1 MMU Commands

Command	Function
mmu buffer-mode	Configure the global buffer mode.
mmu queue-guarantee	Configure a guaranteed buffer for a queue.
mmu queue-threshold	Configure a shared buffer threshold for a queue.
mmu fc-threshold	Configure a flow control threshold for a port.
mmu sample-period	Configure the monitoring data sampling period.
mmu usage-warn-limit	Configure a buffer utilization alarm threshold.
clear queue-counter	Clear the packet statistics of queues.
clear queue-buffer peaked	Clear the historical buffer utilization peak values of queues.
show queue-buffer	Display the buffer utilization information of a queue.
show queue-counter	Display the packet statistics of queues.
show mmu buffer-mode	Display the current buffer mode.

i

1.1 mmu buffer-mode

Function

Run the **mmu buffer-mode** command to configure the global buffer mode.

Run the **no** form of this command to restore the default configuration.

Run the **default** form of this command to restore the default configuration.

The default global buffer mode is **flowctrl-enhance**.

Syntax

```
mmu buffer-mode { burst-enhance | flowctrl-enhance | normal | qos-enhance }
no mmu buffer-mode
default mmu buffer-mode
```

Parameter Description

burst-enhance: Supports burst enhancement.

flowctrl-enhance: Supports flow control enhancement.

normal: Provides relatively fair support for flow control, burst, and QoS.

qos-enhance: Supports QoS enhancement.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example sets the buffer mode to flow control mode.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# mmu buffer-mode flowctrl-enhance
```

Notifications

Common Errors

N/A

Platform Description

N/A

Related Commands

show mmu buffer-mode

1.2 mmu queue-guarantee

Function

Run the mmu queue-guarantee command to configure a guaranteed buffer for a queue.

Run the **no** form of this command to remove this configuration.

Run the **default** form of this command to restore the default configuration.

The guaranteed buffer for a queue is not configured by default.

Syntax

```
mmu queue-guarantee output unicast [ queue-id&<1-8> ] set value
no mmu queue-guarantee output unicast [ queue-id&<1-8> ]
default mmu queue-guarantee output unicast [ queue-id&<1-8> ]
```

Parameter Description

output: Performs buffer management on the egress queues.

unicast: Performs buffer management on the egress unicast queues.

queue-id&<1-8>: Queue ID. &<1-8> means that 1 to 8 queue IDs can be configured.

set value: Configures the guaranteed buffer of queue, in the unit of cell. The value range is from 1 to 50.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

If the parameter queue-id&<1-8> is not specified, all queues will be configured with the guaranteed buffer.

Examples

The following example sets the guaranteed buffer to 10 cells for unicast queue 1 on interface GigabitEthernet 0/1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# mmu queue-guarantee output unicast 1 set
10
Hostname(config-if-GigabitEthernet 0/1)# mmu queue-guarantee output multicast 1 set
10
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.3 mmu queue-threshold

Function

Run the mmu queue-threshold command to configure a shared buffer threshold for a queue.

Run the **no** form of this command to remove this configuration.

Run the **default** form of this command to restore the default configuration.

The shared buffer threshold for a queue is not configured by default.

Syntax

```
mmu queue-threshold output unicast [ queue-id\&<1-8> ] set threshold no mmu queue-threshold output unicast [ queue-id\&<1-8> ] default mmu queue-threshold output unicast [ queue-id\&<1-8> ]
```

Parameter Description

output: Performs buffer management on the egress queues.

unicast: Performs buffer management on the egress unicast queues.

queue-id&<1-8>: Queue ID. &<1-8> means that 1 to 8 queue IDs can be configured.

set value: Configures the shared buffer threshold for a queue, in the unit of percentage. The value range is from 1 to 100.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

If the parameter *queue-id*&<1-8> is not specified, all queues will be configured with the shared buffer threshold.

Examples

The following example sets the shared buffer threshold proportion to 80% for unicast queue 1 on interface GigabitEthernet 0/1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# mmu queue-threshold output unicast 1 set
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.4 mmu fc-threshold

Function

Run the **mmu fc-threshold** command to configure a flow control threshold for a port.

Run the **no** form of this command to remove this configuration.

Run the **default** form of this command to restore the default configuration.

The flow control threshold for a port is not configured by default.

Syntax

```
mmu fc-threshold set threshold
```

no mmu fc-threshold

default mmu fc-threshold

Parameter Description

set threshold: Configures a flow control threshold for a port, in percentage. The value range is from 1 to 100.

Command Modes

Interface configuration mode

Default Level

14

Usage Guidelines

The configuration takes effect only when flow control/priority-based flow control (PFC) is enabled on the port.

Examples

The following example sets the flow control threshold to 20% for interface GigabitEthernet 0/1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# mmu fc-threshold set 20
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

1.5 mmu sample-period

Function

Run the **mmu sample-period** command to configure the monitoring data sampling period.

Run the **no mmu sample-period** command to remove this configuration.

Run the **default** form of this command to restore the default configuration.

The monitoring data sampling period is not configured by default.

Syntax

```
mmu sample-period set period no mmu sample-period
```

default mmu sample-period

Parameter Description

set period: Configures the sampling period, in seconds. The value range is from 5 to 10.

Command Modes

Global configuration mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example sets the monitoring data sampling period to 10s.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# mmu sample-period set 10
```

Notifications

N/A

Common Errors

Platform Description

N/A

Related Commands

N/A

1.6 mmu usage-warn-limit

Function

Run the **mmu usage-warn-limit** command to configure a buffer utilization alarm threshold.

Run the **no** form of this command to restore the default configuration.

Run the **default** form of this command to restore the default configuration.

The buffer utilization alarm threshold is not configured by default.

Syntax

```
(Global configuration mode)

mmu usage-warn-limit set threshold

no mmu usage-warn-limit

default mmu usage-warn-limit

(Interface configuration mode)

mmu usage-warn-limit unicast [ queue-id&<1-8> ] set threshold

no mmu usage-warn-limit unicast [ queue-id&<1-8> ] ]

default mmu usage-warn-limit unicast [ queue-id&<1-8> ] ]
```

Parameter Description

unicast: Configures the buffer utilization alarm threshold for egress unicast queues.

queue-id&<1-8>: Queue ID. &<1-8> means that 1 to 8 queue IDs can be configured.

set value: Configures the buffer utilization alarm threshold for a queue, in the unit of percentage. The value range is from 1 to 100.

Command Modes

Global configuration mode

Interface configuration mode

Default Level

14

Usage Guidelines

If the parameter *queue-id*&<1-8> is not specified, all queues will be configured with the buffer utilization alarm threshold.

The buffer utilization alarm threshold of port groups or slices takes effect for all the port groups or slices. To prevent frequent log refreshing, the alarm logs of the same port group, slice, port, or queue are printed once in 30s at most. The maximum printing interval depends on the configured sampling period.

Examples

The following example sets the buffer utilization alarm threshold to 80% for slices.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# mmu usage-warn-limit set 80
```

The following example sets the buffer utilization alarm threshold to 70% for unicast queues 6 and 7 on interface GigabitEthernet 0/1.

```
Hostname> enable
Hostname# configure terminal
Hostname(config)# interface gigabitethernet 0/1
Hostname(config-if-GigabitEthernet 0/1)# mmu usage-warn-limit unicast 6 7 set 70
```

Notifications

N/A

Common Errors

N/A

Platform Description

N/A

Related Commands

N/A

1.7 clear queue-counter

Function

Run the clear queue-counter command to clear the packet statistics of queues.

Syntax

clear queue-counter [interface interface-type interface-number]

Parameter Description

interface *interface-type interface-number*: Clears the packet statistics of queues of a specified interface type and number.

Command Modes

Privileged EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example clears the packet statistics of all queues.

```
Hostname> enable
Hostname# clear queue-counter
```

The following example clears the packet statistics of queues on interface GigabitEthernet 0/1.

```
Hostname> enable
Hostname# clear queue-counter interface gigabitethernet 0/1
```

Notifications

N/A

Platform Description

N/A

Related Commands

N/A

1.8 clear queue-buffer peaked

Function

Run the clear queue-buffer peaked command to clear the historical buffer utilization peak values of queues.

Syntax

clear [mmu] queue-buffer peaked [interface interface-type interface-number]

Parameter Description

interface *interface-type interface-number*: Clears the historical buffer utilization peak values of queues of a specified interface type and number.

Command Modes

Privileged EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example clears the historical buffer utilization peak values of all the queues.

```
Hostname> enable
Hostname# clear queue-buffer peaked
```

The following example clears the historical buffer utilization peak values of the queues on interface GigabitEthernet 0/1.

```
Hostname> enable
Hostname# clear queue-buffer peaked interface GigabitEthernet 0/1
```

Notifications

N/A

Platform Description

N/A

Related Commands

N/A

1.9 show queue-buffer

Function

Run the **show queue-buffer** command to display the buffer utilization information of a queue.

Syntax

show queue-buffer [interface [interface-type interface-number]]

Parameter Description

interface: Displays the buffer utilization information of queues on all the interfaces.

interface-type interface-number: Interface type and interface number. After this parameter is specified, the buffer utilization information of queues of a specified interface type and number are displayed.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays the buffer utilization information of queues on interface GigabitEthernet 0/1. The output information is displayed based on egress queues.

Hostname>	enab	le					
Hostname#	show	queue-b	ouffer interface	gigabitethernet	0/1		
Dev/slot	Port	t-group	Total-shared(%) Guarantee-u	sed(%)	Share-	used(%)
Available ((%)	Warn-li	lmit(%)				
1/-	1		84.7348	0.0000		0.0000	
100.0000		NA					
Interface	Gigal	oitEther	net 0/1:				
Туре	Que	eue Ad	dmin-shared(%)	Total-used(%)	Availab	le(%)	Warn-limit(%)
Peak-usage	∋ (%)	Peak-t	cime				
Unicast	1	(0	default)	0.0000	67.8248		NA
0.0000		NA					
Unicast	2	(0	default)	0.0000	67.8248		NA
0.0000		NA					
Unicast	3	(0	default)	0.0000	67.8248		NA
0.0000		NA					
Unicast	4	(0	default)	0.0000	67.8248		NA
0.0000		NA					
Unicast	5	(0	default)	0.0000	67.8248		NA
0.0000		NA					

Unicast	6		(default)	0.0000	67.8248	NA
0.0000		NA				
Unicast	7		(default)	0.0000	67.8248	NA
0.0000		NA				
Unicast	8		(default)	0.0000	67.8248	NA
0.0000		NA				
Multicast	1		(default)	0.0000	9.4521	NA
0.0000		NA				
Multicast	2		(default)	0.0000	9.4521	NA
0.0000		NA				
Multicast	3		(default)	0.0000	9.4521	NA
0.0000		NA				
Multicast	4		(default)	0.0000	9.4521	NA
0.0000		NA				
Multicast	5		(default)	0.0000	9.4521	NA
0.0000		NA				
Multicast	6		(default)	0.0000	9.4521	NA
0.0000		NA				
Multicast	7		(default)	0.0000	9.4521	NA
0.0000		NA				
Multicast	8		(default)	0.0000	9.4521	NA
0.0000		NA				

Table 1-1Output Fields of the show queue-buffer interface Command, Displayed Based on Egress Queues

Field	Description
Dev/Slot	Device/Slot ID.
Port-Group	For a box-type device, the value is displayed in the format of device ID/ Port group ID.
Total-shared	Percentage of the buffer that can be shared by the port group relative to the total buffer resource of the port group.
Guarantee-used	Percentage of the guaranteed buffer that has been used by the port group relative to the total buffer resource of the port group.
Share-used	Percentage of the shared buffer that has been used by the port group relative to the total buffer resource of the port group.

Field	Description
Available	Percentage of the remaining buffer that can be shared by the port group relative to the total buffer resource of the port group, or percentage of buffer currently available for a queue. Since multiple queues are preempting the shared buffer, the size of the buffer that
Warn-limit	can be requested by a queue is smaller than or equal to the Available value. Buffer utilization alarm threshold of the specified port group or a queue.
Туре	Queue type: Unicast: Indicates a unicast queue. Multicast: Indicates a multicast queue.
Queue	Queue ID.
Total-used	Percentage of the buffer used in the queue, including the guaranteed buffer and shared buffer, relative to the total buffer resource of the port group.
Peak-usage	Historical buffer utilization peak value, in percentage.
Peak-time	Time corresponding to the utilization peak value.
NA	No data.

The following example displays the buffer usage information of all the ports, summarizing the queue statistics of all the ports.

Hostname> enable					
Hostname# sho	Hostname# show queue-buffer interface				
Dev/slot Po	rt-group	Total-shared	d(%)	Guarantee-used(%)	Share-used(%)
Available(%)	Warn-lim	it(%)			
1/- 1		84.7348		0.0000	0.0000
100.0000	NA				
Interface	Total-use	d(%)	avail	able(%)	
Hu0/1	0.0000		67.82	48	
Hu0/2	0.0000		67.82	48	
Hu0/3	0.0000		67.82	48	
Hu0/4	0.0000		67.82	48	
Hu0/5	0.0000		67.82	48	
Hu0/6	0.0000		67.82	48	
Hu0/7	0.0000		67.82	48	
Hu0/8	0.0000		67.82	48	
Hu0/9	0.0000		67.82	48	

•••

Table 1-2Output Fields of the show queue-buffer interface Command, Displayed Based on Ports

Field	Description
Dev/Slot	Device/Slot ID. For the box-type device, the display format is device ID/
Port-Group	Port group ID.
Total-shared	Percentage of the buffer that can be shared by the port group relative to the total buffer resource of the port group.
Guarantee- used	Percentage of the guaranteed buffer that has been used by the port group relative to the total buffer resource of the port group.
Share-used	Percentage of the shared buffer that has been used by the port group relative to the total buffer resource of the port group.
Available	Percentage of the remaining buffer that can be shared by the port group relative to the total buffer resource of the port group.
Warn-limit	Buffer utilization alarm threshold of the specified port group.
Interface	Interface.
Total-used	Percentage of the total buffer that has been used by all queues of the port, relative to the total buffer resource of the port group.
available	Percentage of the maximum available buffer in the queues of the port, relative to the total buffer resource of the port group.

Notifications

N/A

Platform Description

N/A

Related Commands

1.10 show queue-counter

Function

Run the **show queue-counter** command to display the packet statistics of queues.

Syntax

show queue-counter [interface [interface-type interface-number]]

Parameter Description

interface: Displays the packet statistics of queues on all the interfaces.

interface-type interface-number: Interface type and interface number. After this parameter is specified, the packet statistics of queues of a specified interface type and number are displayed.

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays the packet statistics of queues on interface GigabitEthernet 0/1, displayed based on egress queues.

Hostname>	enable			
Hostname#	show queue-counter i	nterface gigabitethernet	0/1	
Unicast				
Queue	Transmitted Bytes	Dropped Bytes	Transmit Rate(bps)	Loss
Rate(%)	Loss Rate Peak(%)	Loss Peak Time		
1	0	0	0	
0	0	NA		
2	0	0	0	
0	0	NA		
3	0	0	0	
0	0	NA		
4	0	0	0	
0	0	NA		
5	0	0	0	
0	0	NA		

	6	0	0	0	
0		0	NA		
	7	0	0	0	
0		0	NA		
	8	0	0	0	
0		0	NA		
	ieue		Dropped Packets		Loss
Rate			Loss Peak Time		
0	1	0	0 NA	0	
O	2	0	0	0	
0	_	0	NA	, and the second	
	3	0	0	0	
0		0	NA		
	4	0	0	0	
0		0	NA		
	5	0	0	0	
0		0	NA .		
0	6	0	0	0	
0	7	0	NA 0	0	
0	,	0	NA	O	
J	8	0	0	0	
0		0	NA		
Μι	ultica	ast			
Qı	ieue	Transmitted Bytes	Dropped Bytes	Transmit Rate(bps)	Loss
Rate	≘ (%)	Loss Rate Peak(%)	Loss Peak Time		
	1	0	0	0	
0		0	NA		
0	2	0	0 NA	0	
0	3	0	NA 0	0	
0	J	0	NA	Ü	
	4	0	0	0	
0		0	NA		
	5	0	0	0	
0		0	NA		
	6	0	0	0	
0		0	NA		
	7	0	0	0	
0		0	NA		

8	0	0	0	
0	0	NA		
Queue	Transmitted Packets	Dropped Packets	Transmit Rate(pps)	Loss
Rate(%)	Loss Rate Peak(%)	Loss Peak Time		
1	0	0	0	
0	0	NA		
2	0	0	0	
0	0	NA		
3	0	0	0	
0	0	NA		
4	0	0	0	
0	0	NA		
5	0	0	0	
0	0	NA		
6	0	0	0	
0	0	NA		
7	0	0	0	
0	0	NA		

Table 1-1Output Fields of the show queue-counter interface Command, Displayed Based on Egress Queues

Field	Description
Unicast	Unicast queue.
Multicast	Multicast queue.
Queue	Queue ID.
Transmitted Bytes	Number of bytes that have been forwarded by the specified queue.
Dropped Bytes	Number of bytes that have been dropped by the specified queue.
Transmitted Packets	Number of packets that have been forwarded by the specified queue.
Dropped Packets	Number of packets that have been dropped by the specified queue.
Transmit Rate(bps)	Average forwarding rate (bps) of the specified queue in a period of time (longer than or equal to the sampling period). The rate is calculated with the interframe gap included, and the value has a certain margin of calculation error.
Transmit Rate(pps)	Average forwarding rate (packets per second) of the specified queue in a period of time (longer than or equal to the sampling cycle). The value has a certain margin of calculation error.

Field	Description	
	Loss rate of bytes or packets of the specified queue.	
Loss Rate(%)	 Byte loss rate = Number of lost bytes/(Number of lost bytes + Number of forwarded bytes). 	
	 Packet loss rate = Number of lost packets/(Number of lost packets + Number of forwarded packets). 	
Loss Rate Peak(%)	Historical peak value of the loss rate.	
Loss Peak Time	Time point, at which the historical peak value of the loss rate occurs.	
NA	No data.	

The following example displays the packet statistics of all the ports, summarizing the queue statistics of all the ports.

Hostname> enable					
Hostname# show queue-counter interface					
Interface	Transmitted Bytes	Dropped Bytes	Transmit Rate(bps)		
Loss Rate(%)					
Hu0/1	0	0	0		
0.000					
Hu0/2	0	0	0		
0.000					
Hu0/3	0	0	0		
0.000					
Hu0/4	0	0	0		
0.000					
Hu0/5	0	0	0		
0.000					
Hu0/6	0	0	0		
0.000					
Hu0/7	0	0	0		
0.000					
Hu0/8	0	0	0		
0.000					
Hu0/9	0	0	0		
0.000					
Hu0/10	0	0	0		
0.000					
Hu0/11	0	0	0		
0.000					

Hu0/12	0	0	0
0.000			
Hu0/13	0	0	0
0.000	٥	٥	0
Hu0/14 0.000	0	0	0
Hu0/15	0	0	0
0.000	0	0	O .
Hu0/16	0	0	0
0.000			Ŭ
Hu0/17	0	0	0
0.000		·	
Hu0/18	0	0	0
0.000			
Interface	Transmitted Packets	Dropped Packets	Transmit Rate(pps)
Loss Rate(%)			
Hu0/1	0	0	0
0.000			
Hu0/2	0	0	0
0.000			
Hu0/3	0	0	0
0.000			
Hu0/4	0	0	0
0.000			
Hu0/5	0	0	0
0.000			
Hu0/6	0	0	0
0.000			
Hu0/7	0	0	0
0.000			
Hu0/8	0	0	0
0.000	٥	٥	0
Hu0/9 0.000	0	0	0
0.000 Hu0/10	0	0	0
0.000			O The state of the
Hu0/11	0	0	0
0.000			
Hu0/12	0	0	0
0.000			

Hu0/13	0	0	0
0.000			
Hu0/14	0	0	0
0.000			
Hu0/15	0	0	0
0.000			
Hu0/16	0	0	0
0.000			
Hu0/17	0	0	0
0.000			
Hu0/18	0	0	0
0.000			

Table 1-2Output Fields of the show queue-counter multicast Command, Displayed Based on Ports

Field	Description
Interface	Interface.
Transmitted Bytes	Total number of bytes that have been forwarded by all the queues of the port.
Dropped Bytes	Total number of bytes that have been dropped by all the queues of the port.
Transmitted Packets	Total number of packets that have been forwarded by all the queues of the port.
Dropped Packets	Total number of packets that have been dropped by all the queues of the port.
Transmit Rate(bps)	Average forwarding rate (bps) of all the queues on the port in a period of time (longer than or equal to the sampling period). The rate is calculated with the interframe gap included and the value has a certain margin of calculation error.
Transmit Rate(pps)	Average forwarding rate (packets per second) of all the queues on the port in a period of time (longer than or equal to the sampling period). The value has a certain margin of calculation error.
Loss Rate(%)	 Total loss rate of bytes or packets of all the queues on the port. Byte loss rate = Number of lost bytes/(Number of lost bytes + Number of forwarded bytes). Packet loss rate = Number of lost packets/(Number of lost packets + Number of forwarded packets).

Notifications

N/A

Platform Description

N/A

Related Commands

N/A

1.11 show mmu buffer-mode

Function

Run the **show mmu buffer-mode** command to display the current buffer mode.

Syntax

show mmu buffer-mode

Parameter Description

N/A

Command Modes

All modes except the user EXEC mode

Default Level

14

Usage Guidelines

N/A

Examples

The following example displays the current buffer mode.

```
Hostname> enable
Hostname# show mmu buffer-mode
mmu buffer-mode: flowctrl-enhance
```

Table 1-1Output Fields of the show mmu buffer-mode Command

Field	Description
mmu buffer-mode	Global buffer mode type

Notifications

N/A

Platform Description

N/A

Related Commands