Behavior: 1
      Marking:
```

```
        Remark dscp 3
      Committed Access Rate:
        CIR 112 (kbps), CBS 51200 (Bytes), EBS 512 (Bytes)
        Green action  : pass
        Yellow action : pass
        Red action    : discard
        Green packets : 0 (Packets) 0 (Bytes)
        Yellow packets: 0 (Packets) 0 (Bytes)
        Red packets   : 0 (Packets) 0 (Bytes)
   Classifier: 2
     Matched : 0 (Packets) 0 (Bytes)
     5-minute statistics:
      Forwarded: 0/0 (pps/bps)
      Dropped  : 0/0 (pps/bps)
     Operator: AND
     Rule(s) :
      If-match protocol ipv6
     Behavior: 2
      Accounting enable:
        0 (Packets)
      Filter enable: Permit
      Marking:
        Remark dscp 3
   Classifier: 3
     Matched : 0 (Packets) 0 (Bytes)
     5-minute statistics:
      Forwarded: 0/0 (pps/bps)
      Dropped  : 0/0 (pps/bps)
     Operator: AND
     Rule(s) :
      -none-
     Behavior: 3
      -none-
```

Display the QoS policies applied to all interfaces.

```
<Sysname> display qos policy interface
Interface: GigabitEthernet1/0/1
  Direction: Inbound
  Policy: a
   Classifier: a
     Operator: AND
     Rule(s) :
      If-match any
     Behavior: a
      Mirroring:
        Mirror to the interface: GigabitEthernet1/0/2
      Committed Access Rate:
        CIR 112 (kbps), CBS 51200 (Bytes), EBS 0 (Bytes)
        Green action  : pass
```

```
        Yellow action : pass
        Red action    : discard
        Green packets : 0 (Packets)
        Red packets   : 0 (Packets)

Interface: GigabitEthernet1/0/3
  Direction: Inbound
  Policy: a
   Classifier: a
     Operator: AND
     Rule(s) :
      If-match any
     Behavior: a
      Mirroring:
        Mirror to the interface: GigabitEthernet1/0/4
      Committed Access Rate:
        CIR 112 (kbps), CBS 51200 (Bytes), EBS 0 (Bytes)
        Green action  : pass
        Yellow action : pass
        Red action    : discard
        Green packets : 0 (Packets)
        Red packets   : 0 (Packets)
```

Table 7 Command output

Field	Description
Direction	Direction in which the QoS policy is applied.
Matched	Number of matching packets.
Forwarded	Average rate of successfully forwarded matching packets in a statistics collection period.
Dropped	Average rate of dropped matching packets in a statistics collection period.
Green packets	Traffic statistics for green packets.
Yellow packets	Traffic statistics for yellow packets.
Red packets	Traffic statistics for red packets.

For the description of other fields, see Table 1 and Table 3.

display qos policy user-profile

Use **display qos policy user-profile** to display QoS policies applied to user profiles.

Syntax

display qos policy user-profile [**name** *profile-name*] [**user-id** *user-id*] [**slot** *slot-number*] [**inbound** | **outbound**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

name *profile-name*: Specifies a user profile by its name, a case-sensitive string of 1 to 31 characters. Valid characters include English letters, digits, and underscores (_). The name must start with an English letter and must be unique. If you do not specify a user profile, this command displays QoS policies applied to all user profiles.

user-id *user-id*: Specifies an online user by a system-assigned, hexadecimal ID in the range of 0 to fffffffe. If you do not specify an online user, this command displays QoS policies applied to user profiles for all online users.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify a member device, this command displays QoS policies applied to user profiles for all member devices.

inbound: Specifies QoS policies applied to incoming traffic.

outbound: Specifies QoS policies applied to outgoing traffic.

Usage guidelines

If you do not specify a direction, this command displays QoS policies applied in the inbound direction and QoS policies applied in the outbound direction.

Examples

Display the QoS policy applied to user profile **abc** for a global user.

```
<Sysname> display qos policy user-profile name abc user-id 30000000 inbound
User-Profile: abc
  User ID: 0x30000000(global)
    Direction: Inbound
    Policy: p1
     Classifier: default-class
       Matched : 0 (Packets) 0 (Bytes)
       Operator: AND
       Rule(s) :
        If-match any
       Behavior: be
         -none-
```

Display the QoS policy applied to user profile **abc** for a local user.

```
<Sysname> display qos policy user-profile name abc user-id 30000001 inbound
User-Profile: abc
  slot 2:
    User ID: 0x30000001(local)
      Direction: Inbound
      Policy: p1
       Classifier: default-class
         Matched : 0 (Packets) 0 (Bytes)
         Operator: AND
         Rule(s) :
          If-match any
         Behavior: be
           -none-
```

Table 8 Command output

Field	Description
global	Indicates a global user, who comes online from a global interface such as an aggregate interface.
local	Indicates a local user, who comes online from a physical interface.
Matched	Number of packets that meet match criteria.
Direction	Direction in which the QoS policy is applied.
Green packets	Statistics about green packets.
Yellow packets	Statistics about yellow packets.
Red packets	Statistics about red packets.

For the description of other fields, see Table 1 and Table 3.

display qos vlan-policy

Use **display qos vlan-policy** to display QoS policies applied to VLANs.

Syntax

display qos vlan-policy { **name** *policy-name* | **vlan** [*vlan-id*] } [**slot** *slot-number*] [**inbound** | **outbound**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

name *policy-name*: Specifies a QoS policy by its name, a case-sensitive string of 1 to 31 characters.

vlan *vlan-id*: Specifies a VLAN by its ID in the range of 1 to 4094.

inbound: Displays QoS policies applied to incoming traffic.

outbound: Displays QoS policies applied to outgoing traffic.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify a member device, this command displays QoS policies applied to VLANs for the master device.

Usage guidelines

If you do not specify a direction, this command displays QoS policies applied to VLANs in both the inbound and outbound directions.

Examples

Display QoS policies applied to VLAN 2.

```
<Sysname> display qos vlan-policy vlan 2
Vlan 2
  Direction: Inbound
  Policy: 1
   Classifier: 1
```

```
    Operator: AND
    Rule(s) :
     If-match acl 2000
    Behavior: 1
     Marking:
       Remark dscp 3
  Classifier: 2
    Operator: AND
    Rule(s) :
     If-match protocol ipv6
    Behavior: 2
     Accounting enable:
       0 (Packets)
     Filter enable: Permit
     Marking:
       Remark dscp 3
  Classifier: 3
    Operator: AND
    Rule(s) :
     -none-
    Behavior: 3
     -none-
```

Table 9 Command output

Field	Description
Direction	Direction in which the QoS policy is applied.

For the description of other fields, see Table 1 and Table 3.

qos apply policy (interface view)

Use **qos apply policy** to apply a QoS policy to an interface.

Use **undo qos apply policy** to remove an applied QoS policy.

Syntax

qos apply policy *policy-name* { **inbound** | **outbound** }

undo qos apply policy *policy-name* { **inbound** | **outbound** }

Default

No QoS policy is applied.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Parameters

policy-name: Specifies a QoS policy by its name, a case-sensitive string of 1 to 31 characters.

inbound: Applies the QoS policy to incoming traffic.

outbound: Applies the QoS policy to outgoing traffic.

Examples

Apply QoS policy **USER1** to the outgoing traffic of GigabitEthernet 1/0/1.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] qos apply policy USER1 outbound
```

qos apply policy (user profile view)

Use **qos apply policy** to apply a QoS policy to a user profile.

Use **undo qos apply policy** to remove a QoS policy applied to a user profile.

Syntax

qos apply policy *policy-name* { **inbound** | **outbound** }

undo qos apply policy *policy-name* { **inbound** | **outbound** }

Default

No QoS policy is applied to a user profile.

Views

User profile view

Predefined user roles

network-admin

Parameters

policy-name: Specifies a QoS policy by its name, a case-sensitive string of 1 to 31 characters.

inbound: Applies the QoS policy to the incoming traffic of the device (traffic sent by online users).

outbound: Applies the QoS policy to the outgoing traffic of the device (traffic received by online users).

Usage guidelines

Deleting a user profile also removes the QoS policies applied to the user profile.

For a user profile to be active, the QoS policy applied in user profile view cannot be empty. A user profile supports only the **car** and **accounting** actions in a QoS policy.

Examples

Apply QoS policy **test** to incoming traffic of user profile **user**.

```
<Sysname> system-view
[Sysname] user-profile user
[Sysname-user-profile-user] qos apply policy test outbound
```

qos apply policy global

Use **qos apply policy global** to apply a QoS policy globally.

Use **undo qos apply policy global** to remove a globally applied QoS policy.

Syntax

qos apply policy *policy-name* **global** { **inbound** | **outbound** }

undo qos apply policy *policy-name* **global** { **inbound** | **outbound** }

Default

No QoS policy is applied globally.

Views

System view

Predefined user roles

network-admin

Parameters

policy-name: Specifies a QoS policy by its name, a case-sensitive string of 1 to 31 characters.

inbound: Applies the QoS policy to the incoming packets on all interfaces.

outbound: Applies the QoS policy to the outgoing packets on all interfaces.

Usage guidelines

A global QoS policy takes effect on all incoming or outgoing traffic depending on the direction in which the QoS policy is applied.

Examples

Globally apply QoS policy **user1** to the incoming traffic.

```
<Sysname> system-view
[Sysname] qos apply policy user1 global inbound
```

qos policy

Use **qos policy** to create a QoS policy and enter its view, or enter the view of an existing QoS policy.

Use **undo qos policy** to delete a QoS policy.

Syntax

qos policy *policy-name*

undo qos policy *policy-name*

Default

No QoS policies exist.

Views

System view

Predefined user roles

network-admin

Parameters

policy-name: Specifies a name for the QoS policy, a case-sensitive string of 1 to 31 characters.

Usage guidelines

To delete a QoS policy that has been applied to an object, you must first remove the QoS policy from the object.

Examples

Create a QoS policy named **user1**.

```
<Sysname> system-view
[Sysname] qos policy user1
[Sysname-qospolicy-user1]
```

Related commands

classifier behavior

qos apply policy

qos apply policy global

qos vlan-policy

qos vlan-policy

Use **qos vlan-policy** to apply a QoS policy to the specified VLANs.

Use **undo qos vlan-policy** to remove a QoS policy from the specified VLANs.

Syntax

qos vlan-policy *policy-name* **vlan** *vlan-id-list* { **inbound** | **outbound** }

undo qos vlan-policy *policy-name* **vlan** *vlan-id-list* { **inbound** | **outbound** }

Default

No QoS policy is applied to a VLAN.

Views

System view

Predefined user roles

network-admin

Parameters

policy-name: Specifies a QoS policy by its name, a case-sensitive string of 1 to 31 characters.

vlan *vlan-id-list*: Specifies a space-separated list of up to eight VLAN IDs or a VLAN ID range in the form of *vlan-id1* **to** *vlan-id2*. The value for *vlan-id2* must be greater than or equal to the value for *vlan-id1*. The value range for the *vlan-id* argument is 1 to 4094.

inbound: Applies the QoS policy to incoming packets.

outbound: Applies the QoS policy to outgoing packets.

Examples

Apply QoS policy **test** to the incoming traffic of VLAN 200, VLAN 300, VLAN 400, and VLAN 500.

```
<Sysname> system-view
[Sysname] qos vlan-policy test vlan 200 300 400 500 inbound
```

reset qos policy global

Use **reset qos policy global** to clear the statistics of a global QoS policy.

Syntax

reset qos policy global [**inbound** | **outbound**]

Views

User view

Predefined user roles

network-admin

Parameters

inbound: Clears the statistics of the global QoS policy applied to incoming traffic globally.

outbound: Clears the statistics of the global QoS policy applied to outgoing traffic globally.

Usage guidelines

If you do not specify a direction, this command clears the statistics of the global QoS policies in both directions.

Examples

Clear the statistics of the global QoS policy applied to the incoming traffic globally.

```
<Sysname> reset qos policy global inbound
```

reset qos vlan-policy

Use **reset qos vlan-policy** to clear the statistics for QoS policies applied to VLANs.

Syntax

reset qos vlan-policy [**vlan** *vlan-id*] [**inbound** | **outbound**]

Views

User view

Predefined user roles

network-admin

Parameters

vlan *vlan-id*: Specifies a VLAN ID in the range of 1 to 4094.

inbound: Specifies the QoS policy applied to incoming traffic.

outbound: Specifies the QoS policy applied to outgoing traffic.

Usage guidelines

If you do not specify a direction, this command clears the statistics of the QoS policies in both directions of the VLAN.

Examples

Clear the statistics of QoS policies applied to VLAN 2.

```
<Sysname> reset qos vlan-policy vlan 2
```

Priority mapping commands

Priority map commands

display qos map-table

Use **display qos map-table** to display the configuration of priority maps.

Syntax

display qos map-table [**dot1p-lp** | **dscp-dot1p** | **dscp-dscp**]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

The device provides the following types of priority map.

Table 10 Priority maps

Priority mapping	Description
dot1p-lp	802.1p-local priority map.
dscp-dot1p	DSCP-802.1p priority map.
dscp-dscp	DSCP-DSCP priority map.

Usage guidelines

If you do not specify a priority map, this command displays the configuration of all priority maps.

Examples

Display the configuration of the 802.1p-local priority map.

```
<Sysname> display qos map-table dot1p-lp
MAP-TABLE NAME: dot1p-lp   TYPE: pre-define
IMPORT  :  EXPORT
   0    :    2
   1    :    0
   2    :    1
   3    :    3
   4    :    4
   5    :    5
   6    :    6
   7    :    7
```

Table 11 Command output

Field	Description
MAP-TABLE NAME	Name of the priority map.
TYPE	Type of the priority map.
IMPORT	Input values of the priority map.
EXPORT	Output values of the priority map.

import

Use **import** to configure mappings for a priority map.

Use **undo import** to restore the specified or all mappings to the default for a priority map.

Syntax

import *import-value-list* **export** *export-value*

undo import { *import-value-list* | **all** }

Default

The default priority maps are used. For more information, see *ACL and QoS Configuration Guide*.

Views

Priority map view

Predefined user roles

network-admin

Parameters

import-value-list: Specifies a list of input values.

export-value: Specifies the output value.

all: Restores all mappings in the priority map to the default.

Examples

Configure the 802.1p-local priority map to map 802.1p priority values 4 and 5 to local priority 1.

```
<Sysname> system-view
[Sysname] qos map-table dot1p-lp
[Sysname-maptbl-dot1p-lp] import 4 5 export 1
```

Related commands

display qos map-table

qos map-table

Use **qos map-table** to enter the specified priority map view.

Syntax

qos map-table { **dot1p-lp** | **dscp-dot1p** | **dscp-dscp** }

Views

System view

Predefined user roles

network-admin

Parameters

For the description of keywords, see Table 10.

Examples

Enter 802.1p-local priority map view.

```
<Sysname> system-view
[Sysname] qos map-table dot1p-lp
[Sysname-maptbl-dot1p-lp]
```

Related commands

display qos map-table

import

Priority trust mode commands

display qos trust interface

Use **display qos trust interface** to display the priority trust mode and port priorities of an interface.

Syntax

display qos trust interface [*interface-type interface-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type interface-number: Specifies an interface by its type and number. If you do not specify an interface, this command displays the priority trust mode and port priorities of all interfaces.

Examples

Display the priority trust mode and port priority of GigabitEthernet 1/0/1.

```
<Sysname> display qos trust interface gigabitethernet 1/0/1
Interface: GigabitEthernet1/0/1
 Port priority trust information
  Port priority:4
  Port priority trust type: dscp
```

Table 12 Command output

Field	Description
Interface	Interface type and interface number.
Port priority	Port priority set for the interface.

Field	Description
Port priority trust type	Priority trust mode on the interface: • **dot1p**—Uses the 802.1p priority of received packets for mapping. • **dscp**—Uses the DSCP precedence of received IP packets for mapping. • **none**—Trusts no packet priority.

qos trust

Use **qos trust** to configure the priority trust mode for an interface.

Use **undo qos trust** to restore the default.

Syntax

qos trust { **dot1p** | **dscp** }

undo qos trust

Default

An interface does not trust any packet priority and uses the port priority as the 802.1p priority for mapping.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Parameters

dot1p: Uses the 802.1p priority in incoming packets for priority mapping.

dscp: Uses the DSCP value in incoming packets for priority mapping.

Examples

Set the priority trust mode to 802.1p priority on GigabitEthernet 1/0/1.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] qos trust dot1p
```

Related commands

display qos trust interface

Port priority commands

qos priority

Use **qos priority** to change the port priority of an interface.

Use **undo qos priority** to restore the default.

Syntax

qos priority *priority-value*

undo qos priority

Default

The port priority is 0.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Parameters

priority-value: Specifies a port priority value in the range of 0 to 7.

Examples

Set the port priority of GigabitEthernet 1/0/1 to 2.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] qos priority 2
```

Related commands

display qos trust interface

GTS and rate limit commands

GTS commands

display qos gts interface

Use **display qos gts interface** to display the GTS configuration for interfaces.

Syntax

display qos gts interface [*interface-type interface-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type interface-number: Specifies an interface by its type and number. If you do not specify an interface, this command displays the GTS configuration for all interfaces.

Examples

Display the GTS configuration for all interfaces.

```
<Sysname> display qos gts interface
Interface: GigabitEthernet1/0/1
 Rule: If-match queue 1
  CIR 512 (kbps), CBS 51200 (Bytes)
```

Table 13 Command output

Field	Description
Interface	Interface name, including the interface type and interface number.
Rule	Match criteria.
CIR	CIR in kbps.
CBS	CBS in bytes.

qos gts

Use **qos gts** to set GTS parameters on an interface.

Use **undo qos gts** to delete the GTS configuration on an interface.

Syntax

qos gts queue *queue-id* **cir** *committed-information-rate* [**cbs** *committed-burst-size*]

undo qos gts queue *queue-id*

Default

No GTS parameters are configured.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Parameters

queue *queue-id*: Shapes the packets in a queue specified by its ID. The value range for *queue-id* is 0 to 7.

cir *committed-information-rate*: Specifies the CIR in kbps. The value range for *committed-information-rate* is 8 to 1048576 for GE interfaces and 8 to 10485760 for 10-GE interfaces. The specified value must be a multiple of 8.

cbs *committed-burst-size*: Specifies the CBS in bytes. The value range for *committed-burst-size* is 512 to 16777216, in increments of 512. The default value for this argument is the product of 62.5 and the CIR and must be an integral multiple of 512. When the product is not an integral multiple of 512, it is rounded up to the nearest integral multiple of 512 that is greater than the product. A default value greater than 16777216 is converted to 16777216.

Examples

Shape the packets of queue 1 on GigabitEthernet 1/0/1. The GTS parameters are as follows:

- The CIR is 6400 kbps.
- The CBS is 51200 bytes.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] qos gts queue 1 cir 6400 cbs 51200
```

Rate limit commands

display qos lr interface

Use **display qos lr interface** to display the rate limit configuration for interfaces.

Syntax

display qos lr interface [*interface-type interface-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type interface-number: Specifies an interface by its type and number. If you do not specify an interface, this command displays the rate limit configuration for all interfaces.

Examples

Display the rate limit configuration for all interfaces.

```
<Sysname> display qos lr interface
Interface: GigabitEthernet1/0/1
 Direction: Outbound
  CIR 2000 (kbps), CBS 20480 (Bytes)
```

Table 14 Command output

Field	Description
Interface	Interface name, including the interface type and interface number.
Direction	Direction in which the rate limit configuration is applied.
CIR	CIR in kbps.
CBS	CBS in bytes.

qos lr

Use **qos lr** to configure rate limiting on an interface.

Use **undo qos lr** to delete the rate limit configuration on an interface.

Syntax

qos lr { **inbound** | **outbound** } **cir** *committed-information-rate* [**cbs** *committed-burst-size*]

undo qos lr { **inbound** | **outbound** }

Default

No rate limit is configured.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Parameters

inbound: Limits the rate of incoming packets.

outbound: Limits the rate of outgoing packets.

cir *committed-information-rate*: Specifies the CIR in kbps. The value range for *committed-information-rate* is 8 to 1048576 for GE interfaces and 8 to 10485760 for 10-GE interfaces. The specified value must be a multiple of 8.

cbs *committed-burst-size*: Specifies the CBS in bytes. The value range for *committed-burst-size* is 512 to 134217728, in increments of 512. The default value for this argument is the product of 62.5 and the CIR and must be an integral multiple of 512. When the product is not an integral multiple of 512, it is rounded up to the nearest integral multiple of 512 that is greater than the product. A default value greater than 134217728 is converted to 134217728.

Examples

Limit the rate of outgoing packets on GigabitEthernet 1/0/1, with CIR 256 kbps and CBS 51200 bytes.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] qos lr outbound cir 256 cbs 51200
```

Congestion management commands

Common commands

display qos queue interface

Use **display qos queue interface** to display the queuing information for interfaces.

Syntax

display qos queue interface [*interface-type interface-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type interface-number: Specifies an interface by its type and number. If you do not specify an interface, this command displays the queuing information for all interfaces.

Examples

Display the queuing information for all interfaces.

```
<Sysname> display qos queue interface
Interface: GigabitEthernet1/0/1
Output queue: Strict Priority queuing
Interface: GigabitEthernet1/0/2
 Output queue: Strict Priority queuing
Interface: GigabitEthernet1/0/3
 Output queue: Strict Priority queuing
Interface: GigabitEthernet1/0/4
 Output queue: Strict Priority queuing
Interface: GigabitEthernet1/0/5
 Output queue: Strict Priority queuing
Interface: GigabitEthernet1/0/6
 Output queue: Strict Priority queuing
```

Table 15 Command output

Field	Description
Interface	Interface name, including the interface type and interface number.
Output queue	Type of the current output queue.
Group	Number of the group that holds the queue.
Weight	Packet-count scheduling weight of the queue. N/A is displayed for a queue that uses the SP scheduling algorithm.

SP commands

display qos queue sp interface

Use **display qos queue sp interface** to display the SP queuing configuration of an interface.

Syntax

display qos queue sp interface [*interface-type interface-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type interface-number: Specifies an interface by its type and number. If you do not specify an interface, this command displays the SP queuing configuration of all interfaces.

Examples

Display the SP queuing configuration of GigabitEthernet 1/0/1.

```
<Sysname> display qos queue sp interface gigabitethernet 1/0/1
Interface: GigabitEthernet1/0/1
 Output queue: Strict Priority queuing
```

Table 16 Command output

Field	Description
Interface	Interface type and interface number.
Output queue	Type of the current output queue.

qos sp

Use **qos sp** to enable SP queuing on an interface.

Use **undo qos sp** to restore the default.

Syntax

qos sp

undo qos sp

Default

An interface uses packet-count WRR queuing.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Examples

Enable SP queuing on GigabitEthernet 1/0/1.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] qos sp
```

Related commands

display qos queue sp interface

WRR commands

display qos queue wrr interface

Use **display qos queue wrr interface** to display the WRR queuing configuration of an interface.

Syntax

display qos queue wrr interface [*interface-type interface-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type interface-number: Specifies an interface by its type and number. If you do not specify an interface, this command displays the WRR queuing configuration of all interfaces.

Examples

Display the WRR queuing configuration of GigabitEthernet 1/0/1.

```
<Sysname> display qos queue wrr interface gigabitethernet 1/0/1
Interface: GigabitEthernet1/0/1
 Output queue: Weighted Round Robin queuing
 Queue ID        Queue name      Group           Weight
 ------------------------------------------------------------
 0               be              1               1
 1               af1             1               1
 2               af2             1               1
 3               af3             1               1
 4               af4             1               1
 5               ef              1               1
 6               cs6             1               1
 7               cs7             sp              N/A
```

Table 17 Command output

Field	Description
Interface	Interface type and interface number.

Field	Description
Output queue	Type of the current output queue.
Group	ID of the group a queue is assigned to.
Weight	Packet-count queue scheduling weight of a queue. N/A is displayed for a queue that uses the SP scheduling algorithm.

qos wrr

Use **qos wrr** to enable WRR queuing on an interface.

Use **undo qos wrr** to restore the default.

Syntax

qos wrr weight

undo qos wrr weight

Default

An interface uses packet-count WRR queuing.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Parameters

weight: Allocates bandwidth to queues in packets.

Usage guidelines

You must use the **qos wrr** command to enable WRR queuing before you can configure WRR queuing parameters for a queue on an interface.

Examples

Enable packet-count WRR queuing on GigabitEthernet 1/0/1.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] qos wrr weight
```

Related commands

display qos queue wrr interface

qos wrr weight

Use **qos wrr weight** to configure the WRR queuing parameters for a queue on an interface.

Use **undo qos wrr** to restore the default.

Syntax

qos wrr *queue-id* **group 1 weight** *schedule-value*

undo qos wrr *queue-id*

Default

All queues on a WRR-enabled interface are in WRR group 1, and queues 0 through 7 have a weight of 1, 2, 3, 4, 5, 9, 13, and 15, respectively.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Parameters

queue-id: Specifies a queue by its ID. The value range for this argument is 0 to 7 or keywords in Table 18.

Table 18 The number-keyword map for the *queue-id* argument

Number	Keyword
0	be
1	af1
2	af2
3	af3
4	af4
5	ef
6	cs6
7	cs7

group 1: Specifies WRR group 1. Only WRR group 1 is supported in the current software version.

weight: Allocates bandwidth to queues in packets.

schedule-value: Specifies a scheduling weight. The value range for this argument is 1 to 15.

Usage guidelines

You must use the **qos wrr** command to enable WRR queuing before you can configure WRR queuing parameters for a queue on an interface.

Examples

Enable packet-based WRR queuing on GigabitEthernet 1/0/1, assign queue 0 to WRR group 1, and specify scheduling weight 10 for queue 0.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] qos wrr weight
[Sysname-GigabitEthernet1/0/1] qos wrr 0 group 1 weight 10
```

Related commands

display qos queue wrr interface

qos wrr

qos wrr group sp

Use **qos wrr group sp** to assign a queue to the SP group.

Use **undo qos wrr group sp** to remove a queue from the SP group.

Syntax

qos wrr *queue-id* **group sp**

undo qos wrr *queue-id*

Default

All queues on a WRR-enabled interface are in WRR group 1.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Parameters

queue-id: Specifies a queue by its ID. The value range for this argument is 0 to 7 or keywords in Table 18.

Usage guidelines

This command is available only on a WRR-enabled interface. Queues in the SP group are scheduled with SP. The SP group has higher scheduling priority than the WRR groups.

You must use the **qos wrr** command to enable WRR queuing before you can configure this command on an interface.

A queue in the SP group is not scheduled if the queue has the lowest priority among all queues with traffic load on the interface.

Examples

Enable WRR queuing on GigabitEthernet 1/0/1, and assign queue 0 to the SP group.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] qos wrr weight
[Sysname-GigabitEthernet1/0/1] qos wrr 0 group sp
```

Related commands

display qos queue wrr interface

qos wrr

Queue scheduling profile commands

display qos qmprofile configuration

Use **display qos qmprofile configuration** to display the queue scheduling profile configuration.

Syntax

display qos qmprofile configuration [*profile-name*] [**slot** *slot-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

profile-name: Specifies a queue scheduling profile by its name, a case-sensitive string of 1 to 31 characters. If you do not specify a queue scheduling profile, this command displays the configuration of all queue scheduling profiles.

slot *slot-number*: Specifies an IRF member device by its member ID. If you do not specify a member device, this command displays the queue scheduling profile configuration for the master device.

Examples

Display the configuration of queue scheduling profile **myprofile**.

```
<Sysname> display qos qmprofile configuration myprofile
Queue management profile: myprofile (ID 1)
Queue ID  Type  Group   Schedule   Schedule  Min         Max
                        unit       value     bandwidth   bandwidth
-------------------------------------------------------------------
be        SP    N/A     N/A        N/A       N/A         N/A
af1       SP    N/A     N/A        N/A       N/A         N/A
af2       SP    N/A     N/A        N/A       N/A         N/A
af3       SP    N/A     N/A        N/A       N/A         N/A
af4       SP    N/A     N/A        N/A       N/A         N/A
ef        SP    N/A     N/A        N/A       N/A         N/A
cs6       SP    N/A     N/A        N/A       N/A         N/A
cs7       SP    N/A     N/A        N/A       N/A         N/A
```

Table 19 Command output

Field	Description
Queue management profile	Queue scheduling profile name.
Type	Queue scheduling type: • SP. • WRR.
Group	Priority group to which the queue belongs. The value can only be 1. **N/A** indicates this field is ignored.
Schedule unit	Scheduling unit, which can only be **weight**.. **N/A** indicates that this field is ignored.
Schedule value	This field indicates the number of packets scheduled each time. **N/A** indicates that this field is ignored.
Min bandwidth	Minimum guaranteed bandwidth for the queue. **N/A** indicates that this field is ignored.
Max bandwidth	This field is not supported in the current software version. Maximum allowed bandwidth for the queue. **N/A** indicates that this field is ignored.

display qos qmprofile interface

Use **display qos qmprofile interface** to display the queue scheduling profile applied to an interface.

Syntax

display qos qmprofile interface [*interface-type interface-number*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type interface-number: Specifies an interface by its type and number. If you do not specify an interface, this command displays the queue scheduling profiles applied to all interfaces.

Examples

Display the queue scheduling profile applied to GigabitEthernet 1/0/1.

```
<Sysname> display qos qmprofile interface gigabitethernet 1/0/1
Interface: GigabitEthernet1/0/1
Direction: Outbound
 Queue management profile: myprofile
```

Table 20 Command output

Field	Description
Direction	Direction in which the queue scheduling profile is applied.
Queue management profile	Name of the queue scheduling profile applied to the interface.

qos apply qmprofile

Use **qos apply qmprofile** to apply a queue scheduling profile to the outbound direction of an interface.

Use **undo qos apply qmprofile** to restore the default.

Syntax

qos apply qmprofile *profile-name*

undo qos apply qmprofile

Default

No queue scheduling profile is applied to an interface.

Views

Layer 2 Ethernet interface view

Predefined user roles

network-admin

Parameters

profile-name: Specifies a queue scheduling profile by its name, a case-sensitive string of 1 to 31 characters.

Usage guidelines

You can apply only one queue scheduling profile to an interface.

Examples

Apply queue scheduling profile **myprofile** to the outbound direction of GigabitEthernet 1/0/1.

```
<Sysname> system-view
[Sysname] interface gigabitethernet 1/0/1
[Sysname-GigabitEthernet1/0/1] qos apply qmprofile myprofile
```

Related commands

display qos qmprofile interface

qos qmprofile

Use **qos qmprofile** to create a queue scheduling profile and enter its view, or enter the view of an existing queue scheduling profile.

Use **undo qos qmprofile** to delete a queue scheduling profile.

Syntax

qos qmprofile *profile-name*

undo qos qmprofile *profile-name*

Default

No user-created queue scheduling profiles exist.

Views

System view

Predefined user roles

network-admin

Parameters

profile-name: Specifies a name for the queue scheduling profile, a case-sensitive string of 1 to 31 characters.

Usage guidelines

To delete a queue scheduling profile already applied to an object, first remove it from the object.

Examples

Create a queue scheduling profile named **myprofile** and enter queue scheduling profile view.

```
<Sysname> system-view
[Sysname] qos qmprofile myprofile
[Sysname-qmprofile-myprofile]
```

Related commands

display qos qmprofile interface

queue

queue

Use **queue** to configure queue scheduling parameters.

Use **undo queue** to delete queue scheduling parameter settings.

Syntax

queue *queue-id* { **sp** | **wrr group** *group-id* **weight** *schedule-value* }

undo queue *queue-id*

Default

All queues in a queue scheduling profile use SP queuing.

Views

Queue scheduling profile view

Predefined user roles

network-admin

Parameters

queue-id: Specifies a queue by its ID. The value range for this argument is 0 to 7 or keywords in Table 18.

sp: Enables SP for the queue.

wrr: Enables WRR for the queue.

group *group-id*: Specifies a WRR group by its ID. The group ID can only be 1.

weight: Allocates bandwidth to queues in packets.

schedule-value: Specifies a scheduling weight in the range of 1 to 15.

Examples

Create a queue scheduling profile named **myprofile**, and configure queue 0 to use SP.

```
<Sysname> system-view
[Sysname] qos qmprofile myprofile
[Sysname-qmprofile-myprofile] queue 0 sp
```

Create a queue scheduling profile named **myprofile**. Configure queue 1 to meet the following requirements:

- The WRR queuing is used.
- The WRR group is group 1.
- The scheduling weight is 10.

```
<Sysname> system-view
[Sysname] qos qmprofile myprofile
[Sysname-qmprofile-myprofile] queue 1 wrr group 1 weight 10
```

Related commands

display qos qmprofile interface

qos qmprofile

Queue-based accounting commands

display qos queue-statistics interface outbound

Use **display qos queue-statistics interface outbound** to display queue-based outgoing traffic statistics for interfaces.

Syntax

display qos queue-statistics interface [*interface-type interface-number*] **outbound**

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

interface-type interface-number: Specifies an interface by its type and number. If you do not specify an interface, this command displays the queue-based outgoing traffic statistics for all interfaces.

Examples

Display queue-based outgoing traffic statistics for GigabitEthernet 1/0/1.

```
<Sysname> display qos queue-statistics interface gigabitethernet 1/0/1 outbound
Interface: GigabitEthernet1/0/1
 Direction: outbound
 Forwarded: 0 packets, 0 bytes
 Dropped: 0 packets, 0 bytes
 Queue 0
  Forwarded: 0 packets, 0 bytes, 0 pps, 0 bps
  Dropped: 0 packets, 0 bytes
  Current queue length: 0 packets
 Queue 1
  Forwarded: 0 packets, 0 bytes, 0 pps, 0 bps
  Dropped: 0 packets, 0 bytes
  Current queue length: 0 packets
 Queue 2
  Forwarded: 0 packets, 0 bytes, 0 pps, 0 bps
  Dropped: 0 packets, 0 bytes
  Current queue length: 0 packets
 Queue 3
  Forwarded: 0 packets, 0 bytes, 0 pps, 0 bps
  Dropped: 0 packets, 0 bytes
  Current queue length: 0 packets
 Queue 4
  Forwarded: 0 packets, 0 bytes, 0 pps, 0 bps
  Dropped: 0 packets, 0 bytes
  Current queue length: 0 packets
```

```
Queue 5
 Forwarded: 0 packets, 0 bytes, 0 pps, 0 bps
 Dropped: 0 packets, 0 bytes
 Current queue length: 0 packets
Queue 6
 Forwarded: 0 packets, 0 bytes, 0 pps, 0 bps
 Dropped: 0 packets, 0 bytes
 Current queue length: 0 packets
Queue 7
 Forwarded: 0 packets, 0 bytes, 0 pps, 0 bps
 Dropped: 0 packets, 0 bytes
 Current queue length: 0 packets
```

Table 21 Command output

Field	Description
Interface	Interface for which queue-based traffic statistics are displayed.
Direction	Direction of traffic for which statistics are collected.
Forwarded	Counts forwarded traffic both in packets and in bytes.
Dropped	Counts dropped traffic both in packets and in bytes.
Current queue length	Number of packets in the queue.

Related commands

`reset counters interface` (*Interface Command Reference*)

Aggregate CAR commands

car name

Use **car name** to use an aggregate CAR action in a traffic behavior.

Use **undo car** to restore the default.

Syntax

car name *car-name*

undo car

Default

No aggregate CAR action is configured in a traffic behavior.

Views

Traffic behavior view

Predefined user roles

network-admin

Parameters

car-name: Specifies the name of an aggregate CAR action. This argument must start with a letter, and is a case-sensitive string of 1 to 31 characters.

Examples

Use aggregate CAR action **aggcar-1** in traffic behavior **be1**.

```
<Sysname> system-view
[Sysname] traffic behavior be1
[Sysname-behavior-be1] car name aggcar-1
```

Related commands

display qos car name

display traffic behavior user-defined

display qos car name

Use **display qos car name** to display information about aggregate CAR actions.

Syntax

display qos car name [*car-name*]

Views

Any view

Predefined user roles

network-admin

network-operator

Parameters

car-name: Specifies an aggregate CAR action by its name. This argument must start with a letter, and is a case-sensitive string of 1 to 31 characters. If you do not specify an aggregate CAR action, this command displays information about all aggregate CAR actions.

Examples

Display information about all aggregate CAR actions.

```
<Sysname> display qos car name
 Name: a
  Mode: aggregative
   CIR 32 (kbps) CBS: 2048 (Bytes) PIR: 888 (kbps) EBS: 0 (Bytes)
   Green action  : pass
   Yellow action : pass
   Red action    : discard
  Slot 0:
   Green packets : 0 (Packets), 0 (Bytes)
   Yellow packets: 0 (Packets), 0 (Bytes)
   Red packets   : 0 (Packets), 0 (Bytes)
  Slot 1:
   Green packets : 0 (Packets), 0 (Bytes)
   Yellow packets: 0 (Packets), 0 (Bytes)
   Red packets   : 0 (Packets), 0 (Bytes)
  Slot 2:
   Apply failed
```

Table 22 Command output

Field	Description
Name	Name of the aggregate CAR action.
Mode	Type of the CAR action, which can be **aggregative**.
CIR CBS PIR EBS	Parameters for the CAR action.
Green action	Action to take on green packets: • **discard**—Drops the packets. • **pass**—Permits the packets to pass through.
Yellow action	Action to take on yellow packets: • **discard**—Drops the packets. • **pass**—Permits the packets to pass through.
Red action	Action to take on red packets: • **discard**—Drops the packets. • **pass**—Permits the packets to pass through.
Green packet	Statistics about green packets.
Yellow packet	Statistics about yellow packets.
Red packet	Statistics about red packets.

qos car

Use **qos car aggregative** to configure an aggregate CAR action.

Use **undo qos car** to delete an aggregate CAR action.

Syntax

qos car *car-name* **aggregative cir** *committed-information-rate* [**cbs** *committed-burst-size* [**ebs** *excess-burst-size*]] [**green** *action* | **red** *action* | **yellow** *action*] *

qos car *car-name* **aggregative cir** *committed-information-rate* [**cbs** *committed-burst-size*] **pir** *peak-information-rate* [**ebs** *excess-burst-size*] [**green** *action* | **red** *action* | **yellow** *action*] *

undo qos car *car-name*

Default

No aggregate CAR action is configured.

Views

System view

Predefined user roles

network-admin

Parameters

car-name: Specifies the name of the aggregate CAR action. This argument must start with a letter, and is a case-sensitive string of 1 to 31 characters.

cir *committed-information-rate*: Specifies the CIR in kbps, which is an average traffic rate. The value range for *committed-information-rate* is 8 to 160000000.

cbs *committed-burst-size*: Specifies the CBS in bytes. The value range for *committed-burst-size* is 512 to 256000000, in increments of 512. The default value for this argument is the product of 62.5 and the CIR and must be an integral multiple of 512. When the product is not an integral multiple of 512, it is rounded up to the nearest integral multiple of 512 that is greater than the product. A default value greater than 256000000 is converted to 256000000.

ebs *excess-burst-size*: Specifies the EBS in bytes. The value range for *excess-burst-size* is 0 to 256000000, in increments of 512. If the PIR is configured, the default EBS is the product of 62.5 and the PIR and must be an integral multiple of 512. When the product is not an integral multiple of 512, it is rounded up to the nearest integral multiple of 512. A default value greater than 256000000 is converted to 256000000.

pir *peak-information-rate*: Specifies the PIR in kbps. The value range for *peak-information-rate* is 8 to 160000000.

green *action*: Specifies the action to take on packets that conform to CIR. The default setting is **pass**.

red *action*: Specifies the action to take on the packet that conforms to neither CIR nor PIR. The default setting is **discard**.

yellow *action*: Specifies the action to take on packets that conform to PIR but not to CIR. The default setting is **pass**.

action: Specifies the action to take on packets:

- **discard**: Drops the packet.
- **pass**: Permits the packet to pass through.
- **remark-dot1p-pass** *new-cos*: Sets the 802.1p priority value of the 802.1p packet to *new-cos* and permits the packet to pass through. The *new-cos* argument is in the range of 0 to 7.

- **remark-dscp-pass** *new-dscp*: Remarks the packet with a new DSCP value and permits the packet to pass through. The *new-dscp* argument is in the range of 0 to 63. Alternatively, you can specify the *new-dscp* argument with **af11**, **af12**, **af13**, **af21**, **af22**, **af23**, **af31**, **af32**, **af33**, **af41**, **af42**, **af43**, **cs1**, **cs2**, **cs3**, **cs4**, **cs5**, **cs6**, **cs7**, **default**, or **ef**.

Usage guidelines

An aggregate CAR action takes effect only after it is used in a QoS policy.

A QoS policy configured with an aggregate CAR action cannot be applied to the outbound direction.

To use two rates for aggregate CAR, configure the **qos car** command with the **pir** *peak-information-rate* option. To use one rate for aggregate CAR, configure the **qos car** command without the **pir** *peak-information-rate* option.

Examples

Configure aggregate CAR action **aggcar-1**.

```
<Sysname> system-view
[Sysname] qos car aggcar-1 aggregative cir 25600 cbs 512000 red discard
```

Related commands

display qos car name

reset qos car name

Use **reset qos car name** to clear the statistics about aggregate CAR actions.

Syntax

reset qos car name [*car-name*]

Views

User view

Predefined user roles

network-admin

Parameters

car-name: Specifies an aggregate CAR action by its name. This argument must start with a letter, and is a case-sensitive string of 1 to 31 characters. If you do not specify an aggregate CAR action, this command clears statistics for all aggregate CAR actions.

Examples

Clear the statistics about aggregate CAR action **aggcar-1**.

```
<Sysname> reset qos car name aggcar-1
```