

ACL & QoS Configuration Commands

1. ACL Commands
2. QoS Commands
3. MMU Commands

1 ACL Commands

1.1 command ID table

For IDs used in the following commands, refer to the command ID table below:

ID	Meaning
ID	Number of access list. Range: Standard IP ACL: 1 to 99, 1300 to 1999 Extended IP ACL: 100 to 199,2000 to 2699 Extended MAC ACL: 700 to 799 Extended expert ACL: 2700 to 2899
name	ACL name
sn	ACL SN (products can be set according to the priority)
start-sn	Start sequence number
inc-sn	Sequence number increment
deny	If matched, access is denied.
permit	If matched, access is permitted.
port	Protocol number. For IPv6, this field can be IPv6, ICMP, TCP, UDP and numbers 0 to 255. For IPv4, it can be one of EIGRP, GRE, IPINIP, IGMP, NOS, OSPF, ICMP, UDP, TCP,AHP, ESP, PCP, PIM and IP, or it can be numbers 0 to 255 that represent the IP protocol. It is described when some important protocols, such as ICMP, TCP and UDP, are listed individually.
interface <i>idx</i>	Interface index
src	Packet source IP address (host address or network address)
src-wildcard	Source IP address wildcard. It can be discontinuous, for example, 0.255.0.32.
src-ipv6-pfix	Source IPv6 network address or network type
dst-ipv6-pfix	Destination IPv6 network address or network type
pfix-len	Prefix mask length
src-ipv6-addr	Source IPv6 address
dst-ipv6-addr	Destination IPv6 address
dscp	Differential service code point, and code point value. Range: 0 to 63
flow-label	Flow label in the range 0 to 1048575
dst	Packet destination IP address (host address or network address)
dst-wildcard	Destination IP address wildcard. It can be discontinuous, such as 0.255.0.32
fragment	Packet fragment filtering.

precedence	Packet precedence value (0 to 7)
range	The layer 4 port number range of the packet.
time-range <i>tm-rng-name</i>	Time range of packet filtering, named <i>tm-rng-name</i>
tos	Type of service (0 to 15)
cos	Class of service (0-7)
cos inner <i>cos</i>	COS of the packet tag
icmp-type	ICMP message type (0 to 255)
icmp-code	ICMP message type code (0 to 255)
icmp-message	ICMP message type name (0 to 255)
operator port[port]	Operator (lt-smaller, eq-equal, gt-greater, neq-unequal, range-range) <i>port</i> indicates the port number. Dyadic operation needs two port numbers, while other operators only need one port number
src-mac-addr	Physical address of the source host
dst-mac-addr	Physical address of the destination host
VID vid	VLAN ID
VID inner vid	VID of the tag
ethernet-type	Ethernet protocol type. 0x value can be entered.
match-all <i>tcpf</i>	Match all bits of the TCP flag.
established	Match the RST or ACK bit of the TCP flag.
<i>text</i>	Remark text
<i>in</i>	Filter the incoming packets of the interface
<i>out</i>	Filter the outgoing packets of the interface
{rule mask offset} ⁺	rule: Hexadecimal value field; mask: Hexadecimal mask field offset: Refer to the offset table “+” sign indicates at least one group
log	Output the matching syslog when the packet matches the ACL rule.

The fields in the packet are as follows:

```
AA AA AA AA AA AA BB BB BB BB BB BB CC CC DD DD
DD DD EE FF GG HH HH HH II II JJ KK LL LL MM MM
NN NN OO PP QQ QQ RR RR RR RR SS SS SS SS TT TT
UU UU VV VV VV VV WW WW WW WW XY ZZ aa aa bb bb
```

The corresponding offset table is as follows:

Letter	Meaning	Offset	Letter	Meaning	Offset
A	Destination MAC	0	O	TTL field	34
B	Source MAC	6	P	Protocol number	35

C	Data frame length field	12	Q	IP check sum	36
D	VLAN tag field	14	R	Source IP address	38
E	DSAP (Destination Service Access Point) field	18	S	Destination IP address	42
F	SSAP (Source Service Access Point) field	19	T	TCP source port	46
G	Ctrl field	20	U	TCP destination port	48
H	Org Code field	21	V	Sequence number	50
I	Encapsulated data type	24	W	Confirmation field	54
J	IP version number	26	XY	IP header length and reserved bits	58
K	TOS field	27	Z	Resrvd bits and flags bit	59
L	Length of IP packet	28	a	Windows size field	60
M	ID	30	b	Others	62
N	Flags field	32			

The offsets of fields in the above table are their offsets in 802.3 data frames of SNAP+tag.

1.2 access-list

Use this command to create an access list to filter data packets. Use the **no** form of this command to remove the specified access list.

- Standard IP access list (1 to 99, 1300 to 1999)

```
access-list id { deny | permit } { source source-wildcard | host source | any | interface idx } [time-range tm-range-name ] [ log ]
```

- Extended IP access list (100 to 199, 2000 to 2699)

```
access-list id { deny | permit } protocol { source source-wildcard | host source | any | interface idx } { destination destination-wildcard | host destination | any } [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name] [ log ]
```

- Extended MAC access list (700 to 799)

```
access-list id { deny | permit } { any | host source-mac-address | source-mac-address mask } { any | host destination-mac-address | destination-mac-address mask } [ethernet-type][cos [out][inner in]]
```

- Extended expert access list (2700 to 2899)

```
access-list id { deny | permit } [protocol | [ethernet-type][cos [out][inner in]]] [VID [out][inner in]] { source source-wildcard | host source | any } { host source-mac-address | any } { destination destination-wildcard | host destination | any } { host destination-mac-address | any } [precedence precedence] [tos tos] [fragment] [time-range time-range-name]
```

- When you select the Ethernet-type field or cos field:

```
access-list id { deny | permit } [ethernet-type] cos [out][inner in]] [VID [out][inner in]] { source source-wildcard | host source | any } { host source-mac-address | any } { destination destination-wildcard | host destination | any } { host destination-mac-address | any } [time-range time-range-name]
```

- When you select the protocol field:

access-list *id* {deny | permit} **protocol** [**VID** [*outf*][*inner in*]] {**source** *source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any**} {**destination** *destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

- Extended expert ACLs of some important protocols:

Internet Control Message Protocol (ICMP)

access-list *id* {deny | permit} **icmp** [**VID** [*outf*][*inner in*]] {**source** *source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any**} {**destination** *destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**time-range** *time-range-name*]

Transmission Control Protocol (TCP)

access-list *id* {deny | permit} **tcp** [**VID** [*outf*][*inner in*]] {**source** *source-wildcard* | **host** *Source* | **any**} {**host** *source-mac-address* | **any**} [**operator** *port* [*port*]] {**destination** *destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [**operator** *port* [*port*]] [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] [**match-all** *tcp-flag* | **established**]

User Datagram Protocol (UDP)

access-list *id* {deny | permit} **udp** [**VID** [*outf*][*inner in*]] {**source** *source-wildcard* | **host** *source* | **any**} {**host** *source-mac-address* | **any**} [**operator** *port* [*port*]] {**destination** *destination-wildcard* | **host** *destination* | **any**} {**host** *destination-mac-address* | **any**} [**operator** *port* [*port*]] [**precedence** *precedence*] [**tos** *tos*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

Parameter Description

Parameter	Description
<i>id</i>	Access list number. The ranges available are 1 to 99, 100 to 199, 1300 to 1999, 2000 to 2699, 2700 to 2899, and 700 to 799.
deny	If not matched, access is denied.
permit	If matched, access is permitted.
<i>source</i>	Specify the source IP address (host address or network address).
<i>source-wildcard</i>	It can be discontinuous, for example, 0.255.0.32.
protocol	IP protocol number. It can be one of EIGRP, GRE, IPINIP, IGMP, NOS, OSPF, ICMP, UDP, TCP, and IP. It can also be a number representing the IP protocol between 0 and 255. The important protocols such as ICMP, TCP, and UDP are described separately.
<i>destination</i>	Specify the destination IP address (host address or network address).
<i>destination-wildcard</i>	Wildcard of the destination IP address. It can be discontinuous, for example, 0.255.0.32.
fragment	Packet fragment filtering
precedence	Specify the packet priority.
<i>precedence</i>	Packet precedence value (0 to 7)

range	Layer4 port number range of the packet.
<i>lower</i>	Lower limit of the layer4 port number.
<i>upper</i>	Upper limit of the layer4 port number.
time-range	Time range of packet filtering
<i>time-range-name</i>	Time range name of packet filtering
tos	Specify type of service.
<i>tos</i>	ToS value (0 to 15)
<i>icmp-type</i>	ICMP message type (0 to 255)
<i>icmp-code</i>	ICMP message type code (0 to 255)
<i>icmp-message</i>	ICMP message type name
<i>operator</i>	Operator (lt-smaller, eq-equal, gt-greater, neq-unequal, range-range)
port [<i>port</i>]	Port number; <i>range</i> needs two port numbers, while other operators only need one port number.
host <i>source-mac-address</i>	Source physical address
host <i>destination-mac-address</i>	Destination physical address
VID <i>vid</i>	Match the specified VID.
<i>ethernet-type</i>	Ethernet type
match-all	Match all the bits of the TCP flag.
<i>tcp-flag</i>	Match the TCP flag.
established	Match the RST or ACK bits, not other bits of the TCP flag.

Defaults None

Command Global configuration mode.

Mode

Usage Guide To filter the data by using the access control list, you must first define a series of rule statements by using the access list. You can use ACLs of the appropriate types according to the security needs:

The standard IP ACL (1 to 99, 1300 to 1999) only controls the source IP addresses.

The extended IP ACL (100 to 199, 2000 to 2699) can enforce strict control over the source and destination IP addresses.

The extended MAC ACL (700 to 799) can match against the source/destination MAC addresses and Ethernet type.

The extended expert access list (2700 to 2899) is a combination of the above and can match and filter the VLAN ID.

For the layer-3 routing protocols including the unicast routing protocol and multicast routing protocol, the following parameters are not supported by the ACL: **precedence** *precedence/tos tos/fragments/range lower upper/time-range time-range-name*

The TCP Flag includes part or all of the following:

- urg
- ack
- psh

- rst
- syn
- fin

The packet precedence is as below:

- critical
- flash
- flash-override
- immediate
- internet
- network
- priority
- routine

The service types are as below:

- max-reliability
- max-throughput
- min-delay
- min-monetary-cost
- normal

The ICMP message types are as below:

- administratively-prohibited
- dod-host-prohibited
- dod-net-prohibited
- echo
- echo-reply
- fragment-time-exceeded
- general-parameter-problem
- host-isolated
- host-precedence-unreachable
- host-redirect
- host-tos-redirect
- host-tos-unreachable

- host-unknown
- host-unreachable
- information-reply
- information-request
- mask-reply
- mask-request
- mobile-redirect
- net-redirect
- net-tos-redirect
- net-tos-unreachable
- net-unreachable
- network-unknown
- no-room-for-option
- option-missing
- packet-too-big
- parameter-problem
- port-unreachable
- precedence-unreachable
- protocol-unreachable
- redirect
- device-advertisement
- device-solicitation
- source-quench
- source-route-failed
- time-exceeded
- timestamp-reply
- timestamp-request
- ttl-exceeded
- unreachable

The TCP ports are as follows. A port can be specified by port name and port number:

- bgp
- chargen

- cmd
- daytime
- discard
- domain
- echo
- exec
- finger
- ftp
- ftp-data
- gopher
- hostname
- ident
- irc
- klogin
- kshell
- ldp
- login
- nntp
- pim-auto-rp
- pop2
- pop3
- smtp
- sunrpc
- syslog
- tacacs
- talk
- telnet
- time
- uucp
- whois
- www

The UDP ports are as follows. A UDP port can be specified by port name and port number.

- biff
- bootpc
- bootps
- discard
- dnsix
- domain
- echo
- isakmp
- mobile-ip
- nameserver
- netbios-dgm
- netbios-ns
- netbios-ss
- ntp
- pim-auto-rp
- rip
- snmp
- snmptrap
- sunrpc
- syslog
- tacacs
- talk
- tftp
- time
- who
- xdmcp

The Ethernet types are as below:

- aarp
- appletalk
- decnet-iv
- diagnostic
- etype-6000

- etype-8042
- lat
- lavc-sca
- mop-console
- mop-dump
- mumps
- netbios
- vines-echo
- xns-idp

Configuration Examples

1. Example of the standard IP ACL

The following basic IP ACL allows the packets whose source IP addresses are 192.168.1.64 - 192.168.1.127 to pass:

```
Orion_B54Q (config)#access-list 1 permit 192.168.1.64 0.0.0.63
```

2. Example of the extended IP ACL

The following extended IP ACL allows the DNS messages and ICMP messages to pass:

```
Orion_B54Q(config)#access-list 102 permit tcp any any eq domain log
Orion_B54Q(config)#access-list 102 permit udp any any eq domain log
Orion_B54Q(config)#access-list 102 permit icmp any any echo log
Orion_B54Q(config)#access-list 102 permit icmp any any echo-reply
```

3. Example of the extended MAC ACL

This example shows how to deny the host with the MAC address 00d0f8000c0c to provide service with the protocol type 100 on gigabit Ethernet port 1/1. The configuration procedure is as below:

```
Orion_B54Q(config)#access-list 702 deny host 00d0f8000c0c any aarp
Orion_B54Q(config)# interface gigabitethernet 1/1
Orion_B54Q(config-if)# mac access-group 702 in
```

4. Example of the extended expert ACL

The following example shows how to create and display an extended expert ACL. This expert ACL denies all the TCP packets with the source IP address 192.168.12.3 and the source MAC address 00d0.f800.0044.

```
Orion_B54Q(config)#access-list 2702 deny tcp host 192.168.12.3 mac
00d0.f800.0044 any any
Orion_B54Q(config)# access-list 2702 permit any any any any
Orion_B54Q(config)# show access-lists
expert access-list extended 2702
10 deny tcp host 192.168.12.3 mac 00d0.f800.0044 any any
10 permit any any any any
```

Related Commands

Command	Description
show access-lists	Show all the ACLs.

mac access-group	Apply the extended MAC ACL on the interface.
-------------------------	--

Platform N/A

Description

1.3 access-list list-remark

Use this command to write a helpful comment (remark) for an access list. Use the **no** form of this command to remove the remark.

access-list *id* **list-remark** *text*

no access-list *id* **list-remark**

Parameter	Description
<i>id</i>	Access list number. Standard IP ACL: 1 to 99, 1300 to 1999. Extended IP ACL: 100 to 199. 2000 to 2699. Extended MAC ACL: 700 to 799. Extended Expert ACL: 2700 to 2899.
<i>text</i>	Comment that describes the access list.

Defaults The access lists have no remarks by default.

Command Global configuration mode

Mode

Usage Guide You can use this command to write a helpful comment for a specified access list. If the specified access list does not exist, the command will create the access list, then add remarks for the access list.

Configuration The following example writes a comment of "this acl is to filter the host 192.168.4.12" for ACL100.

Examples

```
Orion_B54Q(config)# ip access-list extended 100
Orion_B54Q(config)# access-list 100 list-remark this acl is to filter the
host 192.168.4.12
```

Related Commands	Command	Description
	show access- lists	Displays all access lists, including the remarks for the access lists.
	show access-lists <i>id</i>	Displays the access list of a specified number, including the remarks for the access list.
	show access-lists <i>name</i>	Displays the access list of a specified name, including the remarks for the access list.

Platform

Description

1.4 access-list remark

Use this command to write a helpful comment (remark) for an entry in a numbered access list. Use the **no** form of this command to remove the remark.

access-list *id* **remark** *text*

no access-list *id* **remark** *text*

Parameter Description

Parameter	Description
<i>id</i>	Access list number. Standard IP ACL: 1 to 99, 1300 to 1999. Extended IP ACL: 100 to 199. 2000 to 2699. Extended MAC ACL: 700 to 799. Extended Expert ACL: 2700 to 2899.
<i>text</i>	Comment that describes the access list entry.

Defaults The access list entries have no remarks by default.

Command Mode Global configuration mode

Usage Guide You can use this command to write a helpful comment for an entry in a specified access list. If the specified access list does not exist, the command will create the access list, then add remarks for the access entry.

Configuration The following example writes a comment for an entry in ACL102.

Examples Orion_B54Q(config)# access-list 102 remark deny-host-10.1.1.1

Related Commands

Command	Description
show access-lists	Displays all access lists, including the remarks for the access list entries.
show access-lists <i>id</i>	Displays the access list of a specified number, including the remarks for the access list entry.
show access-lists <i>name</i>	Displays the access list of a specified name, including the remarks for the access list entry.

Platform Description

1.5 clear counters access-list

Use this command to clear counters of packets matching ACLs.

clear counters access-list [*id* | *name*]

Parameter Description	Parameter	Description
	<i>id</i>	Access list number
	<i>name</i>	Access list name

Defaults

Command Privileged EXEC mode

Mode

Usage Guide This command is used to clear the counters of packets matching the specified or all ACLs.

Configuration The following example clears the packet matching counter of ACL No. 2700:

Examples

```
Orion_B54Q #show access-lists 2700
expert access-list extended 2700
  10 permit ip VID 4 host 192.168.3.55 any host 192.168.99.6 any (88
matches)
  20 deny tcp any any eq login any any (33455 matches)
  30 permit tcp any any host 192.168.6.9 any (10 matches)

Orion_B54Q# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Orion_B54Q(config)# clear expert access-list counters 2700
Orion_B54Q(config)# end
Orion_B54Q #show access-lists 2700
expert access-list extended 2700
  10 permit ip VID 4 host 192.168.3.55 any host 192.168.99.6 any
  20 deny tcp any any eq login any any
  30 permit tcp any any host 192.168.6.9 any
```

Related Commands

Command	Description
expert access-list	Defines an expert ACL.
deny	Defines a deny ACL entry.
permit	Defines a permits ACL entry.

Platform N/A

Description

1.6 deny

One or multiple **deny** conditions are used to determine whether to forward or discard the packet. In ACL configuration mode, you can modify the existent ACL or configure according to the protocol details.

5. Standard IP ACL

```
[sn] deny {source source-wildcard | host source | any} interface idx }[time-range tm-range-name] [log]
```

6. Extended IP ACL

```
[sn] deny protocol source source-wildcard destination destination-wildcard [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name] [log]
```

Extended IP ACLs of some important protocols:

- Internet Control Message Prot (ICMP)

```
[sn] deny icmp {source source-wildcard | host source | any} {destination destination-wildcard | host destination | any} [icmp-type] [[icmp-type icmp-code]] | [icmp-message]] [precedence precedence] [tos tos] [fragment] [time-range time-range-name]
```

- Transmission Control Protocol (TCP)

```
[sn] deny tcp {source source -wildcard | host source | any} [operator port [port]] {destination destination-wildcard | host destination | any} [operator port [port]] [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name]
```

- User Datagram Protocol (UDP)

```
[sn] deny udp {source source -wildcard | host source | any} [operator port [port]] {destination destination-wildcard | host destination | any} [operator port [port]] [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name]
```

7. Extended MAC ACL

```
[sn] deny { any | host source-mac-address } { any | host destination-mac-address } [ ethernet-type ] [ cos [ out ] [ inner in ] ]
```

8. Extended expert ACL

```
[sn] deny[protocol | [ethernet-type][ cos [out] [inner in]]] [[VID [out][inner in]]] {source source-wildcard | host source | any}{host source-mac-address | any} {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name]
```

- When you select the ethernet-type field or cos field:

```
[sn] deny {[ethernet-type][cos [out] [inner in]]} [[VID [out][inner in]]] {source source-wildcard | host source | any} {host source-mac-address | any} {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [time-range time-range-name]
```

- When you select the protocol field:

```
[sn] deny protocol [[VID [out][inner in]]] {source source-wildcard | host source | any} {host source-mac-address | any} {destination destination-wildcard | host destination | any} { host destination-mac-address | any} [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range
```

time-range-name

- Extended expert ACLs of some important protocols

Internet Control Message Protocol (ICMP)

[sn] deny icmp [[VID [out][inner in]]] {source source-wildcard | host source | any} {host source-mac-address | any} {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [icmp-type] [[icmp-type [icmp-code]] | [icmp-message]] [precedence precedence] [tos tos] [fragment] [time-range time-range-name]

Transmission Control Protocol (TCP)

[sn] deny tcp [[VID [out][inner in]]]{source source-wildcard | host Source | any} {host source-mac-address | any} [operator port [port]] {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [operator port [port]] [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name] [match-all tcp-flag | established]

User Datagram Protocol (UDP)

[sn] deny udp [[VID [out][inner in]]]{source source -wildcard | host source | any} {host source-mac-address | any} [operator port [port]] {destination destination-wildcard | host destination | any}{host destination-mac-address | any} [operator port [port]] [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name]

Address Resolution Protocol (ARP)

[sn] deny arp {vid vlan-id}[host source-mac-address | any] [host destination -mac-address | any] {sender-ip sender-ip-wildcard | host sender-ip | any} {sender-mac sender-mac-wildcard | host sender-mac | any} {target-ip target-ip-wildcard | host target-ip | any}

5. Extended IPv6 ACL

[sn] deny protocol{source-ipv6-prefix/prefix-length | any | host source-ipv6-address } {destination-ipv6-prefix / prefix-length | any| hostdestination-ipv6-address} [dscp dscp] [flow-label flow-label] [fragment] [range lower upper] [time-range time-range-name]

Extended ipv6 ACLs of some important protocols:

Internet Control Message Protocol (ICMP)

[sn]deny icmp {source-ipv6-prefix / prefix-length | any source-ipv6-address | host} {destination-ipv6-prefix / prefix-length | host destination-ipv6-address | any} [icmp-type] [[icmp-type [icmp-code]] | [icmp-message]] [dscp dscp] [flow-label flow-label] [fragment] [time-range time-range-name]

Transmission Control Protocol (TCP)

[sn] deny tcp {source-ipv6-prefix / prefix-length | hostsource-ipv6-address | any}[operator port[port]] {destination-ipv6-prefix /prefix-length | host destination-ipv6-address | any} [operator port [port]] [dscp dscp] [flow-label flow-label] [fragment] [range lower upper] [time-range time-range-name] [match-all tcp-flag | established]

User Datagram Protocol (UDP)

[sn] deny udp {source-ipv6-prefix/prefix-length | host source-ipv6-address | any} [operator port [port]] {destination-ipv6-prefix /prefix-length | host destination-ipv6-address | any}[operator port [port]] [dscp dscp] [flow-label flow-label] [fragment] [range lower upper] [time-range time-range-name]

Parameter Description

Parameter	Description
-----------	-------------

<i>sn</i>	ACL entry sequence number
<i>source-ipv6-prefix</i>	Source IPv6 network address or network type
<i>destination-ipv6-prefix</i>	Destination IPv6 network address or network type
<i>prefix-length</i>	Prefix mask length
<i>source-ipv6-address</i>	Source IPv6 address
<i>destination-ipv6-address</i>	Destination IPv6 address
dscp	Differential Service Code Point
<i>dscp</i>	Code value, within the range of 0 to 63
flow-label	Flow label
<i>flow-label</i>	Flow label value, within the range of 0 to 1048575.
<i>protocol</i>	For the IPv6, the field can be <code>ipv6 icmp tcp udp</code> and number in the range 0 to 255
time-range	Time range of the packet filtering
<i>time-range-name</i>	Time range name of the packet filtering

Defaults No entry

Command mode ACL configuration mode.

Usage Guide Use this command to configure the filtering entry of ACLs in ACL configuration mode.

Configuration Examples The following example shows how to create and display an extended expert ACL. This expert ACL denies all the TCP packets with the source IP address 192.168.4.12 and the source MAC address 001300498272.

```
Orion_B54Q(config)#expert access-list extended 2702
Orion_B54Q(config-exp-nacl)#deny tcp host
192.168.4.12 host 0013.0049.8272 any any
Orion_B54Q(config-exp-nacl)#permit any any any any
Orion_B54Q(config-exp-nacl)#show access-lists
expert access-list extended 2702
10 deny tcp host 192.168.4.12 host 0013.0049.8272 any any
20 permit any any any any
Orion_B54Q(config-exp-nacl)#
```

This example shows how to use the extended IP ACL. The purpose is to deny the host with the IP address 192.168.4.12 to provide services through the TCP port 100 and apply the ACL to Interface gigabitethernet 1/1. The configuration procedure is as below:

```
Orion_B54Q(config)# ip access-list extended ip-ext-acl
Orion_B54Q(config-ext-nacl)# deny tcp host 192.168.4.12 eq 100 any
Orion_B54Q(config-ext-nacl)# show access-lists
ip access-list extended ip-ext-acl
10 deny tcp host 192.168.4.12 eq 100 any
Orion_B54Q(config-ext-nacl)#exit
Orion_B54Q(config)#interface gigabitethernet 1/1
```

```
Orion_B54Q(config-if)#ip access-group ip-ext-acl in
Orion_B54Q(config-if)#
```

This example shows how to use the extended MAC ACL. The purpose is to deny the host with the MAC address 0013.0049.8272 to send Ethernet frames of the type 100 and apply the rule to Interface gigabitethernet 1/1. The configuration procedure is as below:

```
Orion_B54Q(config)#mac access-list extended mac1
Orion_B54Q(config-mac-nacl)#deny host 0013.0049.8272 any aarp
Orion_B54Q(config-mac-nacl)# show access-lists
mac access-list extended mac1
10 deny host 0013.0049.8272 any aarp
Orion_B54Q(config-mac-nacl)#exit
Orion_B54Q(config)# interface gigabitethernet 1/1
Orion_B54Q(config-if)# mac access-group mac1 in
```

This example shows how to use the standard IP ACL. The purpose is to deny the host with the IP address 192.168.4.12 and apply the rule to Interface gigabitethernet 1/1. The configuration procedure is as below:

```
Orion_B54Q(config)#ip access-list standard 34
Orion_B54Q(config-ext-nacl)# deny host 192.168.4.12
Orion_B54Q(config-ext-nacl)#show access-lists
ip access-list standard 34
10 deny host 192.168.4.12
Orion_B54Q(config-ext-nacl)#exit
Orion_B54Q(config)# interface gigabitethernet 1/1
Orion_B54Q(config-if)# ip access-group 34 in
```

This example shows how to use the extended IPV6 ACL. The purpose is to deny the host with the IP address 192.168.4.12 and apply the rule to Interface gigabitethernet 1/1. The configuration procedure is as below:

```
Orion_B54Q(config)#ipv6 access-list extended v6-acl
Orion_B54Q(config-ipv6-nacl)#11 deny ipv6 host 192.168.4.12 any
Orion_B54Q(config-ipv6-nacl)#show access-lists
ipv6 access-list extended v6-acl
11 deny ipv6 host 192.168.4.12 any
Orion_B54Q(config-ipv6-nacl)# exit
Orion_B54Q(config)# interface gigabitethernet 1/1
Orion_B54Q(config-if)# ipv6 traffic-filter v6-acl in
```

Related Commands

Command	Description
show access-lists	Displays all ACLs.
ipv6 traffic-filter	Applies the extended IPv6 ACL on the interface.
ip access-group	Applies the IP ACL on the interface.
mac access-group	Applies the extended MAC ACL on the interface.

ip access-list	Defines an IP ACL.
mac access-list	Defines an extended MAC ACL.
expert access-list	Defines an extended expert ACL.
ipv6 access-list	Defines an extended IPv6 ACL.
permit	Permits the access.

Platform N/A

Description

1.7 expert access-group

Use this command to apply the specified expert access list on the specified interface. Use the **no** form of the command to remove the application.

expert access-group { *id* | *name* } { **in** | **out** }
no expert access-group { *id* | *name* } { **in** | **out** }

Parameter Description	Parameter	Description
	<i>id</i>	Expert access list number: 2700 to 2899
	<i>name</i>	Name of the expert access list
	in	Specifies filtering on inbound packets.
	out	Specifies filtering on outbound packets.

Defaults No expert access list is applied on the interface.

Command mode Interface configuration mode.

Usage Guide This command is used to apply the specified access list on the interface to control the input and output data streams on the interface. Use the **show access-group** command to view the setting.

Configuration Examples The following example shows how to apply the **access-list accept_00d0f8xxxxxx** only to Gigabit interface 0/1:

```
Orion_B54Q(config)# interface GigaEthernet 0/1
Orion_B54Q(config-if)# expert access-group
accept_00d0f8xxxxxx_only in
```

Related Commands	Command	Description
	show access-group	Displays the ACL configuration.

Platform N/A

Description

1.8 expert access-list advanced

Use this command to create an advanced expert access list and place the device in expert advanced access list configuration mode. Use the **no** form of this command to remove the advanced expert access list.

expert access-list advanced *name*

no expert access-list advanced *name*

Parameter Description

Parameter	Description
<i>name</i>	Name of the advanced expert access list

Defaults None

Command mode Global configuration mode

Usage Guide Use this command to create an advanced expert access list (namely, ACL80) to match your custom fields.

Configuration Examples The following example creates an advanced expert access list named adv-acl.

```
Orion_B54Q(config)# expert access-list advanced adv-acl
Orion_B54Q(config-exp-dacl)# show access-lists
expert access-list advanced adv-acl
```

Related Commands

Command	Description
show access-lists	Displays all access lists.
show access-lists <i>name</i>	Displays the access list of a specified name.

Platform Description N/A

1.9 expert access-list extended

Use this command to create an extended expert access list. Use the **no** form of the command to remove the ACL.

expert access-list extended *{id | name}*

no expert access-list extended *{id | name}*

Parameter Description

Parameter	Description
<i>id</i>	Extended expert access list number: 2700 to 2899
<i>name</i>	Name of the extended expert access list

Defaults None

Command mode Global configuration mode.

Usage Guide Use the **show access-lists** command to display the ACL configurations.

Configuration Examples Create an extended expert ACL named exp-acl:

```
Orion_B54Q(config)# expert access-list extended exp-acl
Orion_B54Q(config-exp-nacl)# show access-lists expert access-list extended exp-acl
Orion_B54Q(config-exp-nacl)#
```

Create an extended expert ACL numbered 2704:

```
Orion_B54Q(config)# expert access-list extended 2704
Orion_B54Q(config-exp-nacl)# show access-lists access-list extended 2704
Orion_B54Q(config-exp-nacl)#
```

Related Commands

Command	Description
show access-lists	Displays the extended expert ACLs

Platform Description N/A

1.10 expert access-list counter

Use this command to enable the counter of packets matching the specified expert access list. Use the **no** form of this command to disable this function.

```
expert access-list counter { id | name }
no expert access-list counter { id | name }
```

Parameter Description

Parameter	Description
<i>id</i>	Expert access list number: 2700 to 2899.
<i>name</i>	Name of the access list.

Defaults The counter of the packets matching the expert access list is disabled.

Command mode Global configuration mode

Usage Guide Use this command to enable the counter of packets matching the specified expert access list, so that you can analyze the counters to learn whether the network is attacked by the illegal packets.

Configuration Examples The following example enables the counter of packets matching the extended expert access list named exp-acl:

```
Orion_B54Q(config)# expert access-list counter exp-acl
Orion_B54Q(config)# show access-lists
expert access-list extended exp-acl
 10 permit ip VID 4 host 192.168.3.55 any host 192.168.99.6 any (16
matches)
 20 deny tcp any any eq login any any (78 matches)
```

The following example disables the counter of packets matching the extended expert access list named exp-acl.

```
Orion_B54Q(config)#no expert access-list counter exp-acl
Orion_B54Q(config)# show access-lists
expert access-list extended 2700
 10 permit ip VID 4 host 192.168.3.55 any host 192.168.99.6 any
 20 deny tcp any any eq login any any
```

Related Commands

Command	Description
show access-lists	Displays the extended expert ACL.

Platform Description

N/A

1.11 expert access-list new-fragment-mode

Use this command to switch the matching mode of fragmentation packets. Use the **no** form of this command to restore the default matching mode of fragmentation packets.

expert access-list new-fragment-mode { id | name }

no expert access-list new-fragment-mode { id | name }

Parameter Description

Parameter	Description
<i>id</i>	Expert access list number: 2700 to 2899.
<i>name</i>	Name of the expert access list.

Defaults

Use the default matching mode of fragmentation packets. By default, if the access rule is tagged with fragment, it will match all packets except for the first fragmentation packet. If the access rule is not tagged with fragment, all packets including the first and all subsequent fragmentation packets will be matched.

Command mode

Global configuration mode

Usage Guide

Use this command to switch and control the matching mode of access rules to fragmentation packets.

Configuration Examples The following example switches the matching mode of fragmentation packets for the ACL 2700 from the default mode to a new matching mode:

```
Orion_B54Q(config)#expert access-list new-fragment-mode 2700
```

Related Commands

Command	Description
-	-

Platform Description N/A

1.12 expert access-list resequence

Use this command to resequence an expert access list. Use the **no** form of this command to restore the default order of access entries.

expert access-list resequence { *id* | *name* } *start-sn* *inc-sn*

no expert access-list resequence { *id* | *name* }

Parameter Description

Parameter	Description
<i>id</i>	Expert access list number: 2700 to 2899.
<i>name</i>	Name of the expert access list
<i>start-sn</i>	Start sequence number. Range: 1 to 2147483647
<i>inc-sn</i>	Increment of the sequence number. Range: 1 to 2147483647

Defaults *start-sn*: 10
inc-sn: 10

Command mode Global configuration mode

Usage Guide Use this command to change the order of the access entries.

Configuration Examples The following example resequences entries of expert access list “exp-acl”:

Before the configuration:

```
Orion_B54Q# show access-lists
expert access-list extended exp-acl
 10 permit ip any any any any
 20 deny ip any any any any
```

After the configuration:

```
Orion_B54Q# config
Orion_B54Q(config)# expert access-list resequence exp-acl 21 43
Orion_B54Q(config)# exit
Orion_B54Q# show access-lists
```

```
expert access-list extended exp-acl
21 permit ip any any any any
64 deny ip any any any any
```

Related Commands

Command	Description
show access-lists	Displays all access lists..

Platform N/A
Description

1.13 global ip access-group

Use this command to apply the global access list on the interface. Use the **no** form of this command to remove the global access list from the interface.

global ip access-group
no global ip access-group

Parameter Description

Parameter	Description
N/A	N/A

Defaults By default, the global access list is applied on the interface.

Command mode Interface configuration mode

Usage Guide N/A

Configuration Examples The following example applies the global access list on interface fastEthernet0/0.

```
Orion_B54Q(config)# interface fastEthernet 0/0
Orion_B54Q(config-if-GigabitEthernet 0/0)#global ip access-group
```

Related Commands

Command	Description
N/A	N/A

Platform N/A
Description

1.14 ip access-group

Use this command to apply a specific access list to an interface. Use the **no** form of this command to remove the access list from the interface.

ip access-group {*id* | *name*} {**in** | **out**} [**reflect**]
no ip access-group { *id* | *name* } {**in** | **out**}

Parameter Description

Parameter	Description
<i>id</i>	IP access list or extended IP access list number: 1 to 199, 1300 to 2699
<i>name</i>	Name of the IP ACL
in	Filters the incoming packets of the interface.
out	Filters the outgoing packets of the interface.
reflect	Enables the reflexive ACL.

Defaults No access list is applied on the interface by default.

Command mode Interface configuration mode.

Usage Guide Use this command to control access to a specified interface.

Configuration Examples The following example applies the ACL 120 on interface fastEthernet0/0 to filter the incoming packets:

```
Orion_B54Q(config)# interface fastEthernet 0/0
Orion_B54Q(config-if)# ip access-group 120 in
```

Related Commands

Command	Description
access-list	Defines an ACL.
show access-lists	Displays all ACLs.

Platform N/A

Description

1.15 ip access-list

Use this command to create a standard IP access list or extended IP access list. Use the **no** form of the command to remove the access list.

ip access-list {**extended** | **standard**} {*id* | *name*}
no ip access-list {**extended** | **standard**} {*id* | *name*}

Parameter Description

Parameter	Description
<i>id</i>	Access list number: Standard: 1 to 99, 1300 to 1999; Extended: 100 to 199, 2000 to 2699.
<i>name</i>	Name of the access list

Defaults None

Command mode Global configuration mode

Usage Guide Configure a standard access list if you need to filter on source address only. If you want to filter on anything other than source address, you need to create an extended access list. Refer to **deny** or **permit** in the two modes. Use the **show access-lists** command to display the ACL configurations.

Configuration Examples The following example creates a standard access list named std-acl.

```
Orion_B54Q(config)# ip access-list standard std-acl
Orion_B54Q(config-std-nacl)# show access-lists
ip access-list standard std-acl
Orion_B54Q(config-std-nacl)#
```

The following example creates an extended ACL numbered 123:

```
Orion_B54Q(config)# ip access-list extended 123
Orion_B54Q(config-ext-nacl)# show access-lists
ip access-list extended 123
```

Related Commands	Command	Description
	show access-lists	Displays all ACLs.

Platform Description N/A

1.16 ip access-list log-update interval

Use this command to configure the interval at which the IPv4 access list log is updated. Use the **no** form of this command to restore the default interval.

ip access-list log-update interval *time*
no ip access-list log-update interval

Parameter Description	Parameter	Description
	<i>time</i>	For the access rule with the log option, a packet hit is output at the interval of ACL logging output. The interval ranges from 0 to 1440 minutes, and the default value is 5 minutes, indicating that the ACL matching log of a specified flow is output every 5 minutes. 0 indicates that no ACL logging is output.

Defaults The default interval at which the IPv4 access list log is updated is 5 minutes.

Command mode Global configuration mode

Usage Guide Use this command to configure the interval at which the IPv4 access list log is updated.

Configuration Examples The following example configures the interval for the IPv4 access list log update to 10 minutes:

```
Orion_B54Q# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Orion_B54Q(config)# ip access-list log-update interval 10
```

Related Commands	Command	Description
	ip access-list	Defines an IPv4 access list.
	deny	Defines the deny access entries.
	permit	Defines the permit access entries.
	show running	Displays running configurations of the device.

Platform Description N/A

1.17 ip access-list counter

Use this command to enable the counter of packets matching the standard or extended IP access list. Use the **no** form of this command to disable the counter.

```
ip access-list counter { id | name }
no ip access-list counter { id | name }
```

Parameter Description	Parameter	Description
	<i>id</i>	IP access list number: Standard IP access list: 1 to 99, 1300 to 1999; Extended IP access list: 100 to 199, 2000 to 2699.
	<i>name</i>	Name of the IP access list.

Defaults The counter of packets matching the standard or extended IP access list is disabled by default.

Command mode Global configuration mode

Usage Guide N/A

Configuration Examples The following example enables the counter of packets matching the standard access list:

```
Orion_B54Q(config)# ip access-list counter std-acl
Orion_B54Q(config-std-nacl)# show access-lists
ip access-list standard std-acl
10 permit 195.168.6.0 0.0.0.255 (999 matches)
```

```
20 deny host 5.5.5.5 time-range tm (2000 matches)
```

The following example disables the counter of packets matching the standard access list:

```
Orion_B54Q(config)#no ip access-list counter std-acl
Orion_B54Q(config-std-nacl)# show access-lists
ip access-list standard std-acl
 10 permit 195.168.6.0 0.0.0.255
 20 deny host 5.5.5.5 time-range tm
```

Related Commands

Command	Description
show access-lists	Displays all access lists.

Platform

N/A

Description

1.18 ip access-list new-fragment-mode

Use this command to switch the matching mode of fragmentation packets of standard or extended IP access list. Use the **no** form of this command to restore the default matching mode of fragmentation packets.

ip access-list new-fragment-mode { *id* | *name* }

no ip access-list new-fragment-mode { *id* | *name* }

Parameter Description

Parameter	Description
<i>id</i>	IP access list number: Standard IP access list: 1 to 99, 1300 to 1999; Extended IP access list: 100 to 199, 2000 to 2699.
<i>name</i>	Name of the standard or extended IP access list

Defaults

Use the default matching mode of fragmentation packets. By default, if the access rule is tagged with fragment, it will match all packets except for the first fragmentation packet. If the access rule is not tagged with fragment, all packets including the first and all subsequent fragmentation packets will be matched.

Command mode

Global configuration mode

Usage Guide

This command is used to switch and control the fragmentation packet matching mode of access rules.

Configuration Examples

The following example switches the fragmentation packet matching mode of the ACL 100 from the default mode to a new mode:

```
Orion_B54Q(config)#ip access-list new-fragment-mode 100
```

Related Commands	Command	Description
	N/A	N/A

Platform N/A
Description

1.19 ip access-list resequence

Use this command to resequence a standard or extended IP access list. Use the **no** form of this command to restore the default order of access entries.

ip access-list resequence { *id* | *name* } *start-sn* *inc-sn*

no ip access-list resequence { *id* | *name* }

Parameter Description	Parameter	Description
	<i>id</i>	IP access list number: Standard IP access list: 1 to 99, 1300 to 1999; Extended IP access list: 100 to 199, 2000 to 2699.
	<i>name</i>	Name of the standard or extended IP access list
	<i>start-sn</i>	Start sequence number. Range: 1 to 2147483647
	<i>inc-sn</i>	Increment of the sequence number. Range: 1 to 2147483647

Defaults *start-sn*: 10
inc-sn: 10

Command mode Global configuration mode

Usage Guide Use this command to change the order of the access entries.

Configuration Examples The following example resequences entries of ACL1:
 Before the configuration:

```
Orion_B54Q# show access-lists
ip access-list standard 1
10 permit host 192.168.4.12
20 deny any any
```

After the configuration:

```
Orion_B54Q# config
Orion_B54Q(config)# ip access-list resequence 1 21 43
Orion_B54Q(config)# exit
Orion_B54Q# show access-lists
ip access-list standard 1
21 permit host 192.168.4.12
```

```
64 deny any any
```

Related Commands

Command	Description
show access-lists	Displays all access lists..

Platform

N/A

Description

1.20 ipv6 access-list

Use this command to create an IPv6 access list and to place the device in IPv6 access list configuration mode. Use the **no** form of this command to remove the access list.

ipv6 access-list *name*

no ipv6 access-list *name*

Parameter Description

Parameter	Description
<i>name</i>	Name of the IPv6 access list.

Defaults

None

Command mode

Global configuration mode

Usage Guide

To filter the IPv6 packets through the access list, you need to define an IPv6 access list by using the **ipv6 access-list** command.

Configuration Examples

The following example creates an IPv6 access list named v6-acl:

```
Orion_B54Q(config)# ipv6 access-list v6-acl
Orion_B54Q(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
Orion_B54Q(config-ipv6-nacl)#
```

Related Commands

Command	Description
show access-lists	Displays all access lists.

Platform

N/A

Description

1.21 ipv6 access-list counter

Use this command to enable the counter of packets matching the IPv6 access list. Use the **no** form of this command to disable the counter.

ipv6 access-list counter *name*
no ipv6 access-list counter *name*

Parameter Description

Parameter	Description
<i>name</i>	Name of the IPv6 access list.

Defaults

-

Command mode

Global configuration mode

Usage Guide

Use this command to enable the counter of packets matching the IPv6 access list to monitor the IPv6 packets matching and filtering.

Configuration Examples

The following example enables the counter of packets matching the IPv6 access list named v6-acl:

```
Orion_B54Q(config)# ipv6 access-list v6-acl
Orion_B54Q(config-ipv6-nacl)# show access-lists
ipv6 access-list acl-v6
 10 permit icmp any any (7 matches)
 20 deny tcp any any (7 matches)
```

The following example disables the counter of packets matching the IPv6 access list named v6-acl:

```
Orion_B54Q(config)#no ipv6 access-list v6-acl counter
Orion_B54Q(config-ipv6-nacl)# show access-lists
ipv6 access-list acl-v6
 10 permit icmp any any
 20 deny tcp any any
```

Related Commands

Command	Description
show access-lists	Displays all access lists.

Platform

N/A

Description

1.22 ipv6 access-list log-update interval

Use this command to configure the interval at which the IPv6 access list log is updated. Use the **no** form of this command to restore the default interval.

ipv6 access-list log-update interval *time*
no ipv6 access-list log-update interval

Parameter Description

Parameter	Description
<i>time</i>	For the access rule with the logging option, a packet hit is output at

	the interval of ACL logging output. The interval ranges from 0 to 1440 minutes, and the default value is 5 minutes, indicating that the ACL matching log of a specific flow is output every 5 minutes. 0 indicates that no ACL logging is output.
--	---

Defaults N/A

Command mode Global configuration mode

Usage Guide Use this command to configure the interval at which the IPv6 access list log is updated.

Configuration Examples The following example configures the interval for the IPv6 access list log update to 10 minutes:

```
Orion_B54Q# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Orion_B54Q(config)# ipv6 access-list log-update interval 9
```

Related Commands

Command	Description
ipv6 access-list	Defines an IPv6 access list.
deny	Defines the deny access entries.
permit	Defines the permit access entries.
show running	Displays the running configurations of the device.

Platform Description N/A

1.23 ipv6 access-list resequence

Use this command to resequence an IPv6 access list. Use the **no** form of this command to restore the default order of access entries.

ipv6 access-list resequence *name start-sn inc-sn*
no ipv6 access-list resequence *name*

Parameter Description

Parameter	Description
<i>name</i>	Name of the IPv6 access list
<i>start-sn</i>	Start sequence number. Range: 1 to 2147483647
<i>inc-sn</i>	Increment of the sequence number. Range: 1 to 2147483647

Defaults *start-sn*: 10
inc-sn: 10

Command mode Global configuration mode

Usage Guide Use this command to change the order of the access entries.

Configuration Examples The following example resequences entries of IPv6 access list “v6-acl”:
Before the configuration:

```
Orion_B54Q# show access-lists
ipv6 access-list v6-acl
 10 permit ipv6 any any
 20 deny ipv6 any any
```

After the configuration:

```
Orion_B54Q# config
Orion_B54Q(config)# ipv6 access-list resequence v6-acl 21 43
Orion_B54Q(config)# exit
Orion_B54Q# show access-lists
ipv6 access-list v6-acl
 21 permit ipv6 any any
 64 deny ipv6 any any
```

Related Commands

Command	Description
show access-lists	Displays all access lists..

Platform Description N/A

1.24 ipv6 traffic-filter

Use this command to apply an IPV6 access list on the specified interface. Use the **no** form of the command to remove the IPv6 access list from the interface.

```
ipv6 traffic-filter name { in | out }
no ipv6 traffic-filter name { in | out }
```

Parameter Description

Parameter	Description
<i>name</i>	Name of IPv6 access list
in	Specifies filtering on inbound packets
out	Specifies filtering on outbound packets

Defaults None

Command mode Interface configuration mode.

Usage Guide Use this command to apply the IPv6 access list to an specified interface to filter the inbound or outbound packets.

Configuration Examples The following example applies the IPv6 access list named **v6-acl** to interface GigabitEthernet 0/1:

```
Orion_B54Q(config)# interface GigabitEthernet 0/1
Orion_B54Q(config-if)# ipv6 traffic-filter v6-acl in
```

Related Commands

Command	Description
show access-group	Displays ACL configurations on the interface.

Platform Description N/A

1.25 list-remark

Use this command to write a helpful comment (remark) for an access list. Use the **no** form of this command to remove the remark.

list-remark text
no list-remark

Parameter Description

Parameter	Description
<i>text</i>	Comment that describes the access list.

Defaults The access lists have no remarks by default.

Command mode ACL configuration mode

Usage Guide You can use this command to write a helpful comment for a specified access list.

Configuration Examples The following example writes a comment of “this acl is to filter the host 192.168.4.12” for ACL102.

```
Orion_B54Q(config)# ip access-list extended 102
Orion_B54Q(config-ext-nacl)# list-remark this acl is to filter the host
192.168.4.12
Orion_B54Q(config-ext-nacl)# show access-lists
ip access-list extended 102
deny ip host 192.168.4.12 any
1000 hits
this acl is to filter the host 192.168.4.12
Orion_B54Q(config-ext-nacl)#
```

Related Commands

Command	Description
show access-lists	Displays all access lists.
ip access-list	Defines an IPv4 access list.
access-list list remark	Adds a helpful comment for an access list in

	global configuration mode.
--	----------------------------

Platform N/A
Description

1.26 mac access-group

Use this command to apply the specified MAC access list on the specified interface. Use the **no** form of the command to remove the access list from the interface.

mac access-group { *id* | *name* } { **in** | **out** }
no mac access-group { *id* | *name* } { **in** | **out** }

Parameter Description	Parameter	Description
	<i>id</i>	MAC access list number. The range is from 700 to 799.
	<i>name</i>	Name of the MAC access list
	in	Specifies filtering on the inbound packets.
	out	Specifies filtering on the outbound packets.

Defaults None

Command mode Interface configuration mode.

Usage Guide Use this command to apply the access list to the interface to filter the inbound or outbound packets based on the MAC address.

Configuration Examples The following example applies the MAC access-list **accept_00d0f8xxxxxx_only** to interface GigabitEthernet 1/1:

```
Orion_B54Q(config)# interface GigaEthernet 1/1
Orion_B54Q(config-if-GigabitEthernet 1/1)# mac access-group
accept_00d0f8xxxxxx_only in
```

Related Commands	Command	Description
	show access-group	Displays the ACL configuration on the interface.

Platform N/A
Description

1.27 mac access-list extended

Use this command to create an extended MAC access list. Use the **no** form of the command to remove the MAC access list.

mac access-list extended { *id* | *name* }
no mac access-list extended { *id* | *name* }

Parameter Description	Parameter	Description
	<i>id</i>	Extended MAC access list number. The range is from 700 to 799.
	<i>name</i>	Name of the extended MAC access list

Defaults None

Command mode Global configuration mode.

Usage Guide To filter the packets based on the MAC address, you need to define a MAC access list by using the **mac access-list extended** command.

Configuration Examples The following command creates an extended MAC access list named mac-acl:

```
Orion_B54Q(config)# mac access-list extended mac-acl
Orion_B54Q(config-mac-nacl)# show access-lists mac access-list extended mac-acl
```

The following command creates an extended MAC access list numbered 704:

```
Orion_B54Q(config)# mac access-list extended 704
Orion_B54Q(config-mac-nacl)# show access-lists mac access-list extended 704
```

Related Commands	Command	Description
	show access-lists	Displays all access lists.

Platform Description N/A

1.28 mac access-list counter

Use this command to enable the counter of packet matching the extended MAC access list. Use the **no** form of this command to disable the counter.

mac access-list counter { *id* | *name* }
no mac access-list counter { *id* | *name* }

Parameter Description	Parameter	Description
	<i>id</i>	Extended MAC access list number. The range is from 700 to 799.
	<i>name</i>	Name of the extended MAC access list

Defaults The counter is disabled by default.

Command mode Global configuration mode

Usage Guide Use this command to enable the counter of packets matching the MAC access list to monitor the packets matching and filtering.

Configuration Examples The following example enables the counter of packet matching the extended MAC access list named mac-acl:

```
Orion_B54Q(config)# mac access-list counter mac-acl
Orion_B54Q(config)# show access-lists
mac access-list extended mac-acl
 10 permit host 0023.56ac.8965 any (170 matches)
 20 deny any any etype-any cos 6 (239 matches)
```

The following example disables the counter of packet matching the extended MAC access list named mac-acl:

```
Orion_B54Q(config)#no mac access-list counter mac-acl
Orion_B54Q(config)# show access-lists
mac access-list extended mac-acl
 10 permit host 0023.56ac.8965 any
 20 deny any any etype-any cos 6
```

Related Commands

Command	Description
show access-lists	Displays all access lists.

Platform Description N/A

1.29 mac access-list resequence

Use this command to resequence an extended MAC access list. Use the **no** form of this command to restore the default order of access entries.

mac access-list resequence { *id* | *name* } *start-sn* *inc-sn*

no mac access-list resequence { *id* | *name* }

Parameter Description

Parameter	Description
<i>id</i>	Extended MAC access list number: 700 to 799.
<i>name</i>	Name of the extended MAC access list
<i>start-sn</i>	Start sequence number. Range: 1 to 2147483647
<i>inc-sn</i>	Increment of the sequence number. Range: 1 to 2147483647

Defaults *start-sn*: 10
inc-sn: 10

Command Global configuration mode
mode

Usage Guide Use this command to change the order of the access entries.

Configuration Examples The following example resequences entries of extended MAC access list “mac-acl”:
Before the configuration:

```
Orion_B54Q# show access-lists
mac access-list extended mac-acl
 10 permit any any etype-any
 20 deny any any etype-any
```

After the configuration:

```
Orion_B54Q# config
Orion_B54Q(config)# mac access-list resequence exp-acl 21 43
Orion_B54Q(config)# exit
Orion_B54Q# show access-lists
mac access-list extended mac-acl
 21 permit any any etype-any
 64 deny any any etype-any
```

Related Commands

Command	Description
show access-lists	Displays all access lists..

Platform Description N/A

1.30 permit

One or multiple **permit** conditions are used to determine whether to forward or discard the packet. In ACL configuration mode, you can modify the existent ACL or configure according to the protocol details.

9. Standard IP ACL

```
[ sn ] permit {source source-wildcard | host source | any | interface idx } [ time-range tm-range-name ] [ log ]
```

10. Extended IP ACL

```
[ sn ] permit protocol source source-wildcard destination destination-wildcard [ precedence precedence ] [ tos tos ] [ fragment ] [ range lower upper ] [ time-range time-range-name ] [ log ]
```

Extended IP ACLs of some important protocols:

Internet Control Message Protocol (ICMP)

```
[ sn ] permit icmp {source source-wildcard | host source | any } { destination destination-wildcard | host destination | any } [ icmp-type ] [ icmp-type [icmp-code ] ] [ icmp-message ] [ precedence precedence ] [ tos tos ] [ fragment ] [ time-range time-range-name ]
```

Transmission Control Protocol (TCP)

```
[sn] permit tcp { source source-wildcard | host source | any } [ operator port [ port ] ] { destination destination-wildcard | host destination | any } [ operator port [ port ] ] [ precedence precedence ] [ tos tos ] [ fragment ] [ range lower upper ] [ time-range time-range-name ] [ match-all tcp-flag | established ]
```

User Datagram Protocol (UDP)

```
[sn] permit udp {source source -wildcard|host source |any} [ operator port [port]] {destination destination-wildcard |host destination | any} [operator port [port]] [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name]
```

11. Extended MAC ACL

```
[sn] permit { any | host source-mac-address | source-mac-address mask } { any | host destination-mac-address | destination -mac-address mask } [ ethernet-type ] [ cos [ out ] [ inner in ] ]
```

12. Extended expert ACL

```
[sn] permit [protocol | [ethernet-type][ cos [out] [inner in]]] [VID [out][inner in]] {source source-wildcard | host source | any} {host source-mac-address | any} {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name]
```

When you select the Ethernet-type field or cos field:

```
[sn] permit {ethernet-type| cos [out] [inner in]} [VID [out][inner in]] {source source-wildcard | host source | any} {host source-mac-address | any} {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [time-range time-range-name]
```

When you select the protocol field:

```
[sn] permit protocol [VID [out][inner in]] {source source-wildcard | host Source | any} {host source-mac-address | any} {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name]
```

Extended expert ACLs of some important protocols:

Internet Control Message Protocol (ICMP)

```
[sn] permit icmp [VID [out][inner in]] {source source-wildcard | host source | any} {host source-mac-address | any} {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [icmp-type ] [[icmp-type [icmp-code ]] | [ icmp-message ] ] [precedence precedence] [tos tos] [fragment] [time-range time-range-name]
```

Transmission Control Protocol (TCP)

```
[sn] permit tcp [VID [out][inner in]]{source source-wildcard | host Source | any} {host source-mac-address | any} [ operator port [port]] {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [ operator port [port]] [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name] [match-all tcp-flag | established]
```

User Datagram Protocol (UDP)

```
[sn] permit udp [VID [out][inner in]]{source source -wildcard | host source | any} {host source-mac-address | any} [ operator port [port]] {destination destination-wildcard | host destination | any} {host destination-mac-address | any} [ operator port [port]] [precedence precedence] [tos tos] [fragment] [range lower upper] [time-range time-range-name]
```

Address Resolution Protocol (ARP)

[sn] **permit arp** {*vid vlan-id*} [**host** *source-mac-address* | **any**] [**host** *destination -mac-address* | **any**] {*sender-ip sender-ip-wildcard* | **host** *sender-ip* | **any**} {*sender-mac sender-mac-wildcard* | **host** *sender-mac* | **any**} {*target-ip target-ip-wildcard* | **host** *target-ip* | **any**}

13. Extended IPv6 ACL

[sn] **permit protocol** {*source-ipv6-prefix / prefix-length* | **any** | **host** *source-ipv6-address*} {*destination-ipv6-prefix / prefix-length* | **any** | *hostdestination-ipv6-address*} [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

Extended IPv6 ACLs of some important protocols:

Internet Control Message Protocol (ICMP)

[sn] **permit icmp** {*source-ipv6-prefix / prefix-length* | **any** *source-ipv6-address* | **host**} {*destination-ipv6-prefix / prefix-length* | **host** *destination-ipv6-address* | **any**} [*icmp-type*] [[*icmp-type* [*icmp-code*]] | [*icmp-message*]] [**dscp** *dscp*] [**flow-label** *flow-label*][**fragment**] [**time-range** *time-range-name*]

Transmission Control Protocol (TCP)

[sn] **permit tcp** {*source-ipv6-prefix / prefix-length* | **host** *source-ipv6-address* | **any**} [*operator port* [*port*]] {*destination-ipv6-prefix / prefix-length* | **host** *destination-ipv6-address* | **any**} [*operator port* [*port*]] [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*] [**match-all** *tcp-flag* | **established**]

User Datagram Protocol (UDP)

[sn] **permit udp** {*source-ipv6-prefix / prefix-length* | **host** *source-ipv6-address* | **any**} [*operator port* [*port*]] {*destination-ipv6-prefix / prefix-length* | **host** *destination-ipv6-address* | **any**} [*operator port* [*port*]] [**dscp** *dscp*] [**flow-label** *flow-label*] [**fragment**] [**range** *lower upper*] [**time-range** *time-range-name*]

Parameter Description	Parameter	Description
	N/A	N/A

Defaults N/A

Command mode ACL configuration mode.

Usage Guide Use this command to configure the **permit** conditions for the ACL in ACL configuration mode.

Configuration Examples The following example shows how to create and display an Expert Extended ACL. This expert ACL permits all the TCP packets with the source IP address 192.168.4.12 and the source MAC address 001300498272.

```
Orion_B54Q(config)#expert access-list extended exp-acl
Orion_B54Q(config-exp-nacl)#permit tcp host 192.168.4.12 host
0013.0049.8272 any any
Orion_B54Q(config-exp-nacl)#deny any any any any
Orion_B54Q(config-exp-nacl)#show access-lists
expert access-list extended exp-acl
10 permit tcp host 192.168.4.12 host 0013.0049.8272 any any
20 deny any any any any
```



```
Orion_B54Q(config-exp-nacl)#
```

This example shows how to use the extended IP ACL. The purpose is to permit the host with the IP address 192.168.4.12 to provide services through the TCP port 100 and apply the ACL to interface gigabitethernet 1/1. The configuration procedure is as below:

```
Orion_B54Q(config)# ip access-list extended 102
Orion_B54Q(config-ext-nacl)# permit tcp host 192.168.4.12 eq 100 any
Orion_B54Q(config-ext-nacl)# show access-lists
ip access-list extended 102
10 permit tcp host 192.168.4.12 eq 100 any
Orion_B54Q(config-ext-nacl)#exit
Orion_B54Q(config)#interface gigabitethernet 1/1
Orion_B54Q(config-if)#ip access-group 102 in
Orion_B54Q(config-if)#
```

This example shows how to use the extended MAC ACL. The purpose is to permit the host with the MAC address 0013.0049.8272 to send Ethernet frames through the type 100 and apply the ACL to interface gigabitethernet 1/1. The configuration procedure is as below:

```
Orion_B54Q(config)#mac access-list extended 702
Orion_B54Q(config-mac-nacl)#permit host 0013.0049.8272 any aarp
Orion_B54Q(config-mac-nacl)#show access-lists
mac access-list extended 702
10 permit host 0013.0049.8272 any aarp 702
Orion_B54Q(config-mac-nacl)#exit
Orion_B54Q(config)#interface gigabitethernet 1/1
Orion_B54Q(config-if)#mac access-group 702 in
```

This example shows how to use the standard IP ACL. The purpose is to permit the host with the IP address 192.168.4.12 and apply the ACL to interface gigabitethernet 1/1. The configuration procedure is as below:

```
Orion_B54Q(config)#ip access-list standard std-acl
Orion_B54Q(config-std-nacl)#permit host 192.168.4.12
Orion_B54Q(config-std-nacl)#show access-lists
ip access-list standard std-acl
 10 permit host 192.168.4.12
Orion_B54Q(config-std-nacl)#exit
Orion_B54Q(config)# interface gigabitethernet 1/1
Orion_B54Q(config-if)# ip access-group std-acl in
```

This example shows how to use the extended IPV6 ACL. The purpose is to permit the host with the IP address 192.168.4.12 and apply the ACL to interface gigabitethernet 1/1. The configuration procedure is as below:

```
Orion_B54Q(config)#ipv6 access-list extended v6-acl
Orion_B54Q(config-ipv6-nacl)#11 permit ipv6 host ::192.168.4.12 any
Orion_B54Q(config-ipv6-nacl)# show access-lists
ipv6 access-list extended v6-acl
11 permit ipv6 host ::192.168.4.12 any
Orion_B54Q(config-ipv6-nacl)# exit
```

```
Orion_B54Q(config)#interface gigabitEthernet 1/1
Orion_B54Q(config-if)#ipv6 traffic-filter v6-acl in
```

Related Commands

Command	Description
show access-lists	Displays all access lists.
ipv6 traffic-filter	Applies the extended IPv6 access list to the interface.
ip access-group	Applies the IP access list to the interface.
mac access-group	Applies the extended MAC access list to the interface.
ip access-list	Defines an IP access list.
mac access-list	Defines an extended MAC access list.
expert access-list	Define an extended expert access list.
ipv6 access-list	Defines an extended IPv6 access list.
deny	Defines the deny access entry.

Platform N/A

Description

1.31 redirect destination interface

Use this command to redirect the traffic matching the access list to the specified interface. Use the **no** form of this command to remove the redirection.

redirect destination interface *interface-name* **acl** { *id* | *name* } **in**

no redirect destination interface *interface-name* **acl** { *id* | *name* } **in**

Parameter Description

Parameter	Description
<i>interface-name</i>	Redirect interface
<i>id</i>	Access list number
<i>name</i>	Access list name

Defaults No redirection is configured.

Command mode Interface configuration mode

Usage Guide Use this command to configure access redirection, namely, to redirect the traffic matching the access list to the specified interface. You can monitor the operation of a specified access list by using this command.

Configuration Examples The following example configures access redirection.

```
Orion_B54Q(config)# interface gigabitEthernet 0/3
Orion_B54Q(config-if-GigabitEthernet 0/3)# redirect destination interface
```

```
gigabitEthernet 0/2 acl1 in
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

1.32 remark

Use this command to write a helpful comment (remark) for an entry in the access list. Use the **no** form of this command to remove the remark.

remark text
no remark

Parameter Description

Parameter	Description
<i>text</i>	Comment that describes the access entry.

Defaults

The access entries have no remarks.

Command mode

ACL configuration mode.

Usage Guide

Use this command to write a helpful comment for an access entry.
 Up to 100 characters are allowed in the remark.
 Two identical access entry remarks in one access list is not allowed.
 Removing an access entry may delete the remark for it as well.

Configuration Examples

The following example writes remarks for the entry in extended IP access list 102.

```
Orion_B54Q(config)# ip access-list extended 102
Orion_B54Q(config-ext-nacl)# remark first_remark
Orion_B54Q(config-ext-nacl)# permit tcp 1.1.1.1 0.0.0.0 2.2.2.2 0.0.0.0
Orion_B54Q(config-ext-nacl)# remark second_remark
Orion_B54Q(config-ext-nacl)# permit tcp 3.3.3.3 0.0.0.0 4.4.4.4 0.0.0.0
Orion_B54Q(config-ext-nacl)# end
Orion_B54Q#
```

Related Commands

Command	Description
show access-lists	Displays all access lists.
ip access-list	Defines an IP access list.

Platform

N/A

Description

1.33 security access-group

Use this command to configure a interface secure channel.

security access-group { *id* | *name* }
no security access-group

Parameter Description	Parameter	Description
	<i>id</i>	Access list number.
	<i>name</i>	Name of the access list.

Defaults None

Command mode Interface configuration mode

Usage Guide If a device is configured authentications such as 802.1x or Web authentication, the user cannot access the external network before passing the authentication. You can use this command to configure a secure channel for the users on the specified interface to access the external network without authentication.

Configuration Examples The following example configures a secure channel on interface GigaEthernet 1/1.

```
Orion_B54Q(config)# interface GigaEthernet 1/1
Orion_B54Q(config-if-GigabitEthernet 1/1)# security access-group 1
```

Related Commands	Command	Description
	show secu-acl	Displays the secure channel configuration.

Platform Description N/A

1.34 security global access-group

Use this command to configure the global secure channel.

security global access-group { *id* | *name* }
no security global access-group

Parameter Description	Parameter	Description
	<i>id</i>	Access list number.
	<i>name</i>	Name of the access list.

Defaults -

Command mode Global configuration mode

Usage Guide If a device is configured authentications such as 802.1x or Web authentication, the user cannot access the external network before passing the authentication. You can use this command to configure a global secure channel for some users to access the external network without authentication.

Configuration Examples The following example configures a global secure channel.

```
Orion_B54Q(config)#security global access-group 1
```

Related Commands	Command	Description
	show secu-acl	

Platform N/A

Description

1.35 security uplink enable

Use this command to configure an exceptional interface of the global secure channel.

security uplink enable
no security uplink enable

Parameter Description	Parameter	Description
		N/A

Defaults The global secure channel takes effect on all interfaces by default.

Command mode Interface configuration mode.

Usage Guide The global secure channel takes effect on all interfaces by default. To disable the secure channel function on some interfaces, you can used this command to configure the interface as exceptional.

Configuration Examples The following example configures interface GigaEthernet 1/1 as an exceptional interface of the secure channel.

```
Orion_B54Q(config)# interface GigaEthernet 1/1
Orion_B54Q(config-if-GigabitEthernet 1/1)# security uplink enable
```

Related Commands	Command	Description
	show secu-acl	

Platform N/A
Description

1.36 show access-group

Use this command to display the access list applied to the interface.

show access-group [**interface** *interface*] | [**wlan** *wlan-id*]

Parameter Description	Parameter	Description
	<i>interface</i>	Interface name
	<i>wlan-id</i>	WLAN ID

Defaults -

Command mode Privileged EXEC mode

Usage Guide Use this command to display the access list configuration on the specified interface. If no interface is specified, access list configuration on all interfaces is displayed.

Configuration Examples

```

Orion_B54Q# show access-group
ip access-list standard ipstd3
Applied On interface GigabitEthernet 0/1.
ip access-list standard ipstd4
Applied On interface GigabitEthernet 0/2.
ip access-list extended 101
Applied On interface GigabitEthernet 0/3.
ip access-list extended 102
Applied On interface GigabitEthernet 0/8.
    
```

Related Commands	Command	Description
	ip access-group	Applies the IP access list to the interface.
	mac access-group	Applies the MAC access list to the interface.
	expert access-group	Applies the expert access list to the interface.
	ipv6 traffic-filter	Applies the IPv6 access list to the interface.

Platform N/A
Description

1.37 show access-lists

Use this command to display all access lists or the specified access list.

show access-lists [*id* | *name*] [**summary**]

Parameter Description

Parameter	Description
<i>id</i>	Access list number
<i>name</i>	Name of the IP access list
summary	Access list summary

Defaults N/A

Command mode Global configuration mode

Usage Guide Use this command to display the specified access list. If no access list number or name is specified, all the access lists are displayed.

Configuration Examples

```
Orion_B54Q# show access-lists n_acl
ip access-list standard n_acl
Orion_B54Q# show access-lists 102
ip access-list extended 102
Orion_B54Q# show access-lists
ip access-list standard n_acl
ip access-list extended 101
permit icmp host 192.168.1.1 any log (1080 matches)
  permit tcp host 1.1.1.1 any established
  deny ip any any (80021 matches)
mac access-list extended mac_acl
expert access-list extended exp_acl
ipv6 access-list extended v6_acl
petmit ipv6 ::192.168.4.12 any (100 matches)
deny any any (9 matches)
```

Related Commands

Command	Description
ip access-list	Defines an IP access list.
mac access-list	Defines an extended MAC access list.
expert access-list	Defines an extended expert access list.
ipv6 access-list	Defines an extended IPv6 access list.

Platform Description N/A

1.38 show expert access-group

Use this command to display the expert access list applied to the interface.

show expert access-group [interface *interface*]] [wlan *wlan-id*]

Parameter Description	Parameter	Description
	<i>interface</i>	Interface name
	<i>wlan-id</i>	WLAN ID

Defaults -

Command mode Privileged EXEC mode

Usage Guide Use this command to display the expert access list configured on the interface. If no interface is specified, the expert access lists on all interfaces are displayed.

Configuration Examples

```
Orion_B54Q# show expert access-group interface gigabitethernet 0/2
expert access-group ee in
Applied On interface GigabitEthernet 0/2.
```

Related Commands	Command	Description
	expert access-list	Defines an extended expert access list.

Platform Description N/A

1.39 show ip access-group

Use this command to display the standard and extended IP access lists on the interface.

show ip access-group [interface *interface*] [[wlan *wlan-id*]

Parameter Description	Parameter	Description
	<i>interface</i>	Interface name
	<i>wlan-id</i>	WLAN ID

Defaults N/A

Command mode Privileged EXEC mode

Usage Guide Use this command to display the standard and extended IP access lists configured on the interface. If no interface is specified, the standard and extended IP access lists on all interfaces are displayed.

Configuration Examples

```
Orion_B54Q# show ip access-group interface gigabitethernet 0/1
ip access-group aaa in
Applied On interface GigabitEthernet 0/1.
```


Related Commands	Command	Description
	<code>ip access-list</code>	Defines an IP access list.

Platform N/A
Description

1.40 show ipv6 traffic-filter

Use this command to display the IPv6 access list on the interface.

show ipv6 traffic-filter [**interface** *interface*]

Parameter Description	Parameter	Description
	<i>interface</i>	Interface name

Defaults -

Command mode Privileged EXEC mode

Usage Guide Use this command to display the IPv6 access list configured on the interface. If no interface is specified, the IPv6 access lists on all interfaces are displayed.

Configuration Examples

```
Orion_B54Q# show ipv6 traffic-filter interface gigabitethernet 0/4
ipv6 access-group v6 in
Applied On interface GigabitEthernet 0/4.
```

Related Commands	Command	Description
	<code>ipv6 access-list</code>	Defines an IPv6 access list.

Platform N/A
Description

1.41 show mac access-group

Use this command to display the MAC access list on the interface.

show mac access-group [**interface** *interface*] [**wlan** *wlan-id*]

Parameter Description	Parameter	Description
	<i>interface</i>	Interface name
	<i>wlan-id</i>	WLAN ID

Defaults N/A

Command mode Privileged EXEC mode

Usage Guide Use this command to display the MAC access list configured on the interface. If no interface is specified, the MAC access lists on all interfaces are displayed.

Configuration Examples

```
Orion_B54Q# show mac access-group interface gigabitEthernet 0/3
mac access-group mm in
Applied On interface GigabitEthernet 0/3.
```

Related Commands	Command	Description
		mac access-list

Platform Description N/A

1.42 show redirect interface

Use this command to display the access redirection configuration.

show redirect [interface *interface-name*]

Parameter Description	Parameter	Description
		<i>interface-name</i>

Defaults N/A

Command mode Privileged EXEC mode

Usage Guide Use this command to display the access redirection configuration on the interface. If no interface is specified, the access redirection configuration on all interfaces is displayed.

Configuration Examples The following example displays the access redirection configuration on interface GigabitEthernet 0/3.

```
Orion_B54Q #show redirect interface gigabitEthernet 0/3
acl redirect configuration on interface gigabitEthernet 0/3
redirect destination interface gigabitEthernet 0/3 acl 1 in
```

Related Commands	Command	Description
		N/A

Platform Description N/A

1.43 svi router-acls enable

Use this command to enable the SVI filter only for the Layer3 packets. Use the **no** form of this command to disable this function.

svi router-acls enable
no svi router-acls enable

Parameter Description

Parameter	Description
N/A	N/A.

Defaults

The SVI filter takes effect for both Layer2 and Layer3 packets by default.

Command mode

Global configuration mode

Usage Guide

Use this command to make the SVI filter take effect only for the Layer3 packets,

Configuration Examples

The following example enables the SVI filter only for the Layer3 packets.

```
Orion_B54Q(config)#svi router-acls enable
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

2 QoS Commands

2.1 class

Use this command to add reference to an existing class map. Use the **no** form of this command to remove the a class from the policy map.

class *class-map-name*

no class *class-map-name*

Parameter	Parameter	Description
Description	<i>class-map-name</i>	Reference to a class map.

Defaults None

Command Mode Policy configuration mode

Usage Guide N/A

Configuration Examples The following example adds reference to the class map named cmap1.

```
Orion_B54Q(config)# class-map cmap1
Orion_B54Q(config-cmap)# match ip dscp 5
Orion_B54Q(config-cmap)# exit

Orion_B54Q(config)# policy-map pmap1
Orion_B54Q(config-pmap)# class cmap1
Orion_B54Q(config-pmap-c)# end
```

Related Commands	Command	Description
	show policy-map [<i>policy-map-name</i> [class <i>class-map-name</i>]]	Displays the policy map.

Platform N/A

Description

2.2 class map

Use this command to create a class map and enter class-map configuration mode. Use the **no** or **default** form of this command to remove a class map.

class-map *class-map-name*

no class-map *class-map-name*

default class-map *class-map-name*

Parameter	Parameter	Description
Description	<i>class-map-name</i>	Class map name. The class map name can be a maximum of 31 characters.

Defaults None

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples The following example creates a class map named cm_acl to match an access list named me.

```
Orion_B54Q(config)# mac access-list extended me
Orion_B54Q(config-ext-macl)# permit host 1111.2222.3333 any
Orion_B54Q(config-ext-macl)# exit
Orion_B54Q(config)# class-map cm_acl
Orion_B54Q(config-cmap)# match access-group me
Orion_B54Q(config-cmap)# exit
```

The following example creates a class map named cm_dscp to match DHCP 8, 16 and 24.

```
Orion_B54Q(config)# class-map cm_dscp
Orion_B54Q(config-cmap)# match ip dscp 8 16 24
Orion_B54Q(config-cmap)# exit
```

Related Commands	Command	Description
	show class-map [<i>class-map-name</i>]	Displays the class map.

Platform N/A

Description

2.3 drr-queue bandwidth

Use this command to set the DRR queue weight ratio. Use the **no** or **default** form of this command to restore the default setting.

drr-queue bandwidth *weight1...weight8*

no drr-queue bandwidth

default drr-queue bandwidth

Parameter	Parameter	Description
Description	<i>weight1...weight8</i>	8 queue weights. The default queue weight ratio is 1:1:1:1:1:1:1:1. For the products supporting the SP scheduling policy, the weight range is from 0 to 15. For the products not supporting the SP scheduling policy, the weight

	range is from 1 to 15.
--	------------------------

Defaults The default queue weight ratio is 1:1:1:1:1:1:1.

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples The following example configures the DRR queue weight ratio to 1:1:1:2:2:4:6:8.

```
Orion_B54Q(config)# drr-queue bandwidth 1 2 3 4 5 6 7 8
```

Command	Description
show mls qos queuing	Displays information about the queue.

Platform N/A

Description

2.4 match

Use this command to define a match criteria in class map configuration mode. Use the **no** form of this command to remove the match criteria.

```
match { access-group access_list | ip { dscp dscp-vlaue-list | precedence pre-vlaue-list } }
no match { access-group access_list | ip { dscp dscp-vlaue-list | precedence pre-vlaue-list } }
```

Parameter	Description
access-group <i>access_list</i>	Identifies a numbered or named access list as the match criteria.
ip dscp <i>dscp-vlaue-list</i>	Identifies DSCP values as the match criteria. Multiple DSCP can be configured. The range is from 0 to 63.
ip precedence <i>pre-vlaue-list</i>	Identifies IP precedence values as the match criteria. Multiple IP precedence can be configured. The range is from 0 to 7.

Defaults None

Command Mode Class map configuration mode

Usage Guide N/A

Configuration Examples The following example creates a class map named cmap1 to match DSCP 20, 22, 24 and 30.

```
Orion_B54Q(config)# class-map cmap1
Orion_B54Q(config-cmap)# match ip dscp 20 22 24 30
```

Command	Description
show class-map [<i>class-map-name</i>]	Displays the class map.

Platform N/A
Description

2.5 mls qos cos

Use this command to configure the CoS value of an interface. Use the **no** form of this command to restore the default setting.

mls qos cos *default-cos*
no mls qos cos

Parameter	Parameter	Description
Description	<i>default-cos</i>	CoS value of the interface. The range is from 0 to 7.

Defaults The default CoS value is 0.

Command Mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example configures the default CoS value to 7.

```
Orion_B54Q(config)# interface gigabitethernet 1/1
Orion_B54Q(config-if)# mls qos cos 7
```

Related Commands	Command	Description
	show mls qos interface <i>interface-id</i>	Displays information of the specified interface.

Platform N/A
Description

2.6 mls qos map cos-dscp

Use this command to map the CoS value to the DSCP value. Use the **no** or **default** form of this command to restore the default CoS-DSCP mapping.

mls qos map cos-dscp *dscp1...dscp8*
no mls qos map cos-dscp
default mls qos map cos-dscp

Parameter	Parameter	Description
Description	<i>dscp1...dscp8</i>	Specifies the DSCP value. The range is from 0 to 63.

Defaults By default, the CoS 0, 1, 2, 3, 4, 5, 6, 7 is mapped to the DSCP 0, 8, 16, 24, 32, 40, 48, 56 respectively.

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples

```
Orion_B54Q(config)# mls qos map cos-dscp 8 10 16 18 24 26 32 34
```

Related Commands	Command	Description
	show mls qos maps cos-dscp	Displays the CoS-DSCP mapping.

Platform Description N/A

2.7 mls qos map dscp-cos

Use this command to map the DSCP value to the CoS value. Use the **no** or **default** form of this command to restore the default DSCP-CoS mapping.

mls qos map dscp-cos *dscp-list* **to** *cos*

no mls qos map dscp-cos

default mls qos map dscp-cos

Parameter Description	Parameter	Description
	<i>dscp-list</i>	DSCP list. The range is from 0 to 63.
	<i>cos</i>	CoS value. The range is from 0 to 7.

Defaults The default DSCP-CoS mapping is listed below:

DSCP 0-7	DSCP 8-15	DSCP 16-23	DSCP 24-31	DSCP 32-39	DSCP 40-47	DSCP 48-55	DSCP 56-63
CoS 0	CoS 1	CoS 2	CoS 3	CoS 4	CoS 5	CoS 6	CoS 7

Command Mode Global configuration mode.

Usage Guide N/A

Configuration Examples

```
Orion_B54Q(config)# mls qos map dscp-cos 8 10 16 18 to 0
```

Related Commands	Command	Description
	show mls qos maps dscp-cos	Displays the DSCP-CoS mapping.

Platform Description N/A

2.8 mls qos map ip-precedence-dscp

Use this command to map the IP precedence to the DSCP value. Use the **no** or **default** form of this command to restore the default IP-precedence to DSCP mapping.

mls qos map ip-precedence-dscp *dscp1 ... dscp8*

no mls qos map ip-precedence-dscp

default mls qos map ip-precedence-dscp

Parameter	Parameter	Description
Description	<i>dscp1...dscp8</i>	DSCP list. The range is from 0 to 63.
Defaults	By default, the IP precedence 0, 1, 2, 3, 4, 5, 6, 7 is mapped to the DSCP 0, 8, 16, 24, 32, 40, 48, 56 respectively.	
Command Mode	Global configuration mode.	
Usage Guide	N/A	
Configuration Examples	<pre>Orion_B54Q(config)# mls qo map ip-prec -dscp 8 10 16 18 24 26 32 34</pre>	
Related Commands	Command	Description
	show mls qos maps ip-pre-dscp	Displays the IP-precedence to DSCP mapping.
Platform Description	N/A	

2.9 mls qos scheduler

Use this command to configure the output queue scheduling. Use the **no** or **default** form of this command to restore the default scheduler.

mls qos scheduler [**sp** | **rr** | **wrr** | **drr**]

no mls qos scheduler

Parameter	Parameter	Description
Description	sp	Specifies the absolute priority scheduling.
	rr	Specifies the round-robin scheduling.
	wrr	Specifies the frame count weighted round-robin scheduling.
	drr	Specifies the frame length weighted round-robin scheduling.
Defaults	The default queue scheduling is wrr .	
Command Mode	Global configuration mode.	

Usage Guide N/A

Configuration Examples The following example specifies the sp scheduling.

```
Orion_B54Q(config)# mls qos scheduler sp
```

Related Commands	Command	Description
	show mls qos scheduler	Displays the output queue scheduling.

Platform Description N/A

2.10 mls qos trust

Use this command to configure the trust mode on an interface. Use the **no** or **default** form of this command to restore the default setting.

```
mls qos trust { cos | dscp | ip-precedence }  
no mls qos trust  
default mls qos trust
```

Parameter Description	Parameter	Description
	cos	Specifies the CoS trust mode.
	dscp	Specifies the DSCP trust mode.
	ip-precedence	Specifies the IP-PRE trust mode.

Defaults No trust mode is configured by default.

Command Mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example configures the CoS trust mode.

```
Orion_B54Q(config)# interface gigabitethernet 1/1  
Orion_B54Q(config-if)# mls qos trust cos
```

Related Commands	Command	Description
	show mls qos interface <i>interface-id</i>	Displays the specified interface configuration.

Platform Description N/A

2.11 police

Use this command to configure traffic policing for a class map in a policy map. Use the **no** form of this command to remove traffic policing for the class map.

police *rate-bps burst-byte* [**exceed-action** { **drop** | **dscp** *new-dscp* | **cos** *new-cos* [**none-tos**] }]
no police

Parameter	Parameter	Description
Description	<i>rate-bps</i>	Bandwidth limit value per second (The unit is KBits). This value depends on the specific product.
	<i>burst-byte</i>	Burst traffic limit value (The unit is KBytes). This value depends on the specific product.
	drop	Drops the packet. This is available only when the packet exceeds the bandwidth limit.
	dscp <i>new-dscp</i>	Modifies the DSCP value of the packet. This is available only when the packet exceeds bandwidth limit. The DSCP value range is from 0 to 63.
	cos <i>new-cos</i>	Modifies the CoS value of the packet. This is available only when the packet exceeds bandwidth limit. The CoS value range is from 0 to 7.
	none-tos	Modifies the CoS value only.

Defaults No traffic policing is configured for the class map by default.

Command Mode Policy map class configuration mode

Usage Guide N/A

Configuration Examples The following example configures traffic policing which modifies the DSCP value of the packet to 6 for class map “cm-acl” in policy map “pmap1”.

```
Orion_B54Q(config)# policy-map pmap1
Orion_B54Q(config-pmap)# class cm-acl
Orion_B54Q(config-pmap-c)# police 102400 4096 exceed-action dscp 16
```

Related Commands	Command	Description
	show policy-map [<i>policy-map-name</i> [class <i>class-map-name</i>]]	Displays the policy map configuration.

Platform Description N/A

2.12 policy map

Use the following command to create a policy map and enter policy map configuration mode. Use the **no** or **default** form of this command to remove the specified policy map.

policy-map *policy-map-name*
no policy-map *policy-map-name*
default policy-map *policy-map-name*

Parameter	Parameter	Description
Description	<i>policy-map-name</i>	Policy map name. The policy map name can be a maximum of 31 characters.
Defaults	No policy map is configured by default.	
Command Mode	Global configuration mode.	
Usage Guide	N/A	
Configuration Examples	<p>The following example creates policy map “po”, and then adds a reference to class map “cmap1”.</p> <pre>Orion_B54Q(config)# policy-map po Orion_B54Q(config-pmap)# class cmap1</pre>	
Related Commands	Command	Description
	show policy-map [<i>policy-map-name</i> [class <i>class-map-name</i>]]	Displays the policy map configuration.
Platform Description	N/A	

2.13 priority-queue

Use this command to configure the output queue scheduling policy to SP. Use the **no** or **default** form of this command to restore the default queue scheduling policy.

priority-queue
no priority-queue

Parameter	Parameter	Description
Description	N/A	N/A
Defaults	The default output queue scheduling policy is WRR.	
Command Mode	Global configuration mode.	
Usage Guide	This command shares the same configuration with the mls qos scheduler sp . The show run command displays this configuration in the mls qos scheduler sp item instead of priority-queue .	
Configuration Examples	<p>The following example configures the output queue scheduling policy to SP.</p> <pre>Orion_B54Q(config)# priority-queue</pre>	
Related Commands	Command	Description
	show mls qos scheduler	Displays the output queue scheduling policy.

Platform N/A
Description

2.14 priority-queue cos-map

Use this command to configure the mapping between the CoS value and the queue ID. Use the **no** or **default** form of this command to restore the default CoS mapping to the queue.

```
priority-queue cos-map qid cos0 [ cos1 [ cos2 [ cos3 [ cos4 [ cos5 [ cos6 [ cos7 ]]]]]]]]
```

```
no priority-queue cos-map
```

```
default priority-queue cos-map
```

	Parameter	Description
Parameter	<i>qid</i>	Queue ID. The range is from 1 to 8.
Description	<i>cos0 ... cos7</i>	CoS value. The range is from 0 to 7.

Defaults The default mapping between the CoS value and the queue ID is listed below:

Queue 1	Queue 2	Queue 3	Queue 4	Queue 5	Queue 6	Queue 7	Queue 8
CoS 0	CoS 1	CoS 2	CoS 3	CoS 4	CoS 5	CoS 6	CoS 7

Command Global configuration mode.
Mode

Usage Guide N/A

Configuration Examples The following example maps the CoS 3, 5 to the output queue 1.

```
Orion_B54Q(config)#priority-queue cos-map 1 3 5
```

	Command	Description
Related Commands	show mls qos queuing	Displays the output queues.

Platform N/A
Description

2.15 qos mc-queue cos-map

This command is used to configure the mapping between CoS values of multicast queues and queues.

```
qos mc-queue cos-map cos0-qid cos1-qid cos2-qid cos3-qid cos4-qid cos5-qid cos6-qid cos7-qid
```

```
no qos mc-queue cos-map
```

	Parameter	Description
Parameter	<i>cosN-qid</i>	Queue ID mapped by the packet whose CoS is N. The value of N ranges from 0 to 7, and queue ID ranges from 1 to 3.
Description	no	This parameter is used to cancel the configured mapping.

Defaults CoS values 0 to 2 map queue 1; CoS value 3 maps queue 2; CoS values 4-7 map queue 3.

Command Global configuration mode

Mode

Usage Guide In the case of default configuration, the relevant trust mode must be enabled. For example, packets can enter the default mapped queue only when CoS is trusted.

Configuration Examples

```
Orion_B54Q(config)# qos mc-queue cos-map 1 1 1 1 2 3 3 3
```

Related Commands	Command	Description
	show qos mc-queue cos-map	This command is used to view the queue mapping.

Platform N/A

Description

2.16 qos mc-queue scheduler mode

This command is used to configure the scheduling algorithm of multicast queues.

qos mc-queue scheduler mode {sp | wrr}

no qos mc-queue scheduler mode

Parameter Description	Parameter	Description
	sp	Absolute priority scheduling
	wrr	Weighted round robin
	no	This parameter is used to cancel the configured scheduling algorithm.

Defaults By default, WRR is used. The weight ratio is 10:50:40.

Command Interface configuration mode

Mode

Usage Guide -

Configuration Examples

```
Orion_B54Q(config-if)# qos mc-queue scheduler mode sp
```

Related Commands	Command	Description
	show qos mc-queue scheduler <i>interface</i>	This command is used to display the interface scheduling algorithm.

Platform N/A

Description

2.17 qos mc-queue scheduler weight

This command is used to configure the WRR weight.

```
qos mc-queue scheduler weight weight1 weight2 [ weight3 [ weight4 [ weight5 [ weight6 [ weight7[ weight8 ]]]]]]
```

```
no qos mc-queue scheduler weight
```

	Parameter	Description
Parameter	<i>weightN</i>	WRR weight queue. If it is set to 0, the SP scheduling is used for the queue.
Description	no	This parameter is used to delete the configuration.

Defaults The default weight ratio is 1:1.

Command Interface configuration mode

Mode

Usage Guide This command can be used only when the WRR algorithm is enabled.

Configuration Examples

```
Orion_B54Q(config)# interface gigabitEthernet 0/1
Orion_B54Q(config-if-GigabitEthernet 0/1)# qos mc-queue scheduler weight 1
2 4
```

	Command	Description
Related Commands	show qos mc-queue scheduler <i>interface</i>	This command is used to display the interface scheduling algorithm.

Platform N/A

Description

2.18 qos queue

Use this command to configure a minimum or maximum of the interface bandwidth to a queue. Use the **no** or **default** form of this command to remove the minimum or maximum of the interface bandwidth.

```
qos queue [ ucast | mcast ] queue-id bandwidth { minimum | maximum } bandwidth
```

```
no qos queue [ ucast | mcast ] queue-id bandwidth { minimum | maximum }
```

```
default qos queue [ ucast | mcast ] queue-id bandwidth { minimum | maximum }
```

	Parameter	Description
Parameter	queue [ucast mcast]	The queue ucast keyword indicates configuring the minimum or maximum of the interface bandwidth to the unicast queue on the device supporting the unicast queue bandwidth configuration.
Description		The queue mcast keyword indicates configuring the minimum or maximum of the interface bandwidth to the multicast queue on the device supporting the multicast queue bandwidth configuration.

	The queue keyword indicates configuring the minimum or maximum of the interface bandwidth to the queue on the device supporting both unicast and multicast queue bandwidth configuration.
<i>queue-id</i>	Queue ID. The range is from 1 to 8.
bandwidth { minimum maximum } <i>bandwidth</i>	Bandwidth value. The value range depends on the specific product.

Defaults No minimum or maximum of interface bandwidth to a queue is configured by default.

Command Mode Interface configuration mode

Usage Guide N/A

Configuration Examples The following example configures the minimum interface bandwidth of unicast queue 1 to 5 Mbps, and the maximum to 10 Mbps.

```
Orion_B54Q(config)# interface gigabitEthernet 0/1
Orion_B54Q(config-if-GigabitEthernet 0/1)# qos queue ucast 1 bandwidth
maximum 10240
Orion_B54Q(config-if-GigabitEthernet 0/1)# qos queue ucast 1 bandwidth
minimum 5120
```

The following example configures the minimum interface bandwidth of unicast queue 2 to 2 Mbps.

```
Orion_B54Q(config)# interface gigabitEthernet 0/1
Orion_B54Q(config-if-GigabitEthernet 0/1)# qos queue ucast 2 bandwidth
minimum 2048
```

The following example configures minimum interface bandwidth of multicast queue 1 to 1 Mbps, and the maximum to 5 Mbps.

```
Orion_B54Q(config)# interface gigabitEthernet 0/1
Orion_B54Q(config-if-GigabitEthernet 0/1)# qos queue mcast 1 bandwidth
maximum 5120
Orion_B54Q(config-if-GigabitEthernet 0/1)# qos queue mcast 1 bandwidth
minimum 1024
```

Related	Command	Description
Commands	show qos bandwidth [interfaces <i>interface-id</i>]	Displays the interface bandwidth of the queue.

Platform Description N/A

2.19 queueing wred

Use this command to enable the WRED (Weighted Random Early Detection) function. Use the **no** or **default** form of this command to disable the WRED function.

queueing wred

no queueing wred

default queueing wred

Parameter	Parameter	Description
Description	N/A	N/A

Defaults WRED is disabled by default.

Command Mode Global configuration mode

Usage Guide N/A

Configuration Examples The following example enables WRED.

```
Orion_B54Q(config)# queueing wred
```

Related Commands	Command	Description
	N/A	N/A

Platform N/A

Description

2.20 rate-limit

Use this command to configure rate limiting on the interface. Use the **no** or **default** form of this command to remove rate limiting from the interface.

rate-limit { input | output } bps burst-size

no rate-limit { input | output }

default rate-limit { input | output }

Parameter	Parameter	Description
Description	input	Configures input rate limiting.
	output	Configures output rate limiting.
	<i>bps</i>	Bandwidth limit value per second (The unit is KBits). This value depends on the specific product.
	<i>burst-size</i>	Burst traffic limit value (The unit is KBytes). This value depends on the specific product.

Defaults Rate limiting is not configured by default.

Command Interface configuration mode.

Mode

Usage Guide This command can be configured only on Ethernet interfaces.

Configuration Examples The following example configures the rate limit value to 10 Mbps, and the burst traffic limit value to 256 Kbps.

```
Orion_B54Q(config)# interface gigabitethernet 1/3
Orion_B54Q(config-if-GigabitEthernet 1/3)# rate-limit input 10240 256
```

Related Commands	Command	Description
	show mls qos rate-limit [interface <i>interface-id</i>]	Displays the rate limiting configuration of the interface.

Platform N/A

Description

2.21 service-policy

Use this command to apply the policy map to the interface or the virtual group. Use the **no** or **default** form of this command to remove the policy map from the interface or the virtual group.

- service-policy { input | output } *policy-map-name***
- no service-policy { input | output } *policy-map-name***
- default service-policy { input | output } *policy-map-name***

Parameter	Parameter	Description
Description	<i>policy-map-name</i>	Policy map name
	input	Applies the policy map to the input direction.
	output	Applies the policy map to the output direction.

Defaults No policy map is configured on the interface or virtual group by default.

Command Mode Interface configuration mode, and virtual group configuration mode.

Mode

Usage Guide N/A

Configuration Examples The following example applies policy map “po” to the input direction of interface GigabitEthernet 1/3.

```
Orion_B54Q(config)# interface gigabitethernet 1/3
Orion_B54Q(config-if-GigabitEthernet 1/3)# service-policy input po
```

The following example applies policy map “po” to the output direction of virtual group 3.

```
Orion_B54Q(config)# virtual-group 3
Orion_B54Q(config-VirtualGroup)# service-policy output po
```

Related	Command	Description
---------	---------	-------------

Commands	show mls qos interface policers	Displays the policy map configuration on the interface.
	show mls qos virtual-group policers	Displays the policy map configuration on the virtual group.

Platform N/A
Description

2.22 set

Use this command to configure the CoS, DSCP or VID value for the traffic. Use the **no** form of this command to remove the CoS, DSCP or VID value from the traffic.

set { ip dscp new-dscp | cos new-cos [none-tos] }
no set { ip dscp | cos }

Parameter	Parameter	Description
Description	ip dscp new-dscp	Configures the DSCP value for the traffic. The range is from 0 to 63.
	cos new-cos	Configures the CoS value for the traffic. The range is from 0 to 7.
	none-tos	Configures the CoS value only.

Defaults No CoS or DSCP value is configured for the traffic in policy map class mode.

Command Mode Policy map class configuration mode

Usage Guide N/A

Configuration Examples The following example creates policy map “pmap1”, and adds a reference to class map “cmap1”.

```
Orion_B54Q(config)# policy-map pmap1
Orion_B54Q(config-pmap)# class cmap1
```

The following example modifies the CoS value of the traffic to 3.

```
Orion_B54Q(config-pmap-c)# set cos 3
```

Related Commands	Command	Description
	show policy-map [<i>policy-map-name</i> [class <i>class-map-name</i>]]	Displays the policy map configuration on the interface.

Platform N/A
Description

2.23 show class-map

Use this command to display the class map.

show class-map [*class-map-name*]

Parameter	Parameter	Description
Description	<i>class-map-name</i>	Class map name.
Defaults	None	
Command Mode	Privileged EXEC mode, global configuration mode, interface configuration mode.	
Usage Guide	N/A	

Configuration Examples The following example displays all class maps.

```

Orion_B54Q# show class-map

Class Map cmap1
  Match ip dscp 20 40
Class Map cmap2
  Match access-group 110
    
```

The fields in the output of this command are described in the following table.

Field	Description
Class Map	Indicates the class map name.
Match	Indicates the matched rule.

Related Commands	Command	Description
	N/A	N/A

Platform Description N/A

2.24 show mls qos interface

Use this command to display the QoS configuration of the interface.

show mls qos interface [*interface-id*] [**policers**]

Parameter	Parameter	Description
Description	<i>interface-id</i>	Interface name
	policers	Displays the traffic policing configured on the interface.

Defaults None

Command Mode Privileged EXEC mode, global configuration mode, interface configuration mode.

Usage Guide N/A

Configuration The following example displays the QoS configuration of interface GigabitEthernet 1/3.

n Examples

```
Orion_B54Q# show mls qos interface gigabitethernet 1/3
Interface: GigabitEthernet 0/3
Ratelimit input: 10240 256
Ratelimit output: 51200 4096
Attached input policy-map: pmap1
Attached output policy-map:
Default trust: dscp
Default cos: 3
```

The fields in the output of this command are described in the following table.

Field	Description
Interface	Indicates the interface name.
Ratelimit input	Indicates the input rate limit value .
Ratelimit output	Indicates the output rate limit value .
Attached input policy-map	Indicates the input policy map .
Attached output policy-map	Indicates the output policy map.
Default trust	Indicates the trust mode of the interface.
Default cos	Indicates the default CoS value.

The following example displays the QoS configuration of all interfaces.

```
Orion_B54Q# show mls qos interface policers
Interface: GigabitEthernet 0/1
Attached input policy-map: pmap1
Attached output policy-map: pmap1
Interface: GigabitEthernet 0/2
Attached input policy-map: p1
```

Related Commands

Command	Description
N/A	N/A

Platform Description

N/A

2.25 show mls qos maps

Use this command to display DSCP-CoS mapping, CoS-DSCP mapping and IP-PRE-DSCP mapping.

```
show mls qos maps [ cos-dscp | dscp-cos | ip-prec-dscp ]
```

Parameter Description

Parameter	Description
cos-dscp	Displays the CoS-DSCP mapping.
dscp-cos	Displays the DSCP-CoS mapping.
ip-prec-dscp	Displays the IP-PRE-DSCP mapping..

Defaults

None

Command Privileged EXEC mode, global configuration mode, interface configuration mode.

Mode

Usage Guide N/A

Configuration Examples The following example displays the CoS-DSCP mapping.

```
Orion_B54Q# show mls qos maps cos-dscp
cos dscp
--- ----
0 0
1 8
2 16
3 24
4 32
5 40
6 48
7 56
```

The fields in the output of this command are described in the following table.

Field	Description
cos	Indicates the CoS value.
dscp	Indicates the DSCP value mapped .

The following example displays the DSCP- CoS mapping.

```
Orion_B54Q# show mls qos maps dscp-cos
dscp cos      dscp cos      dscp cos      dscp cos
----- ----      ----- ----      ----- ----      ----- ----
0 0           1 0           2 0           3 0
4 0           5 0           6 0           7 0
8 1           9 1           10 1          11 1
12 1          13 1          14 1          15 1
16 2          17 2          18 2          19 2
20 2          21 2          22 2          23 2
24 3          25 3          26 3          27 3
28 3          29 3          30 3          31 3
32 4          33 4          34 4          35 4
36 4          37 4          38 4          39 4
40 5          41 5          42 5          43 5
44 5          45 5          46 5          47 5
48 6          49 6          50 6          51 6
52 6          53 6          54 6          55 6
56 7          57 7          58 7          59 7
60 7          61 7          62 7          63 7
```

The fields in the output of this command are described in the following table.

Field	Description
dscp	Indicates the DSCP value.
cos	Indicates the CoS value mapped .

The following example displays the IP-PRE-DSCP mapping.

```
Orion_B54Q# show mls qos maps ip-prec-dscp
ip-precedence dscp
-----
0 0
1 8
2 16
3 24
4 32
5 40
6 48
7 56
```

The fields in the output of this command are described in the following table.

Field	Description
ip-precedence	Indicates the IP-PRE value.
dscp	Indicates the DSCP value mapped .

Related Commands	Command	Description
	N/A	N/A
Platform	N/A	
Description		

2.26 show mls qos queueing

Use this command to display the QoS queuing configuration.

show mls qos queueing

Parameter	Parameter	Description
Description	N/A	N/A

Defaults N/A

Command Mode Privileged EXEC mode, global configuration mode, interface configuration mode.

Usage Guide N/A

Configuration Examples The following example displays the QoS queuing configuration.

```
Orion_B54Q# show mls qos queueing
```

```
Cos-queue map:
```

```
cos qid
```

```
--- ---
```

```
0 1
```

```
1 2
```

```
2 3
```

```
3 4
```

```
4 5
```

```
5 6
```

```
6 7
```

```
7 8
```

```
wrr bandwidth weights:
```

```
qid weights
```

```
--- -----
```

```
1 1
```

```
2 2
```

```
3 3
```

```
4 4
```

```
5 5
```

```
6 6
```

```
7 7
```

```
8 8
```

```
drp bandwidth weights:
```

```
qid weights
```

```
--- -----
```

```
1 3
```

```
2 3
```

```
3 3
```

```
4 3
```

```
5 3
```

```
6 3
```

```
7 3
```

```
8 3
```

The fields in the output of this command are described in the following table.

Field	Description
Cos-queue map	Indicates the mapping between the CoS value and the queue ID.

wrr bandwidth weights	Indicates the WRR queue weight.
drr bandwidth weights	Indicates the DRR queue weight.
cos	Indicates the CoS value.
qid	Indicates the queue ID.
weights	Indicates the weight value

Related Commands	Command	Description
	N/A	N/A

Platform N/A
Description

2.27 show mls qos rate-limit

Use this command to display the rate limiting configuration of the interface.

show mls qos rate-limit [interface *interface-id*]

Parameter	Parameter	Description
Description	<i>interface-id</i>	Interface name

Defaults N/A

Command Mode Privileged EXEC mode, global configuration mode, interface configuration mode.

Usage Guide N/A

Configuration Examples The following example displays the rate limiting configuration of all interfaces.

```
Orion_B54Q# show mls qos rate-limit
Interface: GigabitEthernet 0/1
  rate limit input Kbps = 10240 burst = 256
Interface: GigabitEthernet 0/3
  rate limit output Kbps = 102400 burst = 4096
```

The fields in the output of this command are described in the following table.

Field	Description
Interface	Indicates the interface name.
rate limit input Kbps = x burst = y	Indicates the input rate limit value, and the input burst traffic limit value.
rate limit output Kbps = x burst = y	Indicates the output rate limit value, and the output burst traffic limit value.

Related	Command	Description
----------------	----------------	--------------------

Commands	N/A	N/A
-----------------	-----	-----

Platform N/A
Description

2.28 show mls qos scheduler

Use this command to display the queue scheduling policy.

show mls qos scheduler

Parameter	Parameter	Description
Description	N/A	N/A

Defaults None

Command Mode Privileged EXEC mode, global configuration mode, interface configuration mode.

Usage Guide N/A

Configuration Examples The following example displays the queue scheduling policy.

```
Orion_B54Q# show mls qos scheduler
Global Multi-Layer Switching scheduling
Weighted Round Robin
```

The fields in the output of this command are described in the following table.

Field	Description
Weighted Round Robin	Indicates that the queue scheduling policy is WRR. The other queue scheduling policies are listed as follows: SP: Strict Priority RR: Round Robin DRR: Deficit Round Robin

Related Commands	Command	Description
	N/A	N/A

Platform N/A
Description

2.29 show mls qos virtual-group

Use this command to display the policy map configuration on the virtual group.

show mls qos virtual-group [*virtual-group-number* | **policers**]

Parameter	Parameter	Description
Description	<i>virtual-group-number</i>	Virtual group number. The range is from 1 to 128.
	policers	Displays the policy map configuration on all virtual groups.

Defaults None

Command Mode Privileged EXEC mode, global configuration mode, interface configuration mode.

Usage Guide N/A

Configuration Examples The following example displays the policy map configuration on all virtual groups.

```
Orion_B54Q# show mls qos virtual-group policers
Virtual-group: 1
Attached input policy-map: pmap1
Virtual-group: 20
Attached output policy-map: pmap2
```

The fields in the output of this command are described in the following table.

Field	Description
Virtual-group	Indicates the virtual group number.
Attached input policy-map	Indicates the policy map applied on the input virtual group.
Attached output policy-map	Indicates the policy map applied on the output virtual group.

Related Commands	Command	Description
	N/A	N/A

Platform Description N/A

2.30 show policy-map

Use this command to display policy maps.

show policy-map [*policy-map-name* [**class** *class-map-name*]]

Parameter	Parameter	Description
Description	<i>policy-map-name</i>	Policy map name
	<i>class-map-name</i>	Class map name

Defaults None

Command Mode Privileged EXEC mode, global configuration mode, interface configuration mode.

Mode

Usage Guide N/A

Configuration Examples The following example displays configuration of policy map “pmap1”.

```
Orion_B54Q# show policy-map pmap1

Policy Map pmap1
  Class cmap1
    set ip dscp 16
  Class cmap2
    police 10240 256 exceed-action dscp 8
  Class cmap3
    police 512000 4096 exceed-action drop
```

The fields in the output of this command are described in the following table.

Field	Description
Policy Map	Indicates the policy map name.
Class	Indicates the class map name.
set	Indicates that the DSCP value is modified in this example.
police	Indicates bandwidth limit configuration and the action policy for the violated packets.

The following example displays the action policy for the traffic of class map “cmap1” in policy map “pmap1”.

```
Orion_B54Q#show policy-map pmap1 class cmap1
Class cmap1
set ip dscp 16
```

Related Commands	Command	Description
	N/A	N/A

Platform Description N/A

Description

2.31 show qos bandwidth

Use this command to display the bandwidth configuration.

show qos bandwidth [interfaces *interface-id*]

Parameter	Parameter	Description
Description	<i>interface-id</i>	Interface name

Defaults None

Command Mode Privileged EXEC mode, global configuration mode, interface configuration mode.

Usage Guide N/A

Configuration Examples The following example displays the bandwidth configuration of interface GigabitEthernet 0/1. (Taking the device supporting the bandwidth configuration of the unicast queue or the multicast queue for example.)

```
Orion_B54Q# show qos bandwidth interface gigabitEthernet 0/1
```

```
Interface: GigabitEthernet 0/1
-----
uc-queue-id | minimum-bandwidth | maximum-bandwidth
-----
          1             5120             10240
          2              0              0
          3              0              0
          4              0              0
          5              0              0
          6              0              0
          7              0              0
          8              0              0
-----
Total ucast-queue minimum-bandwidth:           5120
Total ucast-queue maximum-bandwidth:          10240

Interface: GigabitEthernet 0/1
-----
mc-queue-id | minimum-bandwidth | maximum-bandwidth
-----
          1             1024             5120
          2              0              0
          3              0              0
          4              0             2048
-----
```

Total mcast-queue minimum-bandwidth:	1024
Total mcast-queue maximum-bandwidth:	5120

The fields in the output of this command are described in the following table.

Field	Description
Interface	Indicates the interface name.
queue-id	Indicates the queue ID.
uc-queue-id	Indicates the unicast queue ID.
mc-queue-id	Indicates the multicast queue ID.
minimum-bandwidth	Indicates the minimum bandwidth configuration. The unit is Kbps.
maximum-bandwidth	Indicates the maximum bandwidth configuration. The unit is Kbps.
Total queue minimum-bandwidth Total queue maximum-bandwidth	Indicates the total bandwidth of minimum and maximum when both unicast and multicast queues are displayed.
Total ucast-queue minimum-bandwidth Total ucast-queue maximum-bandwidth	Indicates the total bandwidth of minimum and maximum when only unicast queue is displayed.
Total mcast-queue minimum-bandwidth Total mcast-queue maximum-bandwidth	Indicates the total bandwidth of minimum and maximum when only multicast queue is displayed.

Related Commands	Command	Description
	N/A	N/A

Platform N/A
Description

2.32 show qos mc-queue cos-map

This command is used to display the mapping between multicast queues and priorities.

show qos mc-queue cos-map

Parameter Description	Parameter	Description
	-	-

Defaults -

Command Privileged EXEC mode
Mode

Usage Guide -

Configuration Examples `Orion_B54Q(config)# show qos mc-queue cos-map`

Related Commands	Command	Description
	<code>qos mc-queue cos-map cos0-qid cos1-qid cos2-qid cos3-qid cos4-qid cos5-qid cos6-qid cos7-qid</code>	This command is used to configure the mapping between multicast queues and priorities.

Platform Description N/A

2.33 show qos mc-queue scheduler

This command is used to display the scheduling algorithm for multicast queues.

`show qos mc-queue scheduler [interfaces interface]`

Parameter Description	Parameter	Description
	<code>interface</code>	Interface to be displayed. If this parameter is not set, all interfaces are displayed.

Defaults -

Command Mode Privileged EXEC mode

Usage Guide -

Configuration Examples `Orion_B54Q(config)# show qos mc-queue scheduler GigabitEthernet 0/4`

Related Commands	Command	Description
	<code>qos mc-queue scheduler mode {sp wrr}</code>	This command is used to configure the scheduling algorithm for multicast queues.
	<code>qos mc-queue scheduler weight weight1 weight2 weight3</code>	This command is used to configure the WRR algorithm weight for multicast queues.

Platform Description N/A

2.34 show queueing wred interface

Use this command to display WRED settings on the interface.

`show queueing wred interface interface-id`

Parameter Description	Parameter	Description
-----------------------	-----------	-------------

<i>interface-id</i>	Interface name
---------------------	----------------

Defaults None

Command mode Privileged EXEC mode, global configuration mode, interface configuration mode.

Usage Guide N/A

Configuration Examples The following example displays the WRED settings on interface GigabitEthernet 1/3.

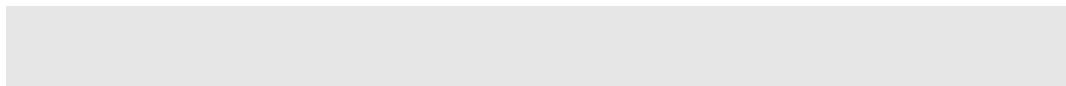
```

Orion_B54Q# show queueing wred interface gigabitethernet 1/3
-----
qid  max_1  min_1  prob_1  max_2  min_2  prob_2
-----
1    100    30     100     100    70     100
2    100    60     100     100    30     100
3    100    80     30      100    30     40
4    100    80     100     100    100    100
5    100    80     100     100    100    100
6    100    80     100     100    100    100
7    100    80     100     100    100    100
8    100    80     100     100    100    100

-----
cos  qid  threshold_id
-----
0    1    1
1    2    2
2    3    2
3    4    2
4    5    2
5    6    1
6    7    1
7    8    1
    
```

The fields in the output of this command are described in the following table.

Field	Description
qid	Indicates the queue ID.
max_x	Indicates the upper threshold of the x group.
min_x	Indicates the lower threshold of the x group.
prob_x	Indicates the maximum probability of being dropped of the x group.
cos qid threshold_id	Indicates the mapping of CoS value, queue ID and threshold number.



Related Commands

Command	Description
N/A.	N/A.

Platform

N/A.

Description

2.35 show virtual-group

Use this command to display the member port in the virtual group.

show virtual-group [*virtual-group-number* | **summary**]

Parameter

Parameter	Description
<i>virtual-group-number</i>	Virtual group number. The range is from 1 to 128.
summary	Displays the member port in all virtual groups.

Description

Defaults

N/A

Command Mode

Privileged EXEC mode, global configuration mode, interface configuration mode.

Usage Guide

N/A

Configuration Examples

The following example displays the member port in all virtual groups.

```
Orion_B54Q# show virtual-group summary
virtual-group      member
-----          -
1                  Gi0/1 Gi0/2
2                  Gi0/0
```

The fields in the output of this command are described in the following table.

Field	Description
virtual-group	Indicates the virtual group number.
member	Indicates the member port in the virtual group.

Related Commands

Command	Description
N/A	N/A

Platform

N/A

Description

2.36 virtual-group

Use this command to create a virtual group in global configuration mode.

Use this command to configure add an interface to a virtual group in interface configuration mode.

Use the **no** or **default** form of this command to remove a virtual group in global configuration mode.

Use the **no** or **default** form of this command to remove an interface from a virtual group in interface configuration mode.

virtual-group *virtual-group-number*

no virtual-group *virtual-group-number*

default virtual-group *virtual-group-number*

Parameter	Parameter	Description
Description	<i>virtual-group-number</i>	Virtual group number. The range is from 1 to 128.

Defaults No virtual group is configured, or no interface is added to a virtual group, by default.

Command Mode Interface configuration mode, global configuration mode.

Usage Guide The member port added to the virtual group must be a physical port or an aggregate port member. The member ports of a virtual group must be on the same module of a chassis switch or on the same box switch.

Configuration Examples The following example sets the interface gigabitEthernet 1/3 as the member of virtual group 3:

```
Orion_B54Q(config)# interface gigabitEthernet 1/3
Orion_B54Q(config-if)# virtual-group 3
```

Related Commands	Command	Description
	show virtual-group [<i>virtual-group-number</i> summary]	Displays the virtual group configuration.

Platform Description N/A

2.37 wrr-queue bandwidth

Use this command to set the WRR weight ratio. Use the **no** or **default** form of this command to restore the default setting.

wrr-queue bandwidth *weight1 ... weight8*

no wrr-queue bandwidth

default wrr-queue bandwidth

Parameter	Parameter	Description
Description	<i>weight1...weight8</i>	8 queue weights. The default queue weight ratio is 1:1:1:1:1:1:1:1. For the products supporting the SP scheduling policy, the weight

	range is from 0 to 15. For the products not supporting the SP scheduling policy, the weight range is from 1 to 15.
--	---

Defaults The default queue weight ratio is 1:1:1:1:1:1:1.

Command Global configuration mode

Mode

Usage Guide If the weight value is 0, the SP scheduling policy is applied.

Configuration Examples The following example configures the WRR queue weight ratio to 1:1:1:1:2:2:4:8.

```
Orion_B54Q(config)# wrr-queue bandwidth 1 2 3 4 5 6 7 8
```

Related Commands	Command	Description
	show mls qos queuing	Displays the QoS queuing configuration.

Platform N/A

Description

2.38 wrr-queue cos-map

Use this command to map the CoS value to a threshold for a specified queue. Use the **no** or **default** form of this command to restore the default settings.

wrr-queue cos-map *threshold_id* *cos1* [*cos2* [*cos3* [*cos4* [*cos5* [*cos6* [*cos7* [*cos8*]]]]]]]]

no wrr-queue cos-map *threshold_id*

default wrr-queue cos-map *threshold_id*

Parameter Description	Parameter	Description
	<i>threshold_id</i>	Threshold number. The range is from 1 to 2. Up to two threshold values can be configured.
	<i>cos_N</i>	CoS value. The range is from 0 to 7. Up to 8 CoS values can be configured.

Defaults All CoS values are mapped to the threshold 1.

Command mode Interface configuration mode.

Usage Guide DSCP-threshold mapping can be enabled by mapping DSCP-CoS to CoS-threshold. When all CoS values are mapped to one threshold on the interface, it changes the enabled WRED to RED.

Configuration Examples The following example enters the interface GigabitEthernet 1/3 to map CoS 1, 2 to threshold 2.

```
Orion_B54Q(config)# interface gigabitethernet 1/3
```

```
Orion_B54Q(config-if-GigabitEthernet 1/3)#wrr-queue cos-map 2 1 6
```

Related Commands

Command	Description
show queuing wred interface <i>interface-id</i>	Displays the WRED configuration on the interface.

Platform Description N/A.

2.39 wrr-queue random-detect min-threshold

Use this command to configure the minimum WRED drop threshold. Use the **no** or **default** form of this command to restore the default WRED drop threshold.

```
wrr-queue random-detect min-threshold queue_id thr1 [ thr2 ]
no wrr-queue random-detect min-threshold queue_id
default wrr-queue random-detect min-threshold queue_id
```

Parameter Description

Parameter	Description
<i>queue_id</i>	Queue ID.
<i>thrN</i>	Up to two threshold values can be configured. The threshold value range is from 1 to 100.

Defaults Two threshold values are configured, and the default threshold values are 100 and 80.

Command mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example configures the low WRED drop thresholds to 60 and 70 for queue 1.

```
Orion_B54Q(config)# interface gigabitethernet 1/3
Orion_B54Q(config-if-GigabitEthernet 1/3)# wrr-queue random-detect min-threshold 1 60 70
```

Related Commands

Command	Description
show queuing wred interface <i>interface-id</i>	Displays the WRED configuration on the interface.

Platform Description N/A.

2.40 wrr-queue random-detect probability

Use this command to configure the WRED packet drop probability. Use the **no** or **default** form of this command to restore the WRED packet drop probability.

wrr-queue random-detect probability *queue_id* *prob1* [*prob2*]

no wrr-queue random-detect probability *queue_id*

default wrr-queue random-detect probability *queue_id*

Parameter Description	Parameter	Description
	<i>queue_id</i>	Queue ID.
	<i>proN</i>	Up to two probability values can be configured. The threshold value range is from 1 to 100.

Defaults Two packet drop probability values are configured, and the default probability values are 100 and 80.

Command mode Interface configuration mode.

Usage Guide N/A

Configuration Examples The following example configures the WRED packet drop values to 50 and 70 for queue 1.

```
Orion_B54Q(config)# interface gigabitethernet 1/3
Orion_B54Q(config-if-GigabitEthernet 1/3)# wrr-queue random-detect
probability 1 50 70
```

Related Commands	Command	Description
	show queueing wred interface <i>interface-id</i>	Displays the WRED configuration on the interface.

Platform Description N/A.

3 MMU Commands

3.1 clear mmu queue-buffer peaked

Use this command to clear the historical peak value of the queue buffer.

clear mmu queue-buffer peaked

Parameter Description	Parameter	Description
-----------------------	-----------	-------------

N/A	N/A
-----	-----

Command Mode Privileged EXEC mode/Global configuration mode/Interface configuration mode

Default Level 14

Usage Guide N/A

Configuration Examples The following example clears the historical peak value of the buffer.

```
Orion_B54Q# clear mmu queue-buffer peaked
Orion_B54Q#
```

Platform Description N/A

3.2 clear queue-counter

Use this command to clear queue statistics.

clear queue-counter [**interface** *interface _id*]

Parameter Description	Parameter	Description
	<i>interface_id</i>	Port Number

Command Mode Privileged EXEC mode/Global configuration mode/Interface configuration mode

Default Level 14

Usage Guide N/A

Configuration Examples The following example clears all queue statistics.

```
Orion_B54Q# clear queue-counter
Orion_B54Q#
```

The following example clears queue statistics of an interface.

```
Orion_B54Q# clear queue-counter Interface TenGigabitEthernet 1/9
Orion_B54Q#
```

Platform Description N/A

3.3 mmu buffer-mode

Use this command to configure global buffer mode.

mmu buffer-mode { normal | small | large }

Use the **no** form of this command to restore the default setting.

no mmu buffer-mode

Parameter Description	Parameter	Description
	normal	Normal buffer mode
	small	Small buffer mode
	large	Large buffer mode

Defaults The default is normal buffer mode.

Command Mode Global configuration mode

Default Level 14

Usage Guide The configuration takes effect after the device is restarted.

Configuration Examples The following example configures the large buffer mode.

```
Orion_B54Q#config
Orion_B54Q(config)# mmu buffer-mode large
This command will lead to reload the switch, and all configuration will be
saved. Are you sure to continue[Y/N]: Y
```

Platform Description N/A

3.4 mmu usage-warn-limit

Use this command to configure the usage warning threshold.

mmu usage-warn-limit { unicast | multicast } {queue-id1 [queue-id2 [queue-idN]]} set value

Use the **no** form of this command to restore the default setting.

no mmu usage-warn-limit

Parameter Description	Parameter	Description
	unicast	Performs buffer management on the output unicast queue.
	multicast	Performs buffer management on the output multicast queue.
	<i>queue-idN</i>	Queue ID

<i>value</i>	Usage warning threshold.
--------------	--------------------------

Defaults The default threshold is 0.

Command Mode Global configuration mode/Interface configuration mode

Default Level 14

Usage Guide If the buffer usage for the port group exceeds the global threshold, a warning log is printed. If the buffer usage for the queue exceeds the queue threshold, a warning log is printed. To avoid producing excessive logs, the warning log for a port group/queue is printed only once within 30 seconds.

Configuration Examples The following example sets the usage warning threshold globally.

```
Orion_B54Q#config
Orion_B54Q(config)# mmu usage-warn-limit set 90
```

The following example sets the usage warning threshold for unicast queue 3 and 8 to 80%.

```
Orion_B54Q#config
Orion_B54Q(config)# int tel/1
Orion_B54Q(config-if)# mmu usage-warn-limit unicast 3 8 set 80
```

The following example sets the usage warning threshold for multicast queue 1 and 4 to 80%.

```
Orion_B54Q#config
Orion_B54Q(config)# int tel/1
Orion_B54Q(config-if)# mmu usage-warn-limit multicast 1 4 set 80
```

Platform Description N/A

3.5 mmu queue-thredshold

Use this command to configure the shared buffer.

mmu queue-thredshold output { unicast | multicast } { queue-id1 [queue-id2 [queue-idN]] } set th %

Use the **no** form of this command to restore the default setting.

no mmu queue-thredshold output { unicast | multicast }

Parameter	Parameter	Description
-----------	-----------	-------------

Description	
output	Performs buffer management on the output queue.
unicast	Performs buffer management on the output unicast queue.
multicast	Performs buffer management on the output multicast queue.
<i>queue-idN</i>	Queue ID
<i>th%</i>	Total shared buffer * threshold = Available buffer

Defaults The default varies with different products.

Command Interface configuration mode

Mode

Default Level 14

- Usage Guide**
1. If you want to enable MMU based on output queue, restart the specified line card or switch for this command to take effect.
 2. The user-configured value is displayed when the **show run command** is executed, even if the user-configured value is the default value.

Configuration Examples The following example configures shared buffer for unicast queue.

```
Orion_B54Q#config
Orion_B54Q(config)# interface tenGigabitEthernet 1/9
Orion_B54Q(config-if)#mmu queue-thredshold ouput unicast 1 3 7 8 set 80
Orion_B54Q(config-if)#exit
Orion_B54Q(config)#exit
Orion_B54Q#
```

The following example configures shared buffer for multicast queue.

```
Orion_B54Q#config
Orion_B54Q(config)# interface tenGigabitEthernet 1/9
Orion_B54Q(config-if)#mmu queue-thredshold ouput multicast 1 3 7 8 set 80
Orion_B54Q(config-if)#exit
Orion_B54Q(config)#exit
Orion_B54Q#
```

Platform Description N/A

3.6 show queue-buffer interface

Use this command to display buffer usage of interfaces.

show queue-buffer interface *interface-id*

Parameter Description	Parameter	Description
	<i>interface-id</i>	Interface

Command Mode Privileged EXEC mode/Global configuration mode/Interface configuration mode

Default Level 14

Usage Guide N/A

Configuration Examples The following example displays buffer usage of the specified interface based on output queue..

```

Orion_B54Q# show queue-buffer int ge 0/1
Interface GigabitEthernet 0/1 :
Type      Queue  Used cells  Available cells  Peaked cells
Unicast   1       0           5554             0
Unicast   2       0           5554             0
Unicast   3       0           5554             0
Unicast   4       0           5554             0
Unicast   5       0           5554             0
Unicast   6       0           5554             0
Unicast   7       0           5554             0
Unicast   8       0           5554             0
Multicast 1       0           5554             0
Multicast 2       0           5554             0
Multicast 3       0           5554             0
Multicast 4       0           5554             0
Multicast 5       0           5554             0
Multicast 6       0           5554             0
Multicast 7       0           5554             0
Multicast 8       0           5554             0

Slot PortGroup  Total cells  Static used cells  Global shared cells
Available shared cells
0 1 19456 8364 11092 11092
    
```

Field	Description
Type	Queue type, including unicast queue, multicast queue and voq.
Queue	Queue number, in the range from 1 to 8.
Used cells	Used buffer cells of the specified queue.
Available cells	Available buffer cells of the specified queue. The buffer cells that queues apply for are no greater than the available cells.
Peaked cells	Historical peak value of buffer cells.

Total cells	Total buffer cells of the port group of the specified slot.
Static used cells	Used guaranteed buffer cells of the port group of the specified slot.
Global shared cells	Total shared buffer cells of the port group pf the specified slot.
Available shared cells	Available shared buffer cells of the port group pf the specified slot.



Platform N/A
Description

3.7 show queue-counter interface

Use this command to display buffer queue statistics of interfaces.

show queue-counter interface *interface-id*

Parameter Description	Parameter	Description
	<i>interface-id</i>	Interface

Command Mode Privileged EXEC mode/Global configuration mode/Interface configuration mode

Default Level 14

Usage Guide N/A

Configuration Examples The following example displays buffer queue statistics of the specified interface based on output queue.

```
Orion_B54Q#show queue-counter interface ge 0/1
Interface GigabitEthernet 0/1
Unicast:
  Queue      Transmitted bytes      Dropped bytes      Frame Loss
Rate(%)      Transmit Rate (bps)
  1          0                      0
0
  2          0                      0
0
  3          0                      0
0
  4          0                      0
0
```

0	5	0	0	0
0		0		
0	6	0	0	0
0		0		
0	7	0	0	0
0		0		
0	8	0	0	0
0		0		
Multicast:				
	Queue	Transmitted bytes		Dropped bytes
	Rate (%)	Transmit Rate (bps)		Frame Loss
0	1	0	0	0
0		0		
0	2	0	0	0
0		0		
0	3	0	0	0
0		0		
0	4	0	0	0
0		0		
0	5	0	0	0
0		0		
0	6	0	0	0
0		0		
0	7	0	0	0
0		0		
0	8	0	0	0
0		0		
Unicast:				
	Queue	Transmitted packets		Dropped packets
	Rate (%)	Transmit Rate (pps)		Frame Loss
0	1	0	0	0
0		0		
0	2	0	0	0
0		0		
0	3	0	0	0
0		0		
0	4	0	0	0
0		0		
0	5	0	0	0
0		0		
0	6	0	0	0
0		0		
0	7	0	0	0

```

0
  8
0
  Multicast:
  Queue   Transmitted packets      Dropped packets      Frame Loss
Rate (%)  Transmit Rate (pps)
  1
0
  2
0
  3
0
  4
0
  5
0
  6
0
  7
0
  8      0      0      0      0
    
```

Platform Description N/A