06-QOS

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1. QOS

accounting

Syntax	**Accounting** **no accounting**
Parameter	none
Default	Do not set statistic function.
Mode	Policy map configuration mode
Usage	Set statistic function for the classified traffic. After enable this function, add statistic function to the traffic of the policy class map, the messages can only red or green when passing policy. When print statistic information, in packets means classify packets numbers and not support the classify of color.
Example	Count the packets which satisfy c1 rule. Switch#config Switch(config)#class-map c1 Switch(config-classmap-c1)#exit Switch(config)#policy-map p1 Switch(config-policymap-p1)#class c1 Switch(config-policymap-p1-class-c1)#accounting Switch(config-policymap-p1-class-c1)#exit Switch(config-policymap-p1)#exit Switch(config)#

class

Syntax	**class <class-map-name> [insert-before <class-map-name>]** **no class <class-map-name>**	
Parameter	**<class-map-name>**	***<class-map-name>*** is the class map name used by the class.
	insert-before <class-map-name>	**insert-before** ***<class-map-name>*** insert a new configured class to the front of a existent class to improve the priority of the new class.
Default	No policy class is configured by default.	
Mode	Policy map configuration mode	
Usage	Associates a class to a policy map and enters the policy class map mode; the no command deletes the specified class. Before setting up a policy class, a policy map should be created and the policy map mode entered. In the policy map mode, classification and nexthop configuration can be performed on packet traffic classified by class map.	
Example	After add a policy class map c1 to the policy map, add a policy class map c2 and insert it to the front of c1. Switch(config)#class-map c1	

	Switch(config-classmap-c1)#exit Switch(config)#class-map c2 Switch(config-classmap-c2)#exit Switch(config)#policy-map p1 Switch(config-policymap-p1)#class c1 Switch(config-policymap-p1-class-c1)#exit Switch(config-policymap-p1)#class c2 insert-before c1 Switch(config-policymap-p1-class-c2)#exit

class-map

Syntax	**class-map <class-map-name>** **no class-map <class-map-name>**
Parameter	**<class-map-name>** class map name
Default	No class map is configured by default.
Mode	Global Mode
Usage	Creates a class map and enters class map mode; the no command deletes the specified class map.
Example	Creating and then deleting a class map named “c1”. Switch#config Switch(config)#class-map c1 Switch(config-classmap-c1)#exit Switch(config)#no class-map c1

clear mls qos statistics

Syntax	**clear mls qos statistics (interface [ethernet] <interface-name>) | (vlan <vlan-id>)**	
Parameter	**<vlan-id>**	VLAN ID
	<interface-name>	interface name
Default	Do not set action.	
Mode	Admin Mode	
Usage	Clear accounting data of the specified ports or VLAN Policy Map. If there are no parameters, clear accounting data of all policy map.	
Example	Clear the Policy Map statistic of VLAN 100. Switch#clear mls qos statistics vlan 100	

drop

Syntax	**drop**

	no drop
Parameter	**none**
Default	None
Mode	Policy class map configuration mode
Usage	Drop the specified packet after configure this command.
Example	Drop the packet which satisfy c1. Switch#config Switch(config)#policy-map p1 Switch(config-policymap-p1)#class c1 Switch(config-policymap-p1-class-c1)#drop Switch(config-policymap-p1-class-c1)#exit Switch(config-policymap-p1)#exit

match

Syntax	**match (access-group <acl-index-or-name> | ip dscp <dscp-list> | ip precedence <ip-precedence-list> | ipv6 access-group <acl-index-or-name> | ipv6 dscp <dscp-list> | ipv6 flowlabel <flowlabel-list> | vlan <vlan-list> | cos <cos-list>)** **no match {access-group | ip dscp | ip precedence| ipv6 access-group| ipv6 dscp | ipv6 flowlabel | vlan | cos)**	
Parameter	**<acl-index-or-name>**	match specified IP ACL, MAC ACL or IPv6 standard ACL or MAC-IP ACL, the parameters are the number or name of the ACL;
	<dscp-list>	match specified DSCP value, the parameter is a list of DSCP consisting of maximum 8 DSCP values, the range is 0~63;
	<ip-precedence-list>	match specified IP Precedence, the parameter is a IP Precedence list consisting of maximum 8 IP Precedence values with a valid range of 0~7;
	ipv6 access-group <acl-index-or-name>	match specified IPv6 ACL, the parameter is the number or name of the IPv6 ACL;
	<flowlabel-list>	match specified IPv6 flow label, the parameter is IPv6 flow label value, the range is 0~1048575;
	<vlan-list>	match specified VLAN ID, the parameter is a VLAN ID list consisting of maximum 8 VLAN IDs, the range is 1~4094;
	<cos-list>	match specified CoS value, the parameter is a CoS list consisting of maximum 8 CoS, the range is 0~7;
Default	No match standard by default	
Mode	Class-map Mode	
Usage	Configure the match standard of the class map; the no form of this command deletes the specified match standard. Only one match standard can be configured in a class map. When configuring the match ACL, permit rule as the match option, apply Policy Map action. Deny rule as the excluding	

	option, do not apply Policy Map action. (The deny rule is not supported issuing in PBR, please pay attention to avoid it.) If configure another match rule after one was configured, the operation fails, but configure the same match rule will cover the previous.
Example	Create a class-map named c1, and configure the class rule of this class-map to match packets with IP Precedence of 0. Switch(config)#class-map c1 Switch(config-classmap-c1)#match ip precedence 0 Switch(config-classmap-c1)#exit

mls qos aggregate-policy

Syntax	**mls qos aggregate-policy <policer_name> <bits_per_second> burst-group <normal_burst_bytes>** **no mls qos aggregate-policy <policer_name>**	
Parameter	**<policer_name>**	it is the aggregate policy name.
	<bits_per_second>	it define the information rate, namely CIR, the unit is kbit per second, and it ranges from 1 to 10000000;
	<normal_burst_bytes>	it define the committed burst size, namely CBS, the unit is kilobyte, and it ranges from 1 to 8192, when the CBS more than the maximum of chips , it uses the biggest value that chip support to set hardware, CLI have not notice information;
Default	The default is no policy action.	
Mode	Global Mode	
Usage	Define a aggregate policy command. The no command delete mode configuration. It only supports single cylinder configuration, when configuring, if configured CBS, not support configure color, green packets only supports transmit, red packets only supports drop.	
Example	Set 10000 as CIR, CBS is 512. Switch (config)#policy burst 1 512 Switch(config)# mls qos aggregate-policy 1 1000 burst-group 1	

mls qos cos

Syntax	**mls qos cos <default-cos>** **no mls qos cos**	
Parameter	**<default-cos>**	default CoS value for the port, the valid range is 0 to 7
Default	The default CoS value is 0	
Mode	Port Configuration Mode	
Usage	Configures the default CoS value of the port; the "**no mls qos cos**" command restores the default setting.	

	Configure the default CoS value for switch port. In default configuration, the message ingress cos from this port are default value whether the message with tag. If the message without tag, the message cos value for tag is enactmented.
Example	Setting the default CoS value of ethernet port 1/0/1 to 7, i.e., packets coming in through this port will be assigned a default CoS value of 7 if no CoS value present . Switch(config)#interface ethernet 1/0/1 Switch(config-if-ethernet1/0/1)#mls qos cos 7

mls qos map

Syntax	**mls qos map (cos-intp <intp1…intp8> | cos-dp <dp1…dp8> | dscp-intp <in-dscp list> to <intp> | dscp-dp <in-dscp list> to <dp> | dscp-dscp <in-dscp list> to <out-dscp>)** **no mls qos map (cos-intp | cos-dp | dscp-intp | dscp-dp | dscp-dscp)**	
Parameter	**cos-intp <intp1…intp8>**	defines the mapping from CoS to intp (queue) value, <intp1..intp8> are 8 intp value corresponding to the 0 to 7 CoS value, each intp value is delimited with space, ranging from 0 to 7;
	cos-dp<dp1…dp8>	defines the mapping from cos to intp (queue), <dp1…dp8> is 8 drop priority and it corresponding to the Cos value from 0 to 7, every drop priority is separated by space, and it ranges from 0 to 2;
	dscp-intp	defines the mapping from DSCP to intp (queue).
	dscp-dp	defines the mapping from dscp to drop priority.
	dscp-dscp	defines the mapping from entrance dscp to export dscp, <in-dscp list> is the input dscp value, the most is 8 and it separated by space from each other, and it ranges from 0 to 63, <out-dscp> is output dscp value and it ranges from 0 to 63.
Default	Default mapping values are: Default CoS-TO-INTP Map COS: 0 1 2 3 4 5 6 7 INTP: 0 1 2 3 4 5 6 7 Default CoS-TO-DP Map CoS 0 1 2 3 4 5 6 7 DP 0 0 0 0 0 0 0 0 Default DSCP-TO-INTP Map d1 : d2 0 1 2 3 4 5 6 7 8 9 0: 0 0 0 0 0 0 0 0 1 1 1: 1 1 1 1 1 1 2 2 2 2 2: 2 2 2 2 3 3 3 3 3 3 3: 3 3 4 4 4 4 4 4 4 4 4: 5 5 5 5 5 5 5 5 6 6 5: 6 6 6 6 6 6 7 7 7 7 6: 7 7 7 7 Default DSCP-TO-DP *Map* d1 : d2 0 1 2 3 4 5 6 7 8 9 0: 0 0 0 0 0 0 0 0 0 0	

	1: 0 0 0 0 0 0 0 0 0 0 2: 0 0 0 0 0 0 0 0 0 0 3: 0 0 0 0 0 0 0 0 0 0 4: 0 0 0 0 0 0 0 0 0 0 5: 0 0 0 0 0 0 0 0 0 0 6: 0 0 0 0 Default DSCP-TO-DSCP Map d1 : d2 0 1 2 3 4 5 6 7 8 9 0: 0 1 2 3 4 5 6 7 8 9 1: 10 11 12 13 14 15 16 17 18 19 2: 20 21 22 23 24 25 26 27 28 29 3: 30 31 32 33 34 35 36 37 38 39 4: 40 41 42 43 44 45 46 47 48 49 5: 50 51 52 53 54 55 56 57 58 59 6: 60 61 62 63
Mode	Global Mode
Usage	INTP means the chip internal priority setting. Because of the internal DSCP value have 64 and the chip internal priority (queue) only 8, the dscp-intp mapping need 8 continuum internal dscp mapping to the same INTP.
Example	Setting the CoS-to-INTP mapping value to the default 0 8 16 24 32 40 48 56 to 0 1 2 3 4 5 6 7。 Switch(config)#mls qos map cos-intp 0 1 2 3 4 5 6 7

mls qos queue algorithm

Syntax	**mls qos queue algorithm (sp | wrr | wdrr)** **no mls qos queue algorithm**	
Parameter	**sp**	The strict priority, the queue number of bigger, then the priority is higher
	wrr	Select wrr algorithm
	wdrr	Select wdrr algorithm.
Default	WRR	
Mode	Port Configuration Mode	
Usage	After configure this command, the queue management algorithm is set.	
Example	Setting the queue management algorithm as sp. switch#config Switch(config)#interface ethernet 1/0/1 Switch(config-if-ethernet1/0/1)#mls qos queue algorithm sp	

mls qos queue wdrr weight

Syntax	**mls qos queue wdrr weight <weight1..weight8>** **no mls qos queue wdrr weight**	
Parameter	**<weight1..weight8>**	defines the queue weight, in Kbytes. For WDRR algorithm, this configuration is valid, but for SP algorithm, it is invalid. When the weight is 0, this queue adopts SP algorithm to manage, and WDRR algorithm turns into SP+WDRR algorithm. range:0-32767
Default	The queue weight is 10 20 40 80 160 320 640 1280.	
Mode	Port Configuration Mode	
Usage	If the queue weight is configured as 0, it uses SP algorithm to manage, while WRR turns into SWDRR. When removing the queue, the system will manage SP queue at first, then manage WDRR queue, SP queue executes the strict priority management mode, WDRR queue executes the weight rotation management mode.	
Example	Configure the queue weight as 10 10 20 20 40 40 80 80. Switch(interface-ethernet1/0/1)#mls qos queue wdrr weight 10 10 20 20 40 40 80 80	

mls qos queue wrr weight

Syntax	**mls qos queue wrr weight <weight1..weight8>** **no mls qos queue wrr weight**	
Parameter	**<weight1..weight8>**	defines the queue weight, range: 0-127
Default	The queue weight is 1 2 3 4 5 6 7 8。	
Mode	Port Configuration Mode	
Usage	If the queue weight is configured as 0, it uses SP algorithm to manage, while WRR turns into SWDRR. When removing the queue, the system will manage SP queue at first, then manage WDRR queue, SP queue executes the strict priority management mode, WDRR queue executes the weight rotation management mode.	
Example	Configure the queue weight as 127 8 9 6 3 4 2 0。 Switch(interface-ethernet1/0/1)#mls qos queue wrr weight 127 8 9 6 3 4 2 0	

mls qos queue bandwidth

Syntax	**mls qos queue <queue-id> bandwidth <maximum-bandwidth>** **no mls qos queue <queue-id> bandwidth**	
Parameter	**<queue-id>**	queue ID to configure the bandwidth guarantee, the different chip supports the different queue count, the range is different too, and the ranging from 1 to 8.
	<maximum-bandwidth>	maximum-bandwidth, ranging from 0 to 128000, when input 0, it means the max-bandwidth function is not take effect. The minimum-bandwidth must not bigger than maximum-bandwidth.

Default	The queue bandwidth have no guarantee
Mode	Port Configuration Mode
Usage	The minimum-bandwidth guarantee and maximum-bandwidth limit can be configured at the different or same queue. The queue bandwidth pledge for egress is relative to management mode, for example: one port is the strict priority-queue, the highest priority is queue 8 now, it will satisfy this queue traffic when block is happened. But if user want the lower priority of queue having bandwidth, it can remain bandwidth via this command, the lower priority queue's minimum-bandwidth will be satisfied at first, then the excess bandwidth is managed according to SP.
Example	Configure the maximum-bandwidth is 128kbps for ethernet1/0/2 queue1. Switch(config)#interface ethernet 1/0/2 Switch(config-if-ethernet1/0/2)# mls qos queue 1 bandwidth 128

mls qos trust

Syntax	**mls qos trust (cos | dscp)** **no mls qos trust (cos | dscp)**	
Parameter	**dscp**	configures the port to trust DSCP status
	cos	configures the COS port to trust status.
Default	the default is trust COS value.	
Mode	Port Configuration Mode	
Usage	Configures the current port trust; the no command disables the current trust status of the port. trust dscp mode: Set the intp field based dscp-to-intp mapping. trust cos mode: Set the intp field based cos-to-intp mapping.	
Example	Set trust dscp of port 1/0/1, not trust cos. Switch(config)#interface ethernet 1/0/1 Switch(config-if-ehternet1/1)# mls qos trust dscp Switch(config-if-ehternet1/1)#no mls qos trust cos	

Policy burst

Syntax	**policy burst <burst_group> <normal_burst_bytes>**	
Parameter	**<burst_group>**	burst_group id ranges from 1 to 2
	<normal_burst_bytes >	The committed burst size – CBS (Committed Burst Size), in byte, ranging from 1 to 8192. When the configured CBS value exceeds the max limit of the chip, configure the hardware with max number supported by the chip without any CLI prompt;
Default	The default of normal_burst_bytes is 1024.	
Mode	Global Mode	

Usage	Configure burst-group in global mode and it supports 2 burst-group, then it can use burst-group in strategy classify table mode. It can return default configuration by set 1024 as default value.
Example	Set burst-group 1 to define CBS as 512 bits Switch(config)#policy burst 1 512

Policy

Syntax	**policy <bits_per_second> burst-group <burst-group-id>** **no policy**	
Parameter	**<bits_per_second>**	The committed information rate – CIR (Committed Information Rate), in Kbps, ranging from 1 to 10000000;
	<burst-group-id>	It is CBS burst-group id and it ranges from 1 to 2.
Default	No policy action.	
Mode	Policy class map configuration mode	
Usage	Support non-aggregate policy command of double color, the no command delete mode configuration. Configure information rate in policy class map configuration mode. Not support the color configuration and the default green packets is transmit, red packets drop.	
Example	Set information rate 1000 in policy class map configuration mode, the CBS is 512, the more than cir rate will send and do nothing for packets. Switch(config)#policy burst 1 512 Switch(config)#class-map cm Switch(config-classmap-cm)#match cos 0 Switch(config-classmap-cm)#exit Switch(config)#policy-map 1 Switch(config-policymap-1)#class cm Switch(config-policymap-1-class-cm)# policy 1000 burst-group 1	

Policy aggregate

Syntax	**policy aggregate <aggregate-policy-name>** **no policy aggregate <aggregate-policy-name>**	
Parameter	**<aggregate-policy-name>**	***<aggregate-policy-name>*** is the policy set name.
Default	No policy is configured by default	
Mode	Policy class map configuration mode	
Usage	Police Map reference aggregate policy, applies an aggregate policy to classified traffic; the no command deletes the specified aggregate policy.	

	The same policy set can be referred to by different policy class maps.
Example	Create class-map, the match rule is the cos value is 0; policy-map is 1, enter the policy map mode, set the Policy and choose the color policy for the current list. Switch(config)#class-map cm Switch(config-classmap-cm)#match cos 0 Switch(config-classmap-cm)#exit Switch(config)#policy-map 1 Switch(config-policymap-1)#class cm Switch(config-policymap-1-class-cm)#policy aggregate color

Policy-map

Syntax	**policy-map <policy-map-name>** **no policy-map <policy-map-name>**
Parameter	**<policy-map-name>** policy map name.
Default	No policy map is configured by default.
Mode	Global Mode
Usage	Creates a policy map and enters the policy map mode; the "**no policy-map <*policy-map-name*>**" command deletes the specified policy map. Policy class map opertion can be done in policy map configuration mode.
Example	Creating and deleting a policy map named "p1". 。 Switch(config)#policy-map p1 Switch(config-policymap-p1)#exit Switch(config)#no policy-map p1

service-policy input

Syntax	**service-policy input <policy-map-name>** **no service-policy input {<policy-map-name>}**	
Parameter	**input <policy-map-name>**	**input <policy-map-name>** applies the specified policy map to the ingress direction of switch port. no command will delete all the policy maps applied on the ingress direction of the port if there is not the specified policy map name.
Default	No policy map is bound to port by default.	
Mode	Port Configuration Mode	
Usage	Applies a policy map to the specified port; the no command deletes the specified policy map applied to the port or deletes all the policy maps applied on the ingress direction of the port . Only one policy map can be applied to each direction of each port or VLAN interface.	
Example	Bind policy p1 to ingress Ethernet port1/1. Switch(config)#interface ethernet 1/0/1	

	Switch(config-if-ethernet1/0/1)#service-policy input p1

service-policy input vlan

Syntax	**service-policy input <policy-map-name> vlan <vlan-list>** **no service-policy input {<policy-map-name>} vlan < vlan-list>**	
Parameter	**input <policy-map-name>**	**input <policy-map-name>** applies the specified policy map to the ingress direction of switch VLAN interface.
	vlan < vlan-list>	**vlan <vlan-list>** the vlan list of binding policy map.
Default	No policy map is bound to VLAN interface by default.	
Mode	Global Mode	
Usage	Applies a policy map to the specified VLAN interface; the no command deletes the specified policy map applied to the VLAN interface or deletes all the policy maps applied in the ingress direction of the vlan interface . Only one policy map can be applied to each direction of each port or VLAN interface. 。	
Example	Bind policy p1 to ingress of VLAN interface 2-4,6 Switch(config)#service-policy input p1 vlan 2-4;6	

set

Syntax	**set (ip dscp <new-dscp> | ip precedence <new-precedence> | internal priority <new-inp> | drop precedence <new-dp> | cos <new-cos>)** **no set (ip dscp | ip precedence | internal priority | drop precedence | cos)**	
Parameter	**ip dscp <new-dscp>**	new DSCP value, do not distinguish v4 and *v6.*
	ip precedence <new-precedence>	new IP Precedence.
	cos <new-cos>	new IP Precedence.
Default	Not assigning by default.	
Mode	Policy Class-map Mode	
Usage	Assign a new DSCP, IP Precedence for the classified traffic; the no form of this command delete assigning the new values. Only the classified traffic which matches the matching standard will be assigned with the new values.	
Example	Set the IP Precedence of the packets matching c1 class rule to 3. Switch(config)#policy-map p1 Switch(Config-PolicyMap-p1)#class c1 Switch(Config-PolicyMap-p1-Class-c1)#set ip precedence 3 Switch(Config-PolicyMap-p1-Class-c1)#exit Switch(Config-PolicyMap-p1)#exit	

show class-map

Syntax	**show class-map [<class-map-name>]**
Parameter	**[<class-map-name>]** class map name
Default	None
Mode	Admin Mode.
Usage	Displays all configured class-map or specified class-map information.
Example	Switch#show class-map Class map name:cm, used by 1 time(s) match cos: 0 Class map name:color, used by 0 time(s) match cos: 0

Displayed information	Explanation
Class map name:c1	Name of the Class map
used by 1 times	Used times
match acl name:1	Classifying rule for the class map

show policy-map

Syntax	**show policy-map [<policy-map-name>]**
Parameter	**<policy-map-name>** policy map name
Default	None
Mode	Admin Mode.
Usage	Displays all configured policy-map or specified policy-map information.
Example	Switch#show policy-map Policy Map 1, used by 0 time(s) Class Map name: cm Policy Map p1, used by 0 time(s) Class Map name: c1 drop set ip precedence 3 policy CIR: 2000 CBS: 512 conform-action: transmit exceed-action: drop

Displayed information	Explanation
Policy map name:c1	Name of policy map
Class Map name: c1	Class Map name
policy 20000 512	Policy implemented
used by 0 port	Number of port that use the policy

show mls qos interface

Syntax

show mls qos {interface [<interface-id>] [policy | queuing] | vlan <vlan-id>} | [begin | include | exclude <regular-expression>]

Parameter

<interface-id>	port ID
<vlan-id>	VLAN ID
<regular-expression>	Regular expression

Default

None

Mode

Admin Mode.

Usage

Displays QoS configuration information on a port.

There is only red or green when packets passing police. In the print information, in packets means classify packets numbers and not supports the statistic information of color.

Example

```
Switch#show mls qos interface ethernet 1/0/1
Ethernet1/0/1:
Default COS: 0
Trust: DSCP
Attached Policy Map for Ingress: p1

Egress Internal-Priority-TO-Queue map:
INTP:   0    1    2    3    4    5    6    7
 ----------------------------------------
Queue: 0    1    2    3    4    5    6    7

Queue Algorithm: WRR
Queue weights:
Queue          1       2       3       4       5       6       7       8
 ----------------------------------------------------------
WrrWeight   1       2       3       4       5       6       7       8
WdrrWeight 10      10      20      20      40      40      80      80

Bandwidth Guarantee Configuration:
Queue       1         2         3         4         5         6         7         8
 ----------------------------------------------------------------
MinBW(K) 0         0         0         0         0         0         0         0
MaxBW(K) 0         0         0         0         0         0         0         0
```

Displayed information	Explanation
Ethernet1/0/1	Port name

default cos:0	Default CoS value of the port
Trust: COS	The trust state of the port
Attached Policy Map for Ingress: p1	Policy name bound to port
ClassMap	ClassMap name
classified	Total data packets match this ClassMap. If there is no Accounting for Class Map, show NA
in-profile	Total in-profile data packets match this ClassMap. If there is no Accounting for Class Map, show NA
out-profile	Total out-profile data packets match this ClassMap. If there is no Accounting for Class Map, show NA
Internal-Priority-TO-Queue map::	Internal-Priority to queue mapping
Queue Algorithm:	WRR，WDDR or PQ queue out method
Queue weights	Queue weights Configuration
Bandwidth Guarantee Configuration	Bandwidth Guarantee Configuration

Switch(config)#show mls qos interface ethernet 1/0/1 queuing
Ethernet1/0/1:

Egress Internal-Priority-TO-Queue map:
INTP: 0 1 2 3 4 5 6 7

Queue: 0 1 2 3 4 5 6 7

Queue Algorithm: WRR
Queue weights:

Queue	1	2	3	4	5	6	7	8
WrrWeight	1	2	3	4	5	6	7	8
WdrrWeight	10	10	20	20	40	40	80	80

Bandwidth Guarantee Configuration:

Queue	1	2	3	4	5	6	7	8
MinBW(K)	0	0	0	0	0	0	0	0
MaxBW(K)	0	0	0	0	0	0	0	0

Displayed information	Explanation
Internal-Priority-TO-Queue map::	Internal-Priority to queue mapping
Queue Algorithm:	WRR, WDDR or PQ queue out method
Queue weights	Queue weights configuration
Bandwidth Guarantee Configuration	Bandwidth Guarantee Configuration

Switch # show mls qos interface ethernet 1/0/1 policy
Ethernet1/0/1:
Attached Policy Map for Ingress: p1

Displayed information	Explanation
Ethernet1/0/1	Port name
Attached Policy Map for Ingress: p1	Policy name bound to port
ClassMap	ClassMap name
classified	Total data packets match this ClassMap.
in-profile	Total in-profile data packets match this ClassMap.
out-profile	Total out-profile data packets match this ClassMap.

show mls qos in (interface <interface-name> policy) | (vlan <vlan-id>)

Syntax	**show mls qos in (interface <interface-name> policy) | (vlan <vlan-id>)**	
Parameter	**<interface-name>**	port name.
	<vlan-id>	VLAN ID
Default	None	
Mode	Admin Mode.	
Usage	Show the policy configuration information of the in direction of port or vlan. Show the policy configuration information of the in direction.	
Example	Show the policy configuration information of the in direction. Switch#show mls qos in interface ethernet1/0/1 policy Ethernet1/0/1: Attached Policy Map for Ingress: p1	

show mls qos maps

Syntax	**show mls qos maps [cos-intp | cos-dp | dscp-intp | dscp-dp | dscp-dscp] | [begin | include | exclude <regular-expression>]**	
Parameter	**cos-intp**	The mapping from ingress L2 CoS to internal priority
	cos-dp	The mapping from ingress L2 CoS to drop priority
	dscp-intp	The mapping from ingress DSCP to internal priority
	dscp-dp	The mapping from ingress DSCP to drop priority
	dscp-dscp	The mapping from outgress internal to DSCP priority
Default	None	
Mode	Admin and Configuration Mode.	
Usage	Display the map configuration information of QoS.	

Example

Display configuration information of the mapping table.

Switch#show mls qos maps

Ingress COS-TO-Internal-Priority map:

```
COS:   0    1    2    3    4    5    6    7
  ----------------------------------------
INTP: 0    1    2    3    4    5    6    7
```

Ingress DSCP-TO-Internal-Priority map:

```
d1 : d2  0    1    2    3    4    5    6    7    8    9
0:       7    1    7    7    7    0    7    7    7    1
1:       1    1    1    1    1    1    2    1    2    2
2:       2    2    2    2    3    1    3    3    3    3
3:       3    3    4    1    4    4    4    4    4    4
4:       5    1    5    5    5    5    5    5    6    1
5:       6    6    6    6    6    6    7    1    7    7
6:       7    7    7    7
```

Ingress COS-TO-Drop-Precedence map:

```
COS:   0    1    2    3    4    5    6    7
  ----------------------------------------
DP:    0    0    0    0    0    0    0    0
```

Ingress DSCP-TO-DSCP map:

```
d1 : d2  0    1    2    3    4    5    6    7    8    9
0:       0    1    2    3    4    5    6    7    8    9
1:       10   11   12   13   14   15   16   17   18   19
2:       20   21   22   23   24   25   26   27   28   29
3:       30   31   32   33   34   35   36   37   38   39
4:       40   41   42   43   44   45   46   47   48   49
5:       50   51   52   53   54   55   56   57   58   59
6:       60   61   62   63
```

Ingress DSCP-TO-Drop-Precedence map:

```
d1 : d2  0    1    2    3    4    5    6    7    8    9
0:       0    0    0    0    0    0    0    0    0    0
1:       0    0    0    0    0    0    0    0    0    0
2:       0    0    0    0    0    0    0    0    0    0
3:       0    0    0    0    0    0    0    0    0    0
4:       0    0    0    0    0    0    0    0    0    0
5:       0    0    0    0    0    0    0    0    0    0
6:       0    0    0    0
```

show mls qos vlan

Syntax	**show mls qos vlan <v-id>**
Parameter	**<v-id>** VLAN ID
Default	None
Mode	Admin Mode.
Usage	Display configuration information of the QOS VLAN.
Example	Switch#show mls qos vlan 1 Vlan 1: Attached Policy Map for Ingress: 1 Classmap classified(in packets) c1 0 Rule ID classified(in packets)

show mls qos aggregate-policy

Syntax	**show mls qos aggregate-policy [<aggregate-policy-name>]**
Parameter	**<aggregate-policy-name>** aggregate policy name
Default	None
Mode	Admin mode and configuration mode.
Usage	Display all configured aggregate-policy or appointed aggregate-policy information.
Example	Switch#show mls qos aggregate-policy a2 aggregate policy a2 CIR: 1000 CBS: 1024 conform-action: transmit exceed-action: drop Not used by any policy map

Displayed information	Explanation
aggregate policy a2 CIR: 1000 CBS: 1024 conform-action: transmit exceed-action: drop	The configuration of aggregate policy.
Not used by any Policy Map	The referenced times of aggregate policy.

transmit

Syntax	**transmit** **no transmit**
Parameter	none

Default	Do not set the action.
Mode	Policy class map configuration mode
Usage	Send the packet directly after configure this command.
Example	Send the packet which satisfy c1. Switch#config Switch(config)#policy-map p1 Switch(config-policymap-p1)#class c1 Switch(config-policymap-p1-class-c1)#transmit Switch(config-policymap-p1-class-c1)#exit Switch(config-policymap-p1)#exit

access-group redirect to interface ethernet

Syntax	**access-group <aclname> redirect to interface [ethernet] <IFNAME>** **no access-group <aclname> redirect**	
Parameter	**<aclname>**	name of the flow , only supports digital standard IP ACL, digital extensive IP ACL, nomenclatural standard IP ACL, nomenclatural extensive IP ACL, digital standard MAC ACL, digital extensive MAC ACL, nomenclatural standard MAC ACL, nomenclatual extensive MAC, digital standard IPv6 ACL, and nomenclatural standard IPv6 ACL. Parameters of Timerange and Portrange cannot be set in ACL; the type of ACL should be Permit.
	<IFNAME>	***<IFNAME>*** the destination port of redirection
Default	None	
Mode	Port Configuration Mode	
Usage	Specify flow-based redirection; “no access-group <aclname> redirect” command is used to delete flow-based redirection. Flow-based redirection function enables the switch to transmit the data frames meeting some special condition to another specified port. **Notice:** Redirect does not support redirect flow to the port.	
Example	Redirecting the frames whose source IP is 192.168.1.111 received from port 1 to port 6 Switch(config)#access-list 1 permit host 192.168.1.111 Switch(config)# interface ethernet 1/0/1 Switch(config-if-ethernet1/0/1)#access-group 1 redirect to interface ethernet 1/0/6	

show flow-based-redirect

Syntax	**show flow-based-redirect [interface [ethernet] <IFNAME>]**	
Parameter	**<IFNAME>**	display the information of the flow-based redirection configured in the ports listed in the interface-list.
Default	none	

Mode	Admin Mode and Configuration Mode.
Usage	This command is used to display the information of current flow-based redirection in the system/port
Example	Switch(config)#show flow-based-redirect Flow-based-redirect config on interface Ethernet1/0/1: RX flow (access-list 1) is redirected to interface Ethernet1/0/6

add

Syntax	**add s-vid <new-vid>** **no add s-vid**	
Parameter	**s-vid <new-vid>**	s-vid <new-vid> appointed VID of tunnel VLAN Tag.
Default	The default is not add tag.	
Mode	Policy classify table configuration mode	
Usage	Add specified tunnel tag for data packets of mapped classify table, the no command cancel configuration. After configured the command, add appointed tunnel tag or inner tag for packets of mapping classify table. When use QinQ function, the data packets that sent only have inner VLAN Tag or no Tag, it needs add s-vid commands to add appointed tunnel VLAN Tag, otherwise data have not tunnel VLAN in switch.	
Example	Add a VLAN Tag that VID is 2 to satisfied c1 classify rule packets. Switch#config Switch(config)#policy-map p1 Switch(config-policymap-p1)#class c1 Switch(config-policymap-p1-class-c1)#add s-vid 2	

match

Syntax	**match {access-group <acl-index-or-name> | ip dscp <dscp-list>| ip precedence <ip-precedence-list>| ipv6 access-group <acl-index-or-name> | ipv6 dscp <dscp-list> | ipv6 flowlabel <flowlabel-list> | vlan <vlan-list> | cos <cos-list> }** **no match {access-group | ip dscp | ip precedence | ipv6 access-group | ipv6 dscp no match {access-group | ip dscp | ip precedence | ipv6 access-group | ipv6 dscp | ipv6 flowlabel | vlan | cos }}**	
Parameter	**access-group <acl-index-or-name>**	match the specified IP ACL or MAC–IP ACL or standard IPV6 ACL, the parameters are the number or name of ACL
	ip dscp <dscp-list>	match the specified DSCP value, the parameter is a list of DSCP consisting of maximum 8 DSCP values, the ranging is 0 to 63
	ip precedence <ip-precedence-list>	match the specified IP Precedence, the parameter is a IP Precedence list consisting of maximum 8 IP Precedence values with a valid range of 0 to 7
	ipv6 access-group <acl-index-or-name>	match the specified IPv6 ACL, the parameter is the number or name of IPv6 ACL

	ipv6 flowlabel <flowlabel-list>	match the specified IPv6 flow label, the parameter is IPv6 flow label value, the ranging is 0 to 1048575
	vlan <vlan-list>	match the specified VLAN ID of the external VLAN Tag, the parameter is a VLAN ID list consisting of maximum 8 VLAN IDs, the ranging is 1 to 4094
	cos <cos-list>	match the specified CoS value, the parameter is a CoS list consisting of maximum 8 CoS values, the ranging is 0 to 7
Default	There is no match standard.	
Mode	Class-map Mode	
Usage	Configure the match standard of the class map; the no command deletes the specified match standard. Only one match standard can be configured in a class map. When configuring the ACL match, permit rule is the match option, it will apply Policy Map action. Deny rule is the excluding option, it does not apply Policy Map action. If it has been configured other match rule, the operation is failure, but configuring the same match rule will cover the previous.	
Example	Create a class-map named c1, and configure the class rule of the class-map to match packets with IP Precedence of 0. Switch(config)#class-map c1 Switch(config-classmap-c1)#match ip precedence 0 Switch(config-classmap-c1)#exit	

service-policy

Syntax	**service-policy <policy-map-name> in** **no service-policy <policy-map-name> in**	
Parameter	**<policy-map-name>**	The specified policy-map name of flexible QinQ
Default	No policy map is bound to port	
Mode	Port Configuration Mode	
Usage	Bind the specified policy of flexible QinQ to the ingress of the port, the no command cancels the binding. Only one policy map can be bound to each port, the function takes effect after the policy map is bound to a port. At present, do not support the configuration with add commend and delete command in policy.	
Example	Apply policy-map p1 (p1 corresponds with the action that modify s-vid) to Ethernet port 1/0/1 for flexible QinQ. Switch(config-if-ethernet1/0/1)#dot1q-tunnel enable Switch(config-if-ethernet1/0/1)#service-policy p1 in	

set

Syntax	**set {s-vid <new-vid> | cos <cos-list> | drop-precedence <dp-list> | internal-priority <inp-list> | ip {dscp <dscp-list> | precedence <pri-list>} | s-tpid <tpid-list> }** **no set{s-vid | cos | drop-precedence | internal-priority | ip {dscp | precedence} | s-tpid }**	
Parameter	**<new-vid>**	modify tunnel VID of VLAN Tag
	<cos-list>	modify cos value of packets
	<dp-list>	modify drop priority
	<inp-list>	modify inner priority
	<dscp-list> <pri-list>	modify ip dscp value or precedence value
	<tpid-list>	modify tunnel tpid value of packets
Default	Do not modify the value.	
Mode	Policy class map configuration mode	
Usage	Assign the new cos and vid value to the packets which match the class map, no command cancels the operation. Only modify the new value again for the classified flow that correspond the match standard.	
Example	Set an external VLAN Tag' VID as 3 for the packet which satisfy c2 class rule. Switch(config)#policy-map p1 Switch(config-policymap-p1)#class c2 Switch(config-policymap-p1-class-c2)#set s-vid 3 Switch(config-policymap-p1-class-c2)#exit	