# 11-Commands for Reliability

Directory

1.Commands for MRPP ..... 1
control-vlan ..... 1
clear mrpp statistics ..... 1
enable ..... 1
errp domain ..... 2
fail-timer ..... 3
hello-timer ..... 3
mrpp eaps compatible ..... 4
mrpp enable ..... 4
mrpp errp compatible ..... 4
mrpp poll-time ..... 5
mrpp ring ..... 5
mrpp ring primary-port ..... 6
mrpp ring secondary-port ..... 6
node-mode ..... 7
show mrpp ..... 7
show mrpp statistics ..... 7
2.Commands for ULPP ..... 8
clear ulpp flush counter interface ..... 8
control vlan ..... 8
description ..... 9
flush {enable |disable} arp ..... 9
flush {enable |disable} mac ..... 10
flush {enable |disable} mac-vlan ..... 10
preemption delay ..... 10
preemption mode ..... 11
protect vlan-reference-instance ..... 11
show ulpp flush counter interface ..... 12
show ulpp flush-receive-port ..... 12
show ulpp group ..... 12
ulpp control vlan ..... 13
ulpp flush {enable|disable} arp ..... 14
ulpp flush {enable|disable} mac ..... 14
ulpp flush {enable|disable} mac-vlan ..... 14
ulpp group ..... 15
ulpp group {master|slave} ..... 15
ulpp group <*integer*> {master|slave} ..... 15
no ulpp group <*integer*> {master|slave} ..... 15
3.Commands for ULSM ..... 16
show ulsm group ..... 16
ulsm group ..... 16
ulsm group {uplink | downlink} ..... 16

# 1.Commands for MRPP

## control-vlan

| | | |
|---|---|---|
| **Command** | **control-vlan <*vid*>**<br>**no control-vlan** | |
| **parameter** | ***vid*** | expresses control VLAN ID, the valid range is from 1 to 4094 |
| **default** | - | |
| **Mode** | MRPP ring mode | |
| **Usage Guide** | The command specifies Virtual VLAN ID of MRPP ring, currently it can be any value in 1-4094. To avoid confusion, it is recommended that the ID is non-configured VLAN ID, and the same to MRPP ring ID. In configuration of MRPP ring of the same MRPP loop switches, the control VLAN ID must be the same, otherwise the whole MRPP loop may not be able to work normally or form broadcast.<br>The mrpp enable command must be start before the control-vlan command be used. If primary port, secondary port, node-mode and enable commands all be configured after control-vlan, the mrpp-ring function is enabled. | |
| **Example** | Configure control VLAN of mrpp ring 4000 is 4000.<br>Switch(config)#mrpp ring 4000<br>Switch(mrpp-ring-4000)#control-vlan 4000 | |

## clear mrpp statistics

| | | |
|---|---|---|
| **Command** | **clear mrpp statistics [<*ring-id*>]** | |
| **parameter** | ***ring-id*** | is MRPP ring ID, the valid range is from 1 to 4096, if not specified ID, it clears all of MRPP ring statistic information. |
| **default** | - | |
| **Mode** | Admin Mode. | |
| **Usage Guide** | Clears statistics for MRPP packets received and transmitted by the MRPP loop. | |
| **Example** | Clear switch MRP P ring 4000 statistics.<br>Switch#clear mrpp statistics 4000 | |

## enable

| | |
|---|---|
| **Command** | **enable**<br>**no enable** |
| **parameter** | - |
| **default** | Default disable MRPP ring |
| **Mode** | MRPP ring mode |
| **Usage Guide** | This command is used to enable the configured MRPP ring ," no enable" command disables this enabled MRPP ring. |
| **Example** | Configure MRPP ring 4000 of switch to primary node, and enable the MRPP ring.<br>Switch(config)#mrpp enable<br>Switch(config)#mrpp ring 4000<br>Switch(mrpp-ring-4000)#control-vlan 4000<br>Switch(mrpp-ring-4000)# node-mode master<br>Switch(mrpp-ring-4000)#fail-timer 18<br>Switch(mrpp-ring-4000)#hello-timer 6<br>Switch(mrpp-ring-4000)#enable<br>Switch(mrpp-ring-4000)#exit<br>Switch(config)#in ethernet1/0/1<br>Switch(config-If-Ethernet1/0/1)#mrpp ring 4000 primary-port<br>Switch(config)#in ethernet 1/0/3<br>Switch(config-If-Ethernet1/0/3)#mrpp ring 4000 secondary-port |

## errp domain

| | |
|---|---|
| **Command** | **errp domain <*domain-id*>**<br>**no errp domain <*domain-id*>** |
| **parameter** | ***domain-id*** domain ID of ERRP, the range between 1 and 15. |
| **default** | Default Unconfigured ID |
| **Mode** | Global mode |
| **Usage Guide** | If domain ID of ERRP needs to be configured, the compatible mode of ERRP should be enabled firstly. When executing this command, it should create a new ERRP domain if there is no ERRP domain. However, the no command is used to delete the corresponding domain ID of ERRP. |
| **Example** | Configure domain ID for ERRP globally.<br>Switch(Config)#errp domain 1 |

## fail-timer

| | |
|---|---|
| **Command** | **fail-timer <*timer*>**<br>**no fail-timer** |
| **parameter** | ***timer*** valid range is from 3 to 300s. |
| **default** | Default configure timer interval 3s |
| **Mode** | MRPP ring mode |
| **Usage Guide** | If primary node of MRPP ring doesn't receives Hello packet from primary port of primary node on configured fail timer, the whole loop is fail. Transfer node of MRPP doesn't need this timer and configure. To avoid time delay by transfer node forwards Hello packet, the value of fail timer must be more than or equal to 3 times of Hello timer. On time delay loop, it needs to modify the default and increase the value to avoid primary node doesn't receive Hello packet on fail timer due to time delay. |
| **Example** | Configure fail timer of MRPP ring 4000 to 10s.<br>Switch(config)# mrpp ring 4000<br>Switch(mrpp-ring-4000)#fail-timer 10 |

## hello-timer

| | |
|---|---|
| **Command** | **hello-timer <*timer*>**<br>**no hello-timer** |
| **parameter** | ***timer*** valid range is from 1 to 100s. |
| **default** | Default configuration timer interval is 1s. |
| **Mode** | MRPP ring mode |
| **Usage Guide** | The primary node of MRPP ring continuously sends Hello packet on configured Hello timer interval, if secondary port of primary node can receive this packet in configured period; the whole loop is normal, otherwise fail. Transfer node of MRPP ring doesn't need this timer and configure. |
| **Example** | Configure hello-timer of MRPP ring 4000 to 3 seconds.<br>Switch(config)# mrpp ring 4000<br>Switch(mrpp-ring-4000)#hello-timer 3 |

## mrpp eaps compatible

| | |
|---|---|
| **Command** | **mrpp eaps compatible**<br>**no mrpp eaps compatible** |
| **parameter** | - |
| **default** | Disable the compatible function of EAPS |
| **Mode** | Global mode |
| **Usage Guide** | If the compatible function of EAPS needs to be configured, MRPP protocol should be enabled firstly. When executing no mrpp eaps compatible command, it should ensure that the switch has enabled MRPP protocol. |
| **Example** | Enable the compatible function of EAPS globally<br>Switch(Config)#mrpp enable<br>Switch(Config)#mrpp eaps compatible |

## mrpp enable

| | |
|---|---|
| **Command** | **mrpp enable**<br>**no mrpp enable** |
| **parameter** | - |
| **default** | The system doesn't enable MRPP protocol module |
| **Mode** | Global Mode |
| **Usage Guide** | If it needs to configure MRPP ring, it enables MRPP protocol. Executing "no mrpp enable" command, it ensures to disable the switch enabled MRPP ring. |
| **Example** | Globally enable MRPP.<br>Switch(config)#mrpp enable |

## mrpp errp compatible

| | |
|---|---|
| **Command** | **mrpp errp compatible**<br>**no mrpp errp compatible** |
| **parameter** | - |
| **default** | Disable the compatible function of ERRP. |
| **Mode** | Global mode |

| | |
|---|---|
| **Usage Guide** | If the compatible function of ERRP needs to be configured, MRPP protocol should be enabled firstly. Furthermore, the port with ERRP compatible mode should be configured as hybrid or trunk mode and allow the packets with Control Vlan information. |
| **Example** | Enable the compatible function of ERRP globally.<br>Switch(Config)#mrpp enable<br>Switch(Config)#mrpp errp compatible<br>Switch(Config)#mrpp ring 2<br>Switch(mrpp-ring-2)#control-vlan 4000<br>Switch(config-if-ethernet1/51)#switchport mode hybrid<br>Switch(config-if-ethernet1/51)#switchport hybrid allowed vlan 4000 tag<br>Switch(config-if-ethernet1/52)#switchport mode hybrid<br>Switch(config-if-ethernet1/52)#switchport hybrid allowed vlan 4000 tag |

## mrpp poll-time

| | | |
|---|---|---|
| **Command** | **mrpp poll-time <20-2000>** | |
| **parameter** | **<20-2000>** | Enquiry Time, Unit: ms |
| **default** | Default configuration ms 100 | |
| **Mode** | Global mode. | |
| **Usage Guide** | Configure the query time to adjust the query interval of MRPP, the default interval is 100ms. | |
| **Example** | Set the query time as 200ms.<br>Switch(Config)# mrpp poll-time 200 | |

## mrpp ring

| | | |
|---|---|---|
| **Command** | **mrpp ring <*ring-id*>**<br>**no mrpp ring <*ring-id*>** | |
| **parameter** | ***ring-id*** | is MRPP ring ID, the valid range is from 1 to 4096 |
| **default** | Default does not configure ring id | |
| **Mode** | Global mode | |
| **Usage Guide** | If this MRPP ring doesn't exist it create new MRPP ring when executing the command, and then it enter MRPP ring mode. It needs to ensure disable this MRPP ring when executing the | |

| | |
|---|---|
| | "no mrpp ring" command. |
| **Example** | Create a mrpp ring 100.<br>Switch(config)#mrpp ring 100 |

## mrpp ring primary-port

| | |
|---|---|
| **Command** | **mrpp ring <*ring-id*> primary-port {cos <cos>\|}**<br>**no mrpp ring <*ring-id*> primary-port** |
| **parameter** | ***ring-id*** is the ID of MRPP ring; range is <1-4096>.<br>**cos <cos>** is the cos value in the packet head; range is <0-7> |
| **default** | There is no configuration and the cos value is 0 as default. |
| **Mode** | Port mode |
| **Usage Guide** | The command specifies MRPP ring primary port. Primary node uses primary port to send Hello packet, secondary port is used to receive Hello packet from primary node. There are no difference on function between primary port and secondary of secondary node. |
| **Example** | Configure the primary of MRPP ring 4000 to Ethernet 1/0/1<br>Switch(Config)#interface ethernet 1/0/1<br>Switch(config-If-Ethernet1/0/1)#mrpp ring 4000 primary-port |

## mrpp ring secondary-port

| | |
|---|---|
| **Command** | **mrpp ring < *ring-id* > secondary-port {cos <cos>\|}**<br>**no mrpp ring < *ring-id* > secondary-port** |
| **parameter** | ***ring-id*** is the ID of MRPP ring; range is <1-4096>.<br>**cos <cos>** is the cos value in the packet head; range is <0-7>. |
| **default** | There is no configuration and the cos value is 0 as default |
| **Mode** | Port mode |
| **Usage Guide** | The command specifies secondary port of MRPP ring. The primary node uses secondary port to receive Hello packet from primary node. There are no difference on function between primary port and secondary of secondary node. |

| | |
|---|---|
| | The mrpp enable command must be enabled before the control-vlan command be used. If primary port, secondary port, node-mode and enable commands all be configured after control-vlan, then the mrpp-ring function is enabled. |
| **Example** | Configure secondary port of MRPP ring to 1/0/3.<br>Switch(config)#interface ethernet1/0/3<br>Switch(Config-If-Ethernet1/0/3)#mrpp ring 4000 secondary-port |

## node-mode

| | |
|---|---|
| **Command** | **node-mode {maser \| transit}** |
| **parameter** | - |
| **default** | Default the node mode is secondary node. |
| **Mode** | MRPP ring mode |
| **Usage Guide** | This command configures the node type as the primary or secondary node. |
| **Example** | Configure the switch to primary node. MRPP ring 4000.<br>Switch(config)# mrpp ring 4000<br>Switch(mrpp-ring-4000)#node-mode master |

## show mrpp

| | | |
|---|---|---|
| **Command** | **show mrpp [<*ring-id*>]** | |
| **parameter** | ***ring-id*** | is MRPP ring ID, the valid range is from 1 to 4096, if not specified ID, it display all of MRPP ring configuration. |
| **default** | - | |
| **Mode** | Admin and Configuration Mode | |
| **Usage Guide** | This command is used to view the MRPP ring configuration. | |
| **Example** | Display configuration of MRPP ring 4000 of switch<br>Switch# show mrpp 4000 | |

## show mrpp statistics

| | |
|---|---|
| **Command** | **show mrpp statistics [<*ring-id*>]** |

| | | |
|---|---|---|
| **parameter** | ***ring-id*** | is MRPP ring ID, the valid range is from 1 to 4096, if not specified ID, it displays all of MRPP ring statistic information. |

| | |
|---|---|
| **default** | - |
| **Mode** | Admin and Configuration Mode. |
| **Usage Guide** | This command is used to display the statistics of the MRPP loop receiving and transmitting packets. |
| **Example** | Display statistic information of MRPP ring 4000 of switch.<br>Switch# show mrpp statistic 4000 |

# 2.Commands for ULPP

## clear ulpp flush counter interface

| | |
|---|---|
| **Command** | **clear ulpp flush counter interface <*name*>** |

| | | |
|---|---|---|
| **parameter** | ***name*** | is the name of the port |

| | |
|---|---|
| **default** | - |
| **Mode** | Admin mode |
| **Usage Guide** | Clear the statistics of the packets. |
| **Example** | Clear the statistic information of the flush packets for the port1/0/1<br>Switch#clear ulpp flush counter interface e1/0/1 |

## control vlan

| | |
|---|---|
| **Command** | **control vlan <*integer*>**<br>**no control vlan** |

| | | |
|---|---|---|
| **parameter** | ***integer*** | is the control VLAN ID that sends the flush packets, range from 1 to 4094. |

| | |
|---|---|
| **default** | The default is VLAN 1 |
| **Mode** | ULPP group configuration mode. |

| | |
|---|---|
| **Usage Guide** | Configure the control VLAN of ULPP group. This VLAN must correspond the existent VLAN, after it is configured, this VLAN can't be deleted. It must belong to the VLAN protected by ULPP group to avoid flush packets loopback. |
| **Example** | Configure the sending control VLAN of ULPP group as 10.<br>Switch(config)# ulpp group 20<br>Switch(ulpp-group-20)# control vlan 10 |

## description

| | |
|---|---|
| **Command** | **description <*string*>**<br>**no description** |

| | | |
|---|---|---|
| **parameter** | ***string*** | is the name of ULPP group, the max number of the characters is 128. |

| | |
|---|---|
| **default** | Do not configure ULPP name by default. |
| **Mode** | ULPP group configuration mode. |
| **Usage Guide** | Configure the description string for the ULPP group. Delete description no command. |
| **Example** | Configure the description of ULPP group as switch.<br>Switch(config)# ulpp group 20<br>Switch(ulpp-group-20)# description switch |

## flush {enable |disable} arp

| | |
|---|---|
| **Command** | **flush {enable\|disable} arp** |
| **parameter** | - |
| **default** | By default, enable the sending function of the flush packets which are deleted by ARP. |
| **Mode** | ULPP group configuration mode. |
| **Usage Guide** | If configure this command, when the link is switched, it will not actively send the flush packets to notify the upstream device to delete the entries of ARP. |
| **Example** | Disable sending the flush packets of deleting ARP.<br>Switch(config)# ulpp group 20<br>Switch(ulpp-group-20)# flush disable arp |

## flush {enable |disable} mac

| | |
|---|---|
| **Command** | **flush {enable\|disable}mac** |
| **parameter** | - |
| **default** | By default, enable sending the flush packets of updating MAC address. |
| **Mode** | ULPP group configuration mode. |
| **Usage Guide** | If configure this command, when the link is switched, it will not actively send the flush packets to notify the upstream device to update the MAC address table. |
| **Example** | Disable sending the flush packets of updating MAC address.<br>Switch(config)# ulpp group 20<br>Switch(ulpp-group-20)# flush disable mac |

## flush {enable |disable} mac-vlan

| | |
|---|---|
| **Command** | **flush {enable\|disable}mac-vlan** |
| **parameter** | - |
| **default** | Disable. |
| **Mode** | ULPP group configuration mode |
| **Usage Guide** | If configure this command, when the link is switched, it will not actively send the flush packets to notify the upstream device to delete the dynamic unicast mac according to vlan. |
| **Example** | Disable sending the flush packets deleted by mac-vlan.<br>Switch(config)#ulpp group 1<br>Switch(ulpp-group-1)#flush disable mac-vlan |

## preemption delay

| | | |
|---|---|---|
| **Command** | **preemption delay <*integer*>**<br>**no preemption delay** | |
| **parameter** | ***integer*** | the preemption delay, range from 1 to 600, in second. |
| **default** | The default preemption delay is 30. | |
| **Mode** | ULPP group configuration mode. | |

| | |
|---|---|
| **Usage Guide** | The preemption delay is the delay time before the master port is preempted as the forwarding state, for avoiding the link oscillation in a short time. After the preemption mode is enabled, the preemption delay takes effect. |
| **Example** | Configure the preemption delay as 50s for ULPP group.<br>Switch(config)# ulpp group 20<br>Switch(ulpp-group-20)# preemption delay 50 |

## preemption mode

| | |
|---|---|
| **Command** | **preemption mode**<br>**no preemption mode** |
| **parameter** | - |
| **default** | Do not preempt. |
| **Mode** | ULPP group configuration mode. |
| **Usage Guide** | If the preemption mode configured by ULPP group, and the slave port is in forwarding state, and the master port is in the standby state, the master port will turn into the forwarding state and the slave port turn into the standby state after the preemption delay. |
| **Example** | Configure the preemption mode of ULPP group.<br>Switch(config)# ulpp group 20<br>Switch(ulpp-group-20)# preemption mode |

## protect vlan-reference-instance

| | |
|---|---|
| **Command** | **protect vlan-reference-instance <*instance-list*>**<br>**no protect vlan-reference-instance <*instance-list*>** |

| **parameter** | | |
|---|---|---|
| | ***instance-list*** | is MSTP instance list, such as: i; j-k. The number of the instances is not limited in the list. |

| | |
|---|---|
| **default** | Do not protect any VLANs by default that means any instances are not quoted. |
| **Mode** | ULPP group configuration mode. |
| **Usage Guide** | Quote the instances of MSTP to protect the VLANs. The VLAN corresponds to this instance is at the forwarding state on one port of this group, and at the blocked state on another port of this group. Each ULPP group can quotes all instances of MSTP. And it can quotes the inexistent MSTP instances that means any VLANs are not protected, the different ULPP groups can’t quote the same instance. |

| | |
|---|---|
| **Example** | Configure the protective VLAN quoted from instance 1 for ULPP group.<br>Switch(config)# ulpp group 20<br>Switch(ulpp-group-20)# protect vlan-reference-instance 1 |

## show ulpp flush counter interface

| | |
|---|---|
| **Command** | **show ulpp flush counter interface {ethernet <IFNAME> \| <IFNAME>}** |
| **parameter** | **IFNAME** is the name of the ports. |
| **default** | - |
| **Mode** | Admin mode. |
| **Usage Guide** | Show the statistic information of the flush packets, such as: the information of the flush packets number which has been received, the time information that receive the flush packets finally. |
| **Example** | Show the statistic information of the flush packets for ULPP group1.<br>Switch# show ulpp flush counter interface e1/0/1<br>Received flush packets: 10 |

## show ulpp flush-receive-port

| | |
|---|---|
| **Command** | **show ulpp flush-receive-port** |
| **parameter** | - |
| **default** | - |
| **Mode** | Admin mode. |
| **Usage Guide** | displays the port that receives the flush packet, flush type, and control VLAN. |
| **Example** | Show the information that the port receives flush packets.<br>Switch# show ulpp flush-receive-port<br>ULPP flush-receive portlist:<br>Portname Type Control Vlan<br>----------<br>Ethernet1/0/1 ARP 1<br>Ethernet1/0/3 MAC 1;3;5-10 |

## show ulpp group

| | |
|---|---|
| **Command** | **show ulpp group [group-id]** |
| **parameter** | **group-id** Show the information of the specific ULPP group |
| **default** | By default, show the information of all ULPP groups which have been configured |
| **Mode** | Admin mode. |
| **Usage Guide** | Show the configuration information of ULPP groups which have been configured, such as: the state of the master port and the slave port, the preemption mode, the preemption delay, etc. |
| **Example** | Show the configuration information of ULPP group1.<br>Switch# show ulpp group 1<br>ULPP flush-receive portlist:<br>Portname Type Control Vlan<br>----------<br>----------<br>Switch#show ulpp group 20<br>ULPP group 20 information:<br>Description: switch<br>Preemption mode: ON<br>Preemption delay: 50s<br>Control VLAN: 10<br>Flush packet: NONE<br>Protected VLAN: Reference Instance 1<br>Member Role State Track-cfm-level<br>----------<br>---------- |

## ulpp control vlan

| | |
|---|---|
| **Command** | **ulpp control vlan <*vlan-list*>**<br>**no ulpp control vlan <*vlan-list*>** |
| **parameter** | ***vlan-list*** specify the control VLAN list that receives the flush packets, such as: i; j-k. The number of VLANs in Each character string cannot exceed 100. The receiving control VLAN of the port can be added. |
| **default** | The default is VLAN 1. |
| **Mode** | Port mode |
| **Usage Guide** | Configure the receiving control VLAN for the port. This VLAN must correspond the existent VLAN, after it is configured, this VLAN can't be deleted. |

| | |
|---|---|
| **Example** | Configure the receiving control VLAN as 10<br>Switch(config)# interface ethernet 1/0/1<br>Switch(config-If-Ethernet1/0/1)# ulpp control vlan 10 |

## ulpp flush {enable|disable} arp

| | |
|---|---|
| **Command** | **ulpp flush {\|enable\|disable} arp** |
| **parameter** | - |
| **default** | By default, disable receiving the flush packets of deleting ARP |
| **Mode** | Port mode. |
| **Usage Guide** | If this command is configured, then it will not receive the flush packets of deleting ARP. |
| **Example** | Disable receiving the flush packets of deleting ARP.<br>Switch(config)# interface ethernet 1/0/1<br>Switch(config-If-Ethernet1/0/1)# ulpp flush disable arp |

## ulpp flush {enable|disable} mac

| | |
|---|---|
| **Command** | **ulpp flush {enable\|disable} mac** |
| **parameter** | - |
| **default** | By default, disable receiving the flush packets of updating MAC address. |
| **Mode** | Port mode. |
| **Usage Guide** | If this command is configured, then it will not receive the flush packets of updating MAC address. |
| **Example** | Disable receiving the flush packets of updating MAC address.<br>Switch(config)# interface ethernet 1/0/1<br>Switch(config-If-Ethernet1/0/1)# ulpp flush disable mac |

## ulpp flush {enable|disable} mac-vlan

| | |
|---|---|
| **Command** | **ulpp flush {enable\|disable} mac-vlan** |
| **parameter** | - |
| **default** | Disable |

| | |
|---|---|
| **Mode** | Port mode. |
| **Usage Guide** | If enabling this function, forward the hardware of the flush packets with mac-vlan type received in port. It will not be analyzed. |
| **Example** | Disable receiving the flush packets deleted by mac-vlan of port.<br>Switch(config)#interface e1/0/2<br>Switch(config-if-ethernet1/0/2)#ulpp flush disable mac-vlan |

## ulpp group

| | |
|---|---|
| **Command** | **ulpp group <*integer*>**<br>**no ulpp group <*integer*>** |

| | | |
|---|---|---|
| **parameter** | ***integer*** | is the ID of ULPP group, range from 1 to 48. |

| | |
|---|---|
| **default** | Any ULPP groups are not configured. |
| **Mode** | Global Mode. |
| **Usage Guide** | Create a ULPP group. If the group exists, enter the configuration mode of the ULPP group. no command delete ULPP group. |
| **Example** | Configure ulpp group 20 or enter the mode of ulpp group 20.<br>Switch(config)# ulpp group 20<br>Switch(ulpp-group-20)# |

## ulpp group {master|slave}

| | |
|---|---|
| **Command** | **ulpp group <*integer*> {master\|slave}**<br><br>**no ulpp group <*integer*> {master\|slave}** |

| | | |
|---|---|---|
| **parameter** | ***integer*** | is the ID of ULPP group, range from 1 to 48. |

| | |
|---|---|
| **default** | There is no master port configured by default. |
| **Mode** | Port mode |
| **Usage Guide** | There is no sequence requirement for the master and slave port configuration in a group, but the protective VLANs must be configured before the member ports. Each group has only one master port, if the master port exists, then the configuration fail. |

| | |
|---|---|
| **Example** | Configure the master port of ULPP group.<br>Switch(config)# interface ethernet 1/0/2<br>Switch(config-If-Ethernet1/0/2)# ulpp group 20 slave |

# 3.Commands for ULSM

## show ulsm group

| | |
|---|---|
| **Command** | **show ulsm group [group-id]** |
| **parameter** | **group-id** the ID of ULSM group. |
| **default** | By default, show the information of all ULSM groups which have been configured |
| **Mode** | Admin Mode |
| **Usage Guide** | This command is used to display configuration information for ULSM groups. |
| **Example** | Show the configuration information of ULSM group1.<br>Switch# show ulsm group 1 |

## ulsm group

| | |
|---|---|
| **Command** | **ulsm group** <***group-id***><br>**no ulsm group** <***group-id***> |
| **parameter** | ***group-id*** is the ID of ULSM group, range from 1 to 32. |
| **default** | There is no ULSM group configured by default. |
| **Mode** | Global Mode. |
| **Usage Guide** | This command is used to create a ULSM group. no command delete ULSM group. |
| **Example** | Create ULSM group 10.<br>Switch(config)# ulsm group 10 |

## ulsm group {uplink | downlink}

| | |
|---|---|
| **Command** | **ulsm group <*group-id*> {uplink \| downlink}**<br>**no ulsm group <*group-id*>** |

**parameter**

| | |
|---|---|
| ***group-id*** | The ID of ULSM group, the range from 1 to 32. |
| **uplink** | Configure the port as the uplink port |
| **downlink** | Configure the port as the downlink port. |

| | |
|---|---|
| **default** | The port does not belong to any ULSM group |
| **Mode** | Port Mode |
| **Usage Guide** | Configure the uplink/downlink ports of ULSM group. Each ULSM group can configure 8 uplink ports and 16 downlink ports at most。 |
| **Example** | Configure port1/0/3 as the uplink port of ULSM group10.<br>Switch(config)# interface ethernet 1/0/3<br>Switch(config-If-Ethernet1/0/3)# ulsm group 10 uplink |