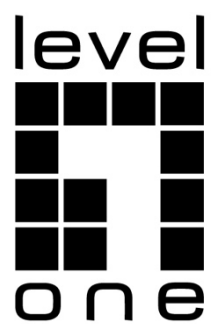


02- Port Module Command Line Manual



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1. Commands for Ethernet Port Configuration

bandwidth

Command	bandwidth control <bandwidth> {transmit receive both} no bandwidth control		
parameter	<table><tr><td><i>bandwidth</i></td><td>is the bandwidth limit, which is shown in kbps ranging between 1-1000000K</td></tr></table>	<i>bandwidth</i>	is the bandwidth limit, which is shown in kbps ranging between 1-1000000K
<i>bandwidth</i>	is the bandwidth limit, which is shown in kbps ranging between 1-1000000K		
default	Disable bandwidth restrictions by default		
Mode	Port Configuration Mode		
Usage Guide	Use the bandwidth control <bandwidth>[both receive transmit] command to set the bandwidth rate. Use the no bandwidth control restore default configuration		
Example	Set the bandwidth limit of 1/0/1-8 port is 40000K. Switch(config)#interface ethernet 1/0/1-8 Switch(Config-If-Port-Range)#bandwidth control 40000 both		

clear counters interface

Command	clear counters [interface {ethernet <interface-list> vlan <vlan-id> port-channel <port-channel-number> <interface-name>}]								
parameter	<table><tr><td><i>interface-list</i></td><td>stands for the Ethernet port number;</td></tr><tr><td><i>vlan-id</i></td><td>stands for the VLAN interface number;</td></tr><tr><td><i>port-channel-number</i></td><td>for trunk interface number;</td></tr><tr><td><i>interface-name</i></td><td>for interface name, such as port-channel 1.</td></tr></table>	<i>interface-list</i>	stands for the Ethernet port number;	<i>vlan-id</i>	stands for the VLAN interface number;	<i>port-channel-number</i>	for trunk interface number;	<i>interface-name</i>	for interface name, such as port-channel 1.
<i>interface-list</i>	stands for the Ethernet port number;								
<i>vlan-id</i>	stands for the VLAN interface number;								
<i>port-channel-number</i>	for trunk interface number;								
<i>interface-name</i>	for interface name, such as port-channel 1.								
default	Port statistics default not cleared								
Mode	Admin Mode								
Usage Guide	If no port is specified, statistics for all ports are cleared.								

Example	Clearing the statistics for Ethernet port1/0/1. Switch#clear counters interface ethernet 1/0/1
description	
Command	description <string> no description
parameter	<i>string</i> is a character string, which should not exceeds 200 characters
default	No port name by default
Mode	Port Mode
Usage Guide	This command is for helping the user manage switches, such as the user assign names according to the port application, e.g. financial as the name of 1/0/1-2 ports which is used by financial department, engineering as the name of 1/0/9 ports which belongs to the engineering department, while the name of 1/0/12 ports is assigned with Server, which is because they connected to the server. In this way the port distribution state will be brought to the table.
Example	Specify the description of 1/0/1-2 port as financial. Switch(config)#interface ethernet 1/0/1-2 Switch(Config-If-Port-Range)#description financial
flow control	
Command	flow control no flow control
parameter	-
default	Disable port traffic control by default
Mode	Port Mode
Usage Guide	After the flow control function is enabled, the port will notify the sending device to slow down the sending speed to prevent packet loss when traffic received exceeds the capacity of port cache. Ports support IEEE802.3X flow control; the ports work in half-duplex mode, supporting back-pressure flow control. If flow control results in

	serious HOL, the switch will automatically start HOL control (discarding some packets in the COS queue that may result in HOL) to prevent drastic degradation of network performance.
Example	Enabling the flow control function in ports 1/0/1-8. Switch(config)#interface ethernet 1/0/1-8 Switch(Config-If-Port-Range)#flow control

interface ethernet

Command	interface ethernet <interface-list>
parameter	<i>interface-list</i> stands for port number.
default	-
Mode	Global Mode
Usage Guide	This command can be used to enter port configuration mode and run exit command to exit Ethernet port mode to global mode.
Example	Entering the Ethernet Port Mode for ports 1/0/1 , 1/0/4-5 , 1/0/8 。 Switch(config)#interface ethernet 1/0/1;1/0/4-5;1/0/8 Switch(Config-If-Port-Range)#

Loopback

Command	loopback no loopback
parameter	-
default	By default, disable loop testing in the Ethernet port
Mode	Port Mode
Usage Guide	Loopback test can be used to verify the Ethernet ports are working normally. After loopback has been enabled, the port will assume a connection established

to itself, and all traffic sent from the port will be received at the very same port.

Example

Enabling loopback test in Ethernet ports 1/0/1-8.
Switch(config)#interface ethernet 1/0/1-8
Switch(Config-If-Port-Range)#loopback

Negotiation

Command

negotiation {on | off}

parameter

-

default

Auto-negotiation is enabled by default.

Mode

Port configuration Mode

Usage Guide

This command applies to 1000Base-FX interface only. The negotiation command is not available for 1000Base-TX or 100Base-TX interface. To change the negotiation mode, speed and duplex mode of 1000Base-TX port, use speed-duplex command instead.

Example

Port 21 of Switch1 is connected to port 21 of Switch2, the following will disable the negotiation for both ports.
Switch1(config)#interface ethernet1/0/21
Switch1(Config-If-Ethernet1/0/21)#negotiation off
Switch2(config)#interface ethernet1/0/21
Switch2(Config-If-Ethernet1/0/21)#negotiation off

Port-rate-statistics interval

Command

port-rate-statistics interval <interval-value>

parameter

<i>interval-value</i>	The interval of port-rate-statistics, unit is second, ranging from 5 to 600 with the configuration step of 5.
-----------------------	---------------------------------------------------------------------------------------------------------------

default

Only port-rate-statistics of 5 seconds and 5 minutes are displayed.

Mode	Global Mode
Usage Guide	This command can be used to set the port rate statistics interval time.
Example	Count the interval of port-rate-statistics as 20 seconds. Switch(config)#port-rate-statistics interval 20

rate-violation

Command	rate-violation [broadcast multicast unicast all] <200-2000000> no rate-violation	
parameter	broadcast	broadcast packet
	multicast	multicast packet
	unicast	unicast packet
	all	all packets
	<200-2000000>	the number of packets allowed to pass per second.

default	There is no limit for the packet reception rate.	
Mode	Port Mode	
Usage Guide	This command is mainly used to detect the abnormal port flow. For example, when there are a large number of broadcast packets caused by a loopback, which affect the processing of other tasks, the port will be shut down or block to ensure the normal processing of the switch. This command needs to associate with rate-violation control command.	
Example	Set the rate-violation of port 1/0/8-10 (GB ports) as 10000pps, it will be shutdown after rate-violation and the port recovery time as 1200 seconds, when the packet reception rate exceeds 10000, the port will but shut down, and then, after 1200 seconds, the port will be UP again. Switch(config)#interface ethernet 1/0/8-10 Switch(Config-Port-Range)#rate-violation unicast 10000 Switch(Config-Port-Range)#rate-violation control shutdown recovery 1200	

rate-violation control

Command	rate-violation control [shutdown recovery <0-86400> block] no rate-violation control	
parameter	shutdown	A port is shutdown after rate-violation
	recovery	After a period of time the port can recover Shutdown to UP again.
	block	A port is block after rate-violation, this parameter and MSTP, EAPS(MRPP), Loopback Detection, ULPP are mutually exclusive. If other modules set STP state, this function can not be set to block mode.
	<0-86400>	Automatic recovery time
default	There is no control operation for rate-violation.	
Mode	Port Mode	
Usage Guide	This command is mainly used to the control operation after rate-violation.	
Example	<p>After set the rate-violation of the unicast packet of port 1/8-10 (GB ports) as 10000pps, the port will be block.</p> <pre>Switch(Config)#interface ethernet 1/0/8-10 Switch(Config-Port-Range)#rate-violation unicast 10000 Switch(Config-Port-Range)#rate-violation control block</pre>	

show interface

Command	show interface [ethernet <interface-number> port-channel <port-channel-number> vlan <vlan-id> <interface-name>] [detail] show interface ethernet status show interface ethernet counter {packet rate}	
parameter	<i>interface-number</i>	is the port number of the Ethernet,
	<i>port-channel-number</i>	is the number of the aggregation interface
	<i>vlan-id</i>	is the VLAN interface number, the value range from 1 to 4094
	<i>interface-name</i>	is the name of the interface such as port-channel1
	detail	show the detail of the port

default	Information not displayed by default
Mode	Admin and Configuration Mode.
Usage Guide	Use this command to view interface-related configuration information
Example	<p>Show the information of VLAN 1 .</p> <p>Vlan1 is up, line protocol is up, dev index is 11001</p> <p>Device flag 0x1003(UP BROADCAST MULTICAST)</p> <p>Time since last status change:0w-0d-1h-14m-57s (4497 seconds)</p> <p>IPv4 address is:</p> <p>192.168.2.1 255.255.255.0 (Primary)</p> <p>VRF Bind: Not Bind</p> <p>Hardware is EtherSVI, address is 00-1f-ce-10-b0-1a</p> <p>MTU is 1500 bytes , BW is 0 Kbit</p> <p>Encapsulation ARPA, loopback not set</p> <p>5 minute input rate 244 bits/sec, 0 packets/sec</p> <p>5 minute output rate 0 bits/sec, 0 packets/sec</p> <p>The last 5 second input rate 0 bits/sec, 0 packets/sec</p> <p>The last 5 second output rate 0 bits/sec, 0 packets/sec</p> <p>Input packets statistics:</p> <p>Input queue 0/600, 0 drops</p> <p>1012 packets input, 193127 bytes, 0 no buffer</p> <p>0 input errors, 0 CRC, 0 oversize, 0 undersize</p> <p>0 jabber, 0 fragments</p> <p>Output packets statistics:</p> <p>448 packets output, 108316 bytes, 0 underruns</p> <p>0 output errors, 0 collisions</p>

Shutdown

Command	Shutdown
parameter	-
default	Ethernet port is open by default.
Mode	Port Mode.
Usage Guide	When Ethernet port is shut down, no data frames are sent in the port, and the port status displayed when the user types the “show interface” command is “down”.
Example	<p>Opening ports 1/0/1-8.</p> <p>Switch(config)#interface ethernet1/0/1-8</p> <p>Switch(Config-If-Port-Range)#no shutdown</p>

speed-duplex

Command	speed-duplex { auto [10 [100 [1000]] [auto full half]] force10-half force10-full force100-half force100-full force100-fx [module-type { auto-detected no-phy-integrated phy-integrated }] {{ force1g-half force1g-full } [nonegotiate [master slave]]}}	
parameter	no speed-duplex	
	auto	is the auto speed and duplex negotiation
	10	10kbps
	100	100kbps
	1000	1000kbps
	force10-half	is the forced 10Mbps at half-duplex mode
	force10-full	is the forced 10Mbps at full-duplex mode
	force100-half	is the forced 100Mbps at half-duplex mode
	force100-full	is the forced 100Mbps at full-duplex mode
	force1g-half	is the forced 1000Mbps at half-duplex mode
	force1g-full	is the forced 1000Mbps at full-duplex mode
	force100-fx	is the forced 100Mbps at full-duplex mode
	auto-detected	automatic detection
	no-phy-integrated	there is no phy-integratd 100Base-FX module
	phy-integrated	phy-integratd 100Base-FX module
	nonegotiate	disables auto-negotiation forcibly for 1000Mb port
	master	forces the 1000Mb port to be master mode
	slave	Forces the 1000Mb port to be slave mode
default	Auto-negotiation for speed and duplex mode is set by default	
Mode	Port Mode	
Usage Guide	<p>This command is configures the port speed and duplex mode. When configuring port speed and duplex mode, the speed and duplex mode must be the same as the setting of the remote end, i.e., if the remote device is set to auto-negotiation, then auto-negotiation should be set at the local port. If the remote end is in forced mode, the same should be set in the local end.</p> <p>1000Gb ports are by default master when configuring nonegotiate mode. If one end is set to master mode, the other end must be set to slave mode.</p> <p>force1g-half is not supported yet.</p>	
Example	<p>Port 1 of Switch1 is connected to port 1 of Switch2, the following will set both ports in forced 100Mbps at half-duplex mode.</p> <pre>Switch1(config)#interface ethernet1/0/1 Switch1(Config-If-Ethernet1/0/1)#speed-duplex force100-half</pre>	

```
Switch2(config)#interface ethernet1/0/1
Switch2(Config-If-Ethernet1/0/1)#speed-duplex force100-half
```

storm-control

Command	storm-control { kbps pps } no storm-control pps				
parameter	<table> <tr> <td>kbps</td><td>means the unit of limit is kbits/s</td></tr> <tr> <td>pps</td><td>means the limit unit is packets/s.</td></tr> </table>	kbps	means the unit of limit is kbits/s	pps	means the limit unit is packets/s.
kbps	means the unit of limit is kbits/s				
pps	means the limit unit is packets/s.				
default	The default is kbps.				
Mode	Global Mode				
Usage Guide	Configure the kbps or pps as the limit mode in global mode, then set broadcast, multicast or unknown unicast limit value in port mode.				
Example	<p>Setting ports 1-8 allow 1000kbit broadcast packets per second.</p> <p>Switch(config)#storm-control kbps</p> <p>Switch(config-if-port-range)#storm-control broadcast 1000</p>				

storm-control

Command	storm-control { unicast broadcast multicast } <value> no storm-control { unicast broadcast multicast }								
parameter	<table> <tr> <td>unicast</td><td>to limit unicast traffic for unknown destination</td></tr> <tr> <td>broadcast</td><td>to limit broadcast traffic.</td></tr> <tr> <td>multicast</td><td>to limit multicast traffic</td></tr> <tr> <td>value</td><td>Limit the flow rate per second, PPS range from 1 to 1488095; kbps range from 1 to 1000000.</td></tr> </table>	unicast	to limit unicast traffic for unknown destination	broadcast	to limit broadcast traffic.	multicast	to limit multicast traffic	value	Limit the flow rate per second, PPS range from 1 to 1488095; kbps range from 1 to 1000000.
unicast	to limit unicast traffic for unknown destination								
broadcast	to limit broadcast traffic.								
multicast	to limit multicast traffic								
value	Limit the flow rate per second, PPS range from 1 to 1488095; kbps range from 1 to 1000000.								
default	No limit is set by default. So, broadcasts, multicasts and unknown destination unicasts are allowed to pass at line speed.								
Mode	Port Mode								

Usage Guide	<p>All ports in the switch belong to a same broadcast domain if no VLAN has been set. The switch will send the above mentioned three traffics to all ports in the broadcast domain, which may result in broadcast storm and so may greatly degrade the switch performance. Enabling Broadcast Storm Control can better protect the switch from broadcast storm. If the allowed traffic is set to 1000kbps, this means allow 1000 kbit per second and suppress the rest. The switch supports two kind of speed limit, it includes kbps which is limit by bandwidth and pps which is limit by the numbers of packets. It only can select one from the two ways and cannot set the two way in the same time (by global mode)</p> <p>Broadcast suppression is similar to bandwidth control. There is granularity limitation for the chip; the switch support 16Kbps granularities. If the <Kbits> that user input is not the integer times of 16, the system will adjust to the integer times of 16 automatically and print the true limit value to user.</p>
Example	<p>Setting ports 1-8 allow 1000kbit broadcast packets per second.</p> <pre>Switch(config-if-port-range)#storm-control broadcast 1000</pre>

storm-control bypass

Command	storm-control bypass {arp bpdu igmp rma rek } <enable disable >	
parameter	arp	means the protocol packets of arp-request
	bpdu	means bpdu protocol packets
	igmp	means igmp protocol packets
	rma	means multicast address is the saved multicast packets
	rek	means the special private packets that realtak used
	enable	enable some protocol to limit filter function
	disable	disable some protocol to broadcast limit filter function.
default	Disable	
Mode	Global Mode.	
Usage Guide	Configure broadcast limit filter function of some protocol in global mode, then configure broadcast limit in port mode. At this moment, the protocol packets flow from the port cannot be limited.	
Example	<p>Configure arp protocol filter function to make the arp-request data packets that from 1 port in cannot be limited.</p> <pre>Switch (config)#storm-control bypass arp enable Switch(config-if-ethernet1/0/1)#storm-control broadcast 1000</pre>	

virtual-cable-test

Command	virtual-cable-test interface ethernet <interface-list>	
parameter	<i>interface-list</i>	Port ID
default	-	
Mode	Admin Mode.	
Usage Guide	<p>The RJ-45 port connected with the twisted pair under test should be in accordance with the wiring sequence rules of IEEE802.3, or the wire pairs in the test result may not be the actual ones. On a 100M port, only two pairs are used: (1, 2) and (3, 6), whose results are the only effective ones. If a 1000M port is connected to a 100M port, the results of (4, 5) and (7, 8) will be of no meaning. The result may have deviations according to the type of the twisted pair, the temperature, working voltage and other conditions. When the temperature is 20 degree Celsius, and the voltage is stable without interference, and the length of the twisted pair is not longer than 100 meters, a deviation of +/-2 meters is allowed. When the port is at Link UP status, a deviation of +/-10 meters is allowed. Notice: the test procedure will block all data flow on the line for 5-10 seconds, and then restore the original status.</p> <p>568A wiring sequence: (1 green white, 2 green), (3 orange white, 6 orange), (4 blue, 5 blue white), (7 brown white, 8 brown).</p> <p>568B wiring sequence: (1 orange white, 2 orange), (3 green white, 6 green), (4 blue, 5 blue white), (7 brown white, 8 brown).</p>	
Example	<p>Test the link status of the twisted pair connected to the 1000M port 1/0/1.</p> <p>Switch#virtual-cable-test interface ethernet 1/0/1</p>	

Interface Ethernet1/0/1:

Cable pairs	Cable status	Length (meters)
(1, 2)	well	1
(3, 6)	well	1
(4, 5)	well	1
(7, 8)	well	1

switchport discard packet

Command	switchport discard packet { all untag } no switchport discard packet { all untag }	
parameter	all	means it does not receive any packet including untag, tag and the deal packet

	untag means it does not receive untag
default	The default does not have the restriction.
Mode	Port Mode
Usage Guide	This command is not suggested to be configured only if there is the special requirement.
Example	Configure the port of 1/0/8 not to receive all packets. Switch(config)#interface ethernet 1/0/8 Switch(config-if-ethernet1/0/8)#switchport discard packet all

switchport flood-control

Command	switchport flood-control { bcast mcast ucast } no switchport flood-control { bcast mcast ucast }	
parameter	bcast	prevents that broadcast packets cannot be transmitted to the specified port
	mcast	prevents that unknown multicast packets cannot be transmitted to the specified port
	ucast	prevents that unknown unicast packets cannot be transmitted to the specified port
default	Switch transmits broadcast, unknown multicast and unknown unicast packets to other port in broadcast domain.	
Mode	Port configuration mode.	
Usage Guide	<p>This command takes effect for 100M and 1000M ports; it is also takes effect for Access, Trunk and Hybrid ports. When this command is valid, the port will allow unicast or multicast flow to pass after port learned the corresponding unicast mac or multicast mac.</p> <p>This command only control that broadcast, multicast and unknown unicast packets sent by other ports cannot be transmitted to the specified port, but it cannot control these packets from the specified port. For example, set switchport flood-control bcast command in port 1/0/1, broadcast packets cannot be transmitted from other ports to port 1/0/1, but port 1/0/1 can receive and transmit broadcast packets.</p>	
Example	Configure flood-control of bcast and mcast for port 1/0/1 or port 1/0/8-10 respectively. Switch(config)#interface ethernet 1/0/1 Switch(config-if-ethernet1/0/1)#switchport flood-control bcast	

```
Switch(config)#interface ethernet 1/0/8-10
Switch(config-if-port-range)#switchport flood-control mcast
```

switchport flood-forwarding

Command	switchport flood-forwarding mcast no switchport flood-forwarding mcast	
parameter	mcast	prevents that unknown multicast packets can be transmitted to the specified port.
default	Switch transmits unknown multicast packets to other port in broadcast domain.	
Mode	Port Mode	
Usage Guide	This command takes effect for 100M and 1000M ports; it is also takes effect for Access, Trunk and Hybrid ports. The command is usually combined with ip igmp snooping, ip igmp snooping does not supports unknown multicast and broadcast, it can transfer unknown multicast flow after configure switchport flood-forwarding mcast.	
Example	Set switch 1/0/1 port broadcast flood-forwarding. switch# switch#confi switch(config)#interface ethernet 1/0/1 switch(config-if-ethernet1/0/1)# switchport flood-forwarding mcast switch(config-if-ethernet1/0/1)#exit switch(config)#	

2.Commands for Port Isolation Function

isolate-port group

Command	isolate-port group <WORD> no isolate-port group <WORD>	
parameter	WORD	is the name identification of the group, no longer than 32

	characters
default	-
Mode	Global Mode
Usage Guide	Users can create different port isolation groups based on their requirements. For example, if a user wants to isolate all downlink ports in a vlan of a switch, he can implement that by creating a port isolation group and adding all downlink ports of the vlan into it. No more than 16 port isolation groups can a switch have. When the users need to change or redo the configuration of the port isolation group, he can delete the existing group with the no operation of this command.
Example	Create a port isolation group and name it as "test". Switch>enable Switch#config Switch(config)#isolate-port group test

isolate-port group switchport interface

Command	isolate-port group <WORD> switchport interface [ethernet] <IFNAME> no isolate-port group <WORD> switchport interface [ethernet] <IFNAME>	
parameter	<i>WORD</i>	is the name identification of the group, no longer than 32 characters
	<i>IFNAME</i>	is the name of the interface
default	-	
Mode	Global Mode or Vlan Configuration Mode	
Usage Guide	Users can add Ethernet ports into a port isolation group according to their requirements, the isolation group can isolation it from each other (Global mode) in all vlan, it also can isolate it from each other (vlan mode) in some vlan or remove them from a port isolation group according to their requirements. When an Ethernet port is a member of more than one port isolate group, it will be isolated from every port of all groups it belongs to.	
Example	Add Ethernet ports 1/0/1-2 and 1/0/5 into a port isolation group named as "test", add Ethernet ports 1/0/3-4 into a port isolation group named as "1" in vlan10. Switch(config)#isolate-port group test switchport interface ethernet 1/0/1-2; 1/0/5 Switch(config-vlan10)#isolate-port group 1 switchport interface ethernet 1/0/3-4	

show isolate-port group

Command	show isolate-port group [<WORD>]
parameter	<i>WORD</i> the name identification of the group, no longer than 32 characters
default	Display the configuration of all port isolation groups.
Mode	Admin Mode and Global Mode
Usage Guide	Users can view the configuration of port isolation with this command.
Example	<p>Display the port isolation configuration of the port isolation group named as “test”.</p> <p>Switch(config)#show isolate-port group test</p> <p>Isolate-port group test</p> <p style="padding-left: 40px;">The isolate-port Ethernet1/0/5</p> <p style="padding-left: 40px;">The isolate-port Ethernet1/0/2</p>

3.Commands for Port Loopback Detection Function

loopback-detection control

Command	loopback-detection control {shutdown block } no loopback-detection control				
parameter	<table> <tr> <td>shutdown</td><td>set the control method as shutdown, which means to close down the port if a port loopback is found.</td></tr> <tr> <td>block</td><td>set the control method as block, which means to block a port by allowing bpdu and loopback detection messages only if a port loopback is found.</td></tr> </table>	shutdown	set the control method as shutdown, which means to close down the port if a port loopback is found.	block	set the control method as block, which means to block a port by allowing bpdu and loopback detection messages only if a port loopback is found.
shutdown	set the control method as shutdown, which means to close down the port if a port loopback is found.				
block	set the control method as block, which means to block a port by allowing bpdu and loopback detection messages only if a port loopback is found.				
default	Disable the function of loopback diction control.				
Mode	Port Mode.				
Usage Guide	Enable loopback detection control on the port, which is disabled by the NO operation of this command.				
Example	<p>Enable the function of loopback detection control under port1/2 mode.</p> <p>Switch(config)#interface ethernet 1/0/2</p> <p>Switch(Config-If-Ethernet1/0/2)#loopback-detection control shutdown</p>				

Switch(Config-If-Ethernet1/0/2)#no loopback-detection control

loopback-detection control-recovery timeout

Command	loopback-detection control-recovery timeout <0-3600>	
parameter	0-3600	second is recovery time for be controlled state, 0 is not recovery state.
default	The recovery is not automatic by default.	
Mode	Global Configuration Mode.	
Usage Guide	When a port detects a loopback and works in control mode, the ports always work in control mode and not recover. The port will not sent packet to detection in shutdown mode, however, the port will sent loopback-detection packet to detection whether have loopback in block or learning mode. If the recovery time is configured, the ports will recovery normal state when the overtime is time-out. The recovery time is a useful time for shutdown control mode, because the port can keep on detection loopback in the other modes, so suggest not to use this command.	
Example	Enable automatic recovery of the loopback-detection control mode after 30s. Switch(config)#loopback-detection control-recovery timeout 30	

loopback-detection interval-time

Command	loopback-detection interval-time <loopback> <no-loopback> no loopback-detection interval-time	
parameter	<i>loopback</i>	the detection interval if any loopback is found, ranging from 5 to 300, in seconds.
	<i>no-loopback</i>	the detection interval if no loopback is found, ranging from 1 to 30, in seconds.
default	The default value is 5s with loopbacks existing and 3s otherwise.	
Mode	Global Mode	
Usage Guide	When there is no loopback detection, the detection interval can be relatively shorter, for too short a time would be a disaster for the whole network if there is	

any loopback. So, a relatively longer interval is recommended when loopbacks exist.

Example

Set the loopback detection interval as 35, 15.

```
Switch(config)#loopback-detection interval-time 35 15
```

loopback-detection specified-vlan

Command

loopback-detection specified-vlan <vlan-list>
no loopback-detection specified-vlan [<vlan-list>]

parameter

parameter	description
vlan-list	VLAN ID

default

Disable the function of detecting the loopbacks through the port.

Mode

Port Mode

Usage Guide

If a port can be a TRUNK port of multiple Vlans, the detection of loopbacks can be implemented on the basis of port+Vlan, which means the objects of the detection can be the specified Vlans on a port. If the port is an ACCESS port, only one Vlan on the port is allowed to be checked despite the fact that multiple Vlans can be configured. This function is not supported under Port-channel.

Example

Enable the function of loopback detection under port 1/2 mode.

```
Switch(config)#interface ethernet 1/0/2
```

```
Switch(Config-If-Ethernet1/0/2)#switchport mode trunk
```

```
Switch(Config-If-Ethernet1/0/2)#switchport trunk allowed vlan all
```

```
Switch(Config-If-Ethernet1/0/2)#loopback-detection specified-vlan 1;3;5-20
```

```
Switch(Config-If-Ethernet1/0/2)#no loopback-detection specified-vlan 1;3;5-20
```

show loopback-detection

Command

show loopback-detection [interface <interface-list>]

parameter

parameter	description
interface-list	the list of ports to be displayed, for example: ethernet 1/0/1.

default

-

Mode

Admin and Configuration Mode.

Usage Guide

Display the state and result of loopback detection on ports with this command.

Example	<p>Display the state of loopback detection on port 4.</p> <pre>Switch(config)#show loopback-detection interface Ethernet 1/0/4</pre> <p>loopback detection config and state information in the switch!</p> <pre>PortName Loopback Detection Control Mode Is Controlled Ethernet1/4 Enable Shutdown No</pre>
----------------	-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

4.Commands for ULDP

uldp aggressive-mode

Command	uldp aggressive-mode no uldp aggressive-mode
parameter	-
default	Global Configuration Mode and Port Configuration Mode.
Mode	Normal mode.
Usage Guide	<p>The ULDP working mode can be configured only if it is enabled globally.</p> <p>When ULDP aggressive mode is enabled globally, all the existing fiber ports will work in aggressive mode. For the copper ports and fiber ports which are available after the configuration is available, aggressive mode should be enabled in port configuration mode.</p>
Example	<p>To enable ULDP aggressive mode globally.</p> <pre>Switch(config)#uldp aggressive-mode</pre>

uldp enable

Command	uldp {enable disable}
parameter	-
default	By default ULDP is not configured.
Mode	Global Configuration Mode and Port Configuration Mode.
Usage Guide	<p>ULDP can be configured for the ports only if ULDP is enabled globally. If ULDP is enabled globally, it will be effect for all the existing fiber ports. For copper ports and fiber ports which are available after ULDP is enabled, this command should be issued in the port configuration mode to make ULDP be effect.</p>

<hr/>	
Example	Enable ULDP in global configuration mode. Switch(config)#uldp enable
<hr/>	
<h2>uldp hello-interval</h2>	
Command	uldp hello-interval <integer> no uldap hello-interval
parameter	<i>integer</i> The interval for the Hello messages, with its value limited between 5 and 100 seconds, 10 seconds by default.
default	10 seconds by default.
Mode	Global Configuration Mode.
Usage Guide	Interval for hello messages can be configured only if ULDP is enabled globally, its value limited between 5 and 100 seconds.
Example	To configure the interval of Hello messages to be 12 seconds. Switch(config)#uldp hello-interval 12

<hr/>	
<h2>uldp manual-shutdown</h2>	
Command	uldp manual-shutdown no uldap manual-shutdown
parameter	-
default	Auto mode.
Mode	Global Configuration Mode
Usage Guide	This command can be issued only if ULDP has been enabled globally
Example	To enable manual shutdown globally. Switch(config)#uldp manual-shutdown

<hr/>	
<h2>uldp recovery-time</h2>	
Command	uldp recovery-time<integer> no uldap recovery-time
<hr/>	

parameter	<i>integer</i> the time out value for the ULDP recovery timer. Its value is limited between 30 and 86400 seconds.
default	0 is set by default which means the recovery is disabled.
Mode	Global Configuration Mode.
Usage Guide	If an interface is shutdown by ULDP, and the recovery timer times out, the interface will be reset automatically. If the recovery timer is set to 0, the interface will not be reset.
Example	To set the recovery timer to be 600 seconds. Switch(config)#uldp recovery-time 600

uldp reset

Command	uldp reset
parameter	-
default	-
Mode	Globally Configuration Mode and Port Configuration Mode.
Usage Guide	This command can only be effect only if the specified interface is disabled by ULDP.
Example	To reset all the port which are disabled by ULDP. Switch(config)#uldp reset

show uldp

Command	show uldp [interface ethernet<interface-name>]
parameter	<i>interface-name</i> is the interface name.
default	-
Mode	Admin and Configuration Mode.
Usage Guide	If no parameters are appended, the global ULDP information will be displayed. If the interface name is specified, information about the interface and its neighbors will be displayed along with the global information.
Example	To display the global ULDP information. Switch(config)#show uldp uldp enable


```

uldp hello interval is          10
uldp shut down mode is         AUTO
uldp global work mode is        NORMAL
the total number of the port is 4

```

PortName	PhyLink	LineProto	WorkMode	PortState	NeighborNum
Ethernet1/0/25	UP	DOWN	NORMAL	INACTIVE	0
Ethernet1/0/26	UP	DOWN	NORMAL	INACTIVE	0
Ethernet1/0/27	UP	DOWN	NORMAL	INACTIVE	0
Ethernet1/0/28	UP	DOWN	NORMAL	INACTIVE	0

5.Commands for LLDP Function

clear lldp remote-table

Command	clear lldp remote-table
parameter	-
default	Do not clear the entries.
Mode	Port Configuration Mode
Usage Guide	Clear the Remote table entries on this port.
Example	Clear the Remote table entries on this port. Switch(Config-If-Ethernet 1/0/1)# clear lldp remote-table

lldp enable

Command	lldp {enable disable}
parameter	-
default	Disable LLDP function.
Mode	Global Mode
Usage Guide	If LLDP function is globally enabled, it will be enabled on every port.
Example	Enable LLDP function on the switch. Switch(config)#lldp enable

lldp enable (port)

Command	lldp {enable disable}
parameter	-
default	Default Open
Mode	Port Configuration Mode.
Usage Guide	When LLDP is globally enabled, it will be enabled on every port, the switch on a port is used to disable this function when it is unnecessary on the port.
Example	Disable LLDP function of port on the port ethernet 1/0/5 of the switch. Switch(config)#in ethernet 1/0/5 Switch(Config-If-Ethernet1/0/5)#lldp disable

lldp management-address tlv

Command	lldp management-address tlv [A.B.C.D] no lldp management-address tlv
parameter	A.B.C.D it is the optional parameter, and it is the management address that user appoints for the port, it must be the unicast IPv4 address
default	Disable
Mode	Port Mode
Usage Guide	User can choose the feat management IPv4 address according to the configuration. If user appointed the management address when enable the function, this address will be used to send the management address TLV; if user does not appoint the management address, choose the IPv4 address from the VLAN layer3 as the management address to send the management address TLV. When the address is not appointed, if there is no feat address, the management address TLV information will not be sent.
Example	Enable the management address TLV function of ethernet 1/0/1 and appoint the address. Switch1(Config-If-Ethernet1/0/1)# lldp management-address tlv 192.168.24.32

lldp mode

Command	lldp mode <send receive both disable>
---------	---------------------------------------------

parameter	<table> <tr> <td>send</td><td>Configure the LLDP function as only being able to send messages.</td></tr> <tr> <td>receive</td><td>Configure the LLDP function as only being able to receive messages.</td></tr> <tr> <td>both</td><td>Configure the LLDP function as being able to both send and receive messages.</td></tr> <tr> <td>disable</td><td>Configure the LLDP function as not being able to send or receive messages.</td></tr> </table>	send	Configure the LLDP function as only being able to send messages.	receive	Configure the LLDP function as only being able to receive messages.	both	Configure the LLDP function as being able to both send and receive messages.	disable	Configure the LLDP function as not being able to send or receive messages.
send	Configure the LLDP function as only being able to send messages.								
receive	Configure the LLDP function as only being able to receive messages.								
both	Configure the LLDP function as being able to both send and receive messages.								
disable	Configure the LLDP function as not being able to send or receive messages.								
default	The operating state of the port is “both”.								
Mode	Port Configuration Mode.								
Usage Guide	Choose the operating state of the lldp Agent on the port.								
Example	Configure the state of port ethernet 1/0/5 of the switch as “receive”. Switch(config)#in ethernet 1/0/5 Switch(Config-If-Ethernet1/0/5)#lldp mode receive								

lldp msgTxHold

Command	lldp msgTxHold <value> no lldp msgTxHold
parameter	<i>value</i> is the aging time multiplier, ranging from 2 to 10.
default	the value of the multiplier is 4 by default.
Mode	Global Mode.
Usage Guide	After configuring the multiplier, the aging time is defined as the product of the multiplier and the interval of sending messages, and its maximum value is 65535 seconds.
Example	Set the value of the aging time multiplier as 6. Switch(config)#lldp msgTxHold 6

lldp neighbors max-num

Command	lldp neighbors max-num <value> no lldp neighbors max-num
parameter	<i>value</i> is the configured number of entries, ranging from 5 to 500.

default	The maximum number of entries can be stored in Remote MIB is 100.
Mode	Port Configuration Mode.
Usage Guide	The maximum number of entries can be stored in Remote MIB.
Example	Set the Remote as 200 on port ethernet 1/0/5 of the switch. Switch(config)#in ethernet 1/0/5 Switch(Config-If-Ethernet1/0/5)# lldp neighbors max-num 200

Ildp notification interval

Command	lldp notification interval <seconds> no lldp notification interval
parameter	<i>seconds</i> is the time interval, ranging from 5 to 3600 seconds.
default	The time interval is 5 seconds.
Mode	Global Mode.
Usage Guide	After configuring the notification time interval, a “trap” message will be sent at the end of this time interval whenever the Remote Table changes.
Example	Set the time interval of sending Trap messages as 20 seconds. Switch(config)#lldp notification interval 20

Ildp tooManyNeighbors

Command	lldp tooManyNeighbors {discard delete}
parameter	discard discard the current message. delete Delete the message with the least TTL in the Remoter Table
default	Discard
Mode	Port Configuration Mode
Usage Guide	When the Remote MIB is full, Discard means to discard the received message; Delete means to the message with the least TTL in the Remoter Table.
Example	Set port ethernet 1/0/5 of the switch as delete. Switch(config)#in ethernet 1/0/5

Switch(Config-If-Ethernet1/0/5)#lldp tooManyNeighbors delete

lldp transmit delay

Command	lldp transmit delay <seconds> no lldp transmit delay
parameter	<i>seconds</i> is the time interval, ranging from 1 to 8192 seconds.
default	The interval is 2 seconds by default.
Mode	Global Mode
Usage Guide	When the messages are being sent continuously, a sending delay is set to prevent the Remote information from being updated repeatedly due to sending messages simultaneously.
Example	Set the delay of sending messages as 3 seconds. Switch(config)#lldp transmit delay 3

lldp transmit optional tlv

Command	lldp transmit optional tlv [portDesc] [sysName] [sysDesc] [sysCap] no lldp transmit optional tlv								
parameter	<table><tr><td>portDesc</td><td>the description of the port</td></tr><tr><td>sysName</td><td>the system name</td></tr><tr><td>sysDesc</td><td>The description of the system</td></tr><tr><td>sysCap</td><td>the capability of the system</td></tr></table>	portDesc	the description of the port	sysName	the system name	sysDesc	The description of the system	sysCap	the capability of the system
portDesc	the description of the port								
sysName	the system name								
sysDesc	The description of the system								
sysCap	the capability of the system								
default	The messages carry no optional TLV by default								
Mode	Port Configuration Mode								
Usage Guide	When configuring the optional TLV, each TLV can only appear once in a message, portDesc optional TLV represents the name of local port; sysName optional TLV represents the name of local system; sysDesc optional TLV represents the description of local system; sysCap optional TLV represents the capability of local system.								
Example	Configure that port ethernet 1/0/5 of the switch carries portDesc and sysCap TLV. Switch(config)#in ethernet 1/0/5 Switch(Config-If-Ethernet1/0/5)# lldp transmit optional tlv portDesc sysCap								

Ildp trap

Command	ldp trap <enable disable>
parameter	-
default	The Trap function is disabled on the specified port by default
Mode	Port Configuration Mode
Usage Guide	The function of sending Trap messages is enabled on the port.
Example	Enable the Trap function on port ethernet 1/0/5 of the switch. Switch(config)#in ethernet1/0/5 Switch(Config-If-Ethernet1/0/5)#ldp trap enable

Ildp tx-interval

Command	ldp tx-interval <integer> no ldp tx-interval
parameter	<i>integer</i> is the interval of sending updating messages, ranging from 5 to 32768 seconds.
default	30s
Mode	Global Mode
Usage Guide	<p>After configuring the interval of sending messages, LLDP messages can only be received after a period as long as configured. The interval should be less than or equal with half of aging time, for a too long interval will cause the state of being aged and reconstruction happen too often; while a too short interval will increase the flow of the network and decrease the bandwidth of the port. The value of the aging time of messages is the product of the multiplier and the interval of sending messages. The maximum aging time is 65535 seconds.</p> <p>When tx-interval is the default value and transmit delay is configured via some commands, tx-interval will become four times of the latter, instead of the default 40.</p>
Example	Set the interval of sending messages as 40 seconds. Switch(config)#ldp tx-interval 40

show debugging lldp

Command	show debugging lldp
parameter	-
default	-
Mode	Admin and Configuration Mode
Usage Guide	With show debugging lldp, all ports with lldp debug enabled will be displayed.
Example	<p>Display all ports with lldp debug enabled.</p> <p>Switch(config)#show debugging lldp</p> <p>=====BEGINNING OF LLDP DEBUG SETTINGS=====</p> <p>debug lldp packets interface Ethernet1/0/1</p> <p>=====END OF DEBUG SETTINGS=====</p>

show lldp

Command	show lldp
parameter	-
default	Do not display the configuration information of global LLDP.
Mode	Admin Mode, Global Mode.
Usage Guide	Users can check all the configuration information of global LLDP by using “show lldp”.
Example	<p>Check the configuration information of global LLDP after it is enabled on the switch.</p> <p>Switch(config)#show lldp</p> <p>-----LLDP GLOBAL INFORMATIONS-----</p> <p>LLDP has been enabled globally.</p> <p>LLDP enabled port : Ethernet1/0/1 Ethernet1/0/7</p> <p>LLDP interval :30</p> <p>LLDP txTTL :120</p> <p>LLDP NotificationInterval :5</p> <p>LLDP txDelay :2</p> <p>LLDP-MED FastStart Repeat Count :4</p> <p>-----END-----</p>

show lldp interface ethernet

Command	show lldp interface ethernet <IFNAME>
parameter	<i>IFNAME</i> Interface name
default	Do not display the configuration information of LLDP on the port.
Mode	Admin Mode, Global Mode.
Usage Guide	Users can check the configuration information of LLDP on the port by using “show lldp interface ethernet XXX”.
Example	<p>Check the configuration information of LLDP on the port after LLDP is enabled on the switch.</p> <p>Switch (config-if-ethernet1/0/1)#show lldp int e 1/0/1</p> <p>Port name :Ethernet1/0/1 LLDP Agent Adminstatus : Both LLDP Operation TLV : default</p> <p>LLDP Management Address TLV status : unenable</p> <p>LLDP Trap Status : disable LLDP maxRemote :100 LLDP Overflow handle : discard LLDP interface remote status : Free</p> <p>lldp dot3 TLV:</p> <p>MED Optional TLV : default MED Trap Status:Disable MED TLV Transmit Status:Disable MED Fast Transmit Status:Disable</p> <p>*****</p>

show lldp neighbors interface ethernet

Command	show lldp neighbors interface ethernet < IFNAME >
parameter	<i>IFNAME</i> Interface name
default	Do not display the LLDP neighbor information of the port.
Mode	Admin Mode, Global Mode.
Usage Guide	Users can check the configuration information of LLDP on the port by using “show lldp interface ethernet XXX”.

Example	<p>Check the LLDP neighbor information of the port after LLDP is enabled on the port. Switch (config-if-ethernet1/0/1)#show lld nei int e 1/0/1</p> <p>Port name : Ethernet1/0/1 Port Remote Counter : 1 TimeMark :92 ChassisIdSubtype :4 ChassisId :00-e0-4c-00-00-00 PortIdSubtype :Local PortId :gi1</p> <p>Lldp Port Pvid TLV : Lldp port Pvid : 1</p> <p>*****</p>
----------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

show lldp traffic

Command	show lldp traffic
parameter	-
default	Do not display the statistics of LLDP data packets.
Mode	Admin Mode, Global Mode.
Usage Guide	Users can check the statistics of LLDP data packets by using “show lldp traffic”.

Example	Check the statistics of LLDP data packets after LLDP is enabled on the switch.					
	Switch(config)#show lldp traffic					
	PortName		Ageouts	FramesDiscarded	FramesInErrors	
	FramesIn	FramesOut	TLVsDiscarded	TLVsUnrecognized		
	-----	-----	-----	-----	-----	-----
	-----	-----				
	Ethernet1/0/1		0	0	0	43
	42	0		0		
	Ethernet1/0/7		0	0	0	0
	42	0		0		

6.Commands for Port Channel

interface port-channel

Command	interface port-channel <port-channel-number>	
parameter	<i>port-channel-number</i>	Port Channel Number
default	-	
Mode	Global Mode	
Usage Guide	Enable port channel configuration mode	
Example	Entering configuration mode for port-channel 1. Switch(config)#interface port-channel 1 Switch(Config-If-Port-Channel1)#	

lacp port-priority

Command	lacp port-priority <port-priority> no lacp port-priority	
parameter	<i>port-priority</i>	the port priority of LACP protocol, the range from 0 to 65535.
default	The default priority is 32768 by system.	
Mode	Port Mode.	
Usage Guide	Use this command to modify the port priority of LACP protocol, the no command restores the default value.	
Example	Set the port priority of LACP protocol. Switch(Config-If-Ethernet1/0/1)# lacp port-priority 30000	

lacp system-priority

Command	lacp system-priority <system-priority> no lacp system-priority	
parameter	<i>system-priority</i>	The system priority of LACP protocol, ranging from 0 to 65535.
default	The default priority is 32768.	
Mode	Global Mode	

Usage Guide	Use this command to modify the system priority of LACP protocol, the no command restores the default value.
Example	Set the system priority of LACP protocol. Switch(config)#lacp system-priority 30000

lacp timeout

Command	lacp timeout {short long} no lacp timeout
parameter	-
default	Long
Mode	Port Mode
Usage Guide	Set the timeout mode of LACP protocol.
Example	Set the timeout mode as short in LACP protocol. Switch(Config-If-Ethernet1/0/1)#lacp timeout short

load-balance

Command	load-balance {src-mac dst-mac dst-src-mac src-ip dst-ip dst-src-ip ingress-port dst-src-mac-ip} no load-balance	
parameter	src-mac	performs load-balance according to the source MAC
	dst-mac	performs load-balance according to the destination MAC
	dst-src-mac	performs load-balance according to the source and destination MAC
	src-ip	performs load-balance according to the source IP
	dst-ip	performs load-balance according to the destination IP
	dst-src-ip	performs load-balance according to the destination and source IP
	ingress-port	performs load-balance according to the destination and source mac and destination, source IP
	dst-src-mac-ip	performs load-balance according to the port of receive flow.
default	Perform load-balance according to the source MAC.	
Mode	Global mode.	
Usage Guide	Use port-channel to implement load-balance, user can configure the load-balance mode	

	according to the requirements. If the specific load-balance mode of the command line is different with the current load-balance mode of port-group, then modify the load-balance of port-group as the specific load-balance of command line; otherwise return a message to notice that the current mode is already configured.
Example	Set load-balance mode of port-group. Switch(config)# load-balance src-mac

port-group

Command	port-group <port-group-number> no port-group <port-group-number>
parameter	<i>port-group-number</i> is the group number of a port channel from 1 ~ 128.
default	There is no port-group
Mode	Global Mode
Usage Guide	it can create 16 port group at most
Example	Creating a port group. Switch(config)# port-group 1 Delete a port group. Switch(config)#no port-group 1

port-group mode

Command	port-group <port-group-number> mode {active passive on} no port-group								
parameter	<table> <tr> <td><i>port-group-number</i></td><td>is the group number of port channel, from 1 ~ 128</td></tr> <tr> <td>active</td><td>enables LACP on the port and sets it in Active mode</td></tr> <tr> <td>passive</td><td>enables LACP on the port and sets it in Passive mode</td></tr> <tr> <td>on</td><td>forces the port to join a port channel without enabling LACP.</td></tr> </table>	<i>port-group-number</i>	is the group number of port channel, from 1 ~ 128	active	enables LACP on the port and sets it in Active mode	passive	enables LACP on the port and sets it in Passive mode	on	forces the port to join a port channel without enabling LACP.
<i>port-group-number</i>	is the group number of port channel, from 1 ~ 128								
active	enables LACP on the port and sets it in Active mode								
passive	enables LACP on the port and sets it in Passive mode								
on	forces the port to join a port channel without enabling LACP.								
default	Switch ports do not belong to a port channel by default; LACP not enabled by default.								
Mode	Port Mode								
Usage Guide	Add a physical port to the port channel NO remove the specified port from the port channel								

Example	Under the Port Mode of Ethernet1/0/1, add current port to “port-group 1” in “active” mode. Switch(Config-If-Ethernet1/0/1)#port-group 1 mode active	
show port-group		
Command	show port-group [<i><port-group-number></i>] {brief detail }	
parameter	<i>port-group-number</i>	is the group number of port channel to be displayed, from 1 ~ 128
default	-	
Mode	All Configuration Mode	
Usage Guide	If the user does not input port-group-number, that means the information of all the existent port-group are showed; if the port channel corresponds to port-group-number parameter and is not exist, then print a error message, otherwise display the current port-channel information of the specified group number.	
Example	Display summary information for port-group 1 Switch#show port-group brief ID: port group number; Mode: port group mode such as on active or passive; Ports: different types of port number of a port group, the first is selected ports number, the second is standby ports number, and the third is unselected ports number.	

ID	Mode	Partner ID	Ports	Load-balance
1	active	0x0000,00-00-00-00-00-00	0,0,1	src-mac

7.Commands for MTU

Mtu

Command	mtu [<i><mtu-value></i>] no mtu	
parameter	<i>mtu-value</i>	the MTU value of frames that can be received, in byte, ranging from <1500-12270>. The corresponding frame size is <1518/1522-12288/12292>.

	Without setting is parameter, the allowed max frame size is 12288/12292.
default	MTU function not enabled by default
Mode	Global Mode
Usage Guide	Set switch of both ends mtu necessarily, or mtu frame will be dropped at the switch has not be set
Example	Enable the mtu function of the switch. Switch(config)#mtu

8.Commands for EFM OAM

clear ethernet-oam

Command	clear ethernet-oam [interface {ethernet } <IFNAME>]
parameter	<i>IFNAME</i> the name of the port needs to clear OAM statistic information
default	N/A
Mode	Admin mode
Usage Guide	N/A
Example	Clear the statistic information of OAM packets and link event on all ports. Switch(config)#clear ethernet-oam

ethernet-oam

Command	ethernet-oam no ethernet-oam
parameter	-
default	Disable
Mode	Port mode

Usage Guide

N/A

Example

Enable ethernet-oam of Ethernet 1/0/4
Switch(config)#interface ethernet 1/0/4
Switch(Config-If-Ethernet1/0/4)#ethernet-oam

ethernet-oam errored-frame threshold high

Command

ethernet-oam errored-frame threshold high {<high-frames> | none}
no ethernet-oam errored-frame threshold high

parameter

high-frames the high detection threshold of errored frame event, ranging from 2 to 4294967295.

none cancel the high threshold configuration.

default**none**

Mode

Port mode

Usage Guide

During the specific detection period, serious link event is induced if the number of errored frame is larger than or equal to the high threshold and the device notifies the peer by sending Information OAMPDU of which the value of Link Fault flag in Flags field is 1. Note that the high threshold can not be less than the low threshold

Example

Configure the high threshold of errored frame event on Ethernet 1/0/4 to be 3000.
Switch(Config-If-Ethernet1/0/4)#ethernet-oam errored-frame threshold high 3000

ethernet-oam errored-frame threshold low

Command

ethernet-oam errored-frame threshold low <low-frames>
no ethernet-oam errored-frame threshold low

parameter

low-frames the low detection threshold of errored frame event, ranging from 1 to 4294967295

default

1

Mode

Port mode

Usage Guide

During the specific detection period, errored frame event is induced if the number of errored frame is larger than or equal to the low threshold and the device notifies the peer by sending event notification OAMPDU. Note that the low threshold can not be larger than the high threshold.

<hr/>	
Example	Configure the low threshold of errored frame event on Ethernet 1/0/4 to 100. Switch(Config-If-Ethernet1/0/4)#ethernet-oam errored-frame threshold low 100
<hr/>	
ethernet-oam errored-frame window	
Command	ethernet-oam errored-frame window <seconds> no ethernet-oam errored-frame window
parameter	<i>seconds</i> is the time for counting the specified frame number, its range from 5 to 300, unit is 200ms
default	5
Mode	Port mode
Usage Guide	Detect the errored frame number of the port after the time of specific detection period. If the number of errored frame is larger than or equal to the threshold, bring the corresponding event and notify the peer through OAMPDU.
Example	Configure the detection period of errored frame event on port1/0/4 to be 20s. Switch(Config-If-Ethernet1/0/4)#ethernet-oam errored-frame window 100

ethernet-oam errored-frame-seconds threshold high

Command	ethernet-oam errored-frame-seconds threshold high {<high-seconds> none} no ethernet-oam errored-frame-seconds threshold high
parameter	<i>high-seconds</i> the high detection threshold of errored frame period event, ranging from 2 to 4294967295. none cancel the high threshold configuration.
default	none
Mode	Port mode
Usage Guide	During the specific detection period, serious link event is induced if the number of errored frame is larger than or equal to the high threshold and the device notifies the peer by sending Information OAMPDU of which the value of Link Fault flag in Flags field is 1. Note that the high threshold can not be less than the low threshold.
Example	Configure the high threshold of errored frame period event on port 1/0/4 to be 3000. Switch(Config-If-Ethernet1/0/4)#ethernet-oam errored-frame-seconds threshold high 3000

ethernet-oam errored-frame-seconds threshold Low

Command	ethernet-oam errored-frame-seconds threshold low <low-seconds> no ethernet-oam errored-frame-seconds threshold low	
parameter	<i>low-seconds</i>	the low detection threshold of errored frame seconds event, ranging from 1 to 65535 seconds.
default	1	
Mode	Port mode	
Usage Guide	During the specific detection period, errored frame period event is induced if the number of errored frame is larger than or equal to the low threshold and the device notifies the peer by event notification OAMPDU. Note that the low threshold should not be larger than the high threshold.	
Example	Configure the low threshold of errored frame period event on port 1/0/4 to be 100. Switch(Config-If-Ethernet1/0/4)#ethernet-oam errored-frame-seconds threshold low 100	

ethernet-oam errored-frame-seconds window

Command	ethernet-oam errored-frame-seconds window <seconds> no ethernet-oam errored-frame-seconds window	
parameter	<i>seconds</i>	is the time for counting the specified frame number, its range from 50 to 450, unit is 200ms.
default	300	
Mode	Port mode	
Usage Guide	Detect errored frame seconds of the port after the time of specific detection period. If the number of errored frame seconds is larger than or equal to the threshold, corresponding event is induced and the device notified the peer through OAMPDU.	
Example	Configure the detection period of errored frame seconds event on port 1/0/4 to be 120s. Switch(Config-If-Ethernet1/0/4)#ethernet-oam errored-frame-seconds window 600	

ethernet-oam errored-symbol-period threshold High

Command	ethernet-oam errored-symbol-period threshold high {< <i>high-symbols</i> > none } no ethernet-oam errored-symbol-period threshold high	
parameter	<i>high-symbols</i>	the high detection threshold of errored symbol event, ranging from 2 to 18446744073709551615 symbols.
	none	cancel the high threshold configuration.
default	none	
Mode	Port mode	
Usage Guide	During the specific detection period, serious link event is induced if the number of errored symbols is larger than or equal to the high threshold and the device notifies the peer by sending Information OAMPDU of which the value of Link Fault flag in Flags field is 1. Note that the high threshold should not be less than the low threshold.	
Example	Set the high threshold of errored symbol event on port 1/0/4 to none. Switch(Config-If-Ethernet1/0/4)#ethernet-oam errored-symbol-period threshold high none	

ethernet-oam errored-symbol-period threshold Low

Command	ethernet-oam errored-symbol-period threshold low < <i>low-symbols</i> > no ethernet-oam errored-symbol-period threshold low	
parameter	<i>low-symbols</i>	the low threshold of errored symbol event, ranging from 1 to 18446744073709551615 symbols.
default	1	
Mode	Port mode	
Usage Guide	During the specific detection period, errored symbol event is induced if the number of errored symbols is larger than or equal to the low threshold and the device notifies the peer by sending event notification OAMPDU. Note that the low threshold should not be larger than the high threshold.	

Example	Set the low threshold of errored symbol event on port 1/0/4 to be 5. Switch(Config-If-Ethernet1/0/4)#ethernet-oam errored-symbol-period threshold low 5	
ethernet-oam errored-symbol-period window		
Command	ethernet-oam errored-symbol-period window <seconds> no ethernet-oam errored-symbol-period window	
parameter	seconds	is the time for counting the specified frame number, its range from 5 to 300, unit is 200ms.
default	5	
Mode	Port mode	
Usage Guide	Detect errored symbols of the port after the time of specific detection period. If the number of errored symbols is larger than or equal to the threshold, corresponding event is induced and the device notified the peer through OAMPDU.	
Example	Set the detection period of errored symbol event on port 1/0/4 to be 2s. Switch(Config-If-Ethernet1/0/4)#ethernet-oam errored-symbol-period window 10	

ethernet-oam link-monitor

Command	ethernet-oam link-monitor no ethernet-oam link-monitor	
parameter	-	
default	Enable	
Mode	Port mode	
Usage Guide	Enable OAM to monitor local link errors. Generally link monitor is enabled when enabling OAM function of the port. When OAM link monitor is disabled, although local link error is not monitored, Event information OAMPDU from the peer is still normally received and processed.	
Example	Enable the link monitor of port 1/0/4. Switch(Config-If-Ethernet1/0/4)#ethernet-oam link-monitor	

ethernet-oam mode

Command	ethernet-oam mode {active passive} no ethernet-oam mode	
parameter	active	active mode
	passive	passive mode
default	active mode	
Mode	Port mode	
Usage Guide	At least one of the two connected OAM entities should be configured to active mode. Once OAM is enabled, the working mode of OAM cannot be changed and you need to disable OAM function if you have to change the working mode.	
Example	Set the mode of OAM function on ethernet 1/0/4 to passive mode. Switch(Config-If-Ethernet1/0/4)#ethernet-oam mode passive	

ethernet-oam period

Command	ethernet-oam period <seconds> no ethernet-oam mode	
parameter	<i>seconds</i>	sending period, ranging from 1 to 2 seconds.
default	1s	
Mode	Port mode	
Usage Guide	Use this command to configure the transmission interval of Information OAMPDU which keep OAM connection normally.	
Example	Set the transmission interval of Information OAMPDU for ethernet 1/0/4 to be 2s. Switch(Config-If-Ethernet1/0/4)# ethernet-oam period 2	

ethernet-oam remote-failure

Command	ethernet-oam remote-failure no ethernet-oam remote-failure
parameter	-
default	Enable
Mode	Port mode
Usage Guide	With remote failure indication is enabled, if critical-event or link fault event is occurred locally, it will notify the peer by sending Information OAMPDU, log the fault information and send SNMP trap warning. When the remote failure indication is disabled, although local critical-event or link fault event is not monitored, failure indication information from the peer is still normally received and processed.
Example	Enable remote failure indication of ethernet 1/0/4. Switch(Config-If-Ethernet1/0/4)#ethernet-oam remote-failure

ethernet-oam remote-loopback

Command	ethernet-oam remote-loopback no ethernet-oam remote-loopback
parameter	-
default	Disable
Mode	port mode
Usage Guide	Only OAM can send remote loopback reques in auto mode, the OAM work in passive mode can not send remote loopback; when remote OAM working in loopback mode, all packets except OAM PDU packets will back local port according to the same route (Notice: during OAM loopback, it can not communicate), administrator can check the link delay of loopback, shake and throughput capacity. It can do loopback configuration after create OAM link, if OAM link is broken during loopback, the loopback will be cancel automatically. The command mutex with ethernet-oam remote-loopback supported.
Example	Enable the remote OAM of port 1/0/4 to remote loopback mode. Switch(Config-If-Ethernet1/0/4)#ethernet-oam remote-loopback Normal forwarding will be suspended during the remote-loopback, are you sure to start remote-loopback? [Y/N]

ethernet-oam remote-loopback supported

Command	ethernet-oam remote-loopback supported no ethernet-oam remote-loopback supported
parameter	-
default	Disable
Mode	Port mode.
Usage Guide	The port that only enable loopback support function can receive OAM loopback reques and in loopback mode. So when enable remote and in OAM loopback, please ensure remote configured loopback support. The command mutex with ethernet-oam remote-loopback.
Example	Enable OAM loopback support function of ethernet 1/0/4 Switch(Config-If-Ethernet1/0/4)#ethernet-oam remote-loopback supported

ethernet-oam timeout

Command	ethernet-oam timeout <seconds> no ethernet-oam timeout
parameter	<i>seconds</i> the timeout ranging from 5 to 10 seconds.
default	5s
Mode	Port mode
Usage Guide	OAM connection will be disconnected if no OAMPDU is received after specified timeout.
Example	Set the timeout of OAM connection for ethernet 1/0/4 to be 6 seconds. Switch(Config-If-Ethernet1/0/4)#ethernet-oam timeout 6

show ethernet-oam

Command	show ethernet-oam [{local remote} interface {ethernet } <IFNAME>]		
parameter	IFNAME	the port that OAM connection information will be shown	
default	N/A.		
Mode	Admin mode		
Usage Guide	N/A.		
Example	<p>Show overview information of Ethernet OAM connection.</p> <p>Switch#show ethernet-oam</p> <p>Switch#show ethernet-oam</p> <p>Capability codes: L - Link Monitor, R - Remote Loopback </p>		

show ethernet-oam events

Command	show ethernet-oam events {local remote} [interface {ethernet } <IFNAME>]	
parameter	<i>IFNAME</i>	the port that the statistic information of OAM link events needs to be shown
default	N/A.	
Mode	Admin mode	
Usage Guide	N/A.	
Example	<p>Show the statistic information of link events on Ethernet 1/0/1.</p> <p>Switch#show ethernet-oam events local interface 1/0/1</p> <p>ethernet1/0/1 link-events:</p> <p>OAM_local_errored-symbol-period-events:</p> <p>-----</p>	

```

event time stamp: 3539 errored symbol window(200ms): 5
errored symbol low threshold: 1 errored symbol high threshold: none
errored symbol: 1200120 errored running total: 2302512542
event running total: 232
OAM_local_errored-frame-period-events:

```

```

-----
event time stamp: 3539 errored frame window(200ms): 50
errored frame low threshold: 1 errored frame high threshold: none
errored frame: 1200120 errored running total: 2302512542
event running total: 52
OAM_local_errored-frame-events:

```

```

-----
event time stamp: 3539 errored frame window(200ms): 5
errored frame low threshold: 1 errored frame high threshold: none
errored frame: 1200120 errored running total: 2302512542
event running total: 75
OAM_local_errored-frame-seconds-summary-events:

```

```

-----
event time stamp: 3520 errored frame seconds summary window(200ms): 300
errored frame low threshold: 1 errored frame high threshold: none
errored frame: 1200120 errored running total: 2302512542
event running total: 232
OAM_local_link-fault: 0
OAM_local_dying gasp: 0
OAM_local_critical event: 0

```

show ethernet-oam link-events-configuration

Command	show ethernet-oam link-events-configuration [interface {ethernet } <IFNAME>]	
parameter	<i>IFNAME</i>	the port that the statistic information of OAM link events needs to be shown
default	N/A.	
Mode	Admin mode	
Usage Guide	N/A.	
Example	Show configuration of link events on ethernet 1/0/1. Switch#show ethernet-oam link-events-configuration interface ethernet 1/0/1 Ethernet1/0/1 link-monitor configuration:	

event high-threshold low-threshold window(200ms)

Err-symbol-Period none 1 2

Err-frame-Period none 1 10

Err-frame none 2 5

Err-frame-second-summary none 2 600

show ethernet-oam loopback status

Command	show ethernet-oam loopback status [interface {ethernet } <IFNAME>]	
parameter	IFNAME	means display the port of OAM loopback status information
default	-	
Mode	Admin mode	
Usage Guide	Displays the loopback status OAM all or specified ports of the switch	
Example	Display the OAM loopback status of all port. Switch(config)#show ethernet-oam loopback status OAM Loopback Status: Ethernet1/0/1: disable Ethernet1/0/2: disable Ethernet1/0/3: disable	

9.Commands for PORT SECURITY

clear port-security

Command	clear port-security {all configured dynamic sticky} [[address <mac-addr> interface <interface-id>] [vlan <vlan-id>]]	
parameter	all	All secure MAC entries on the interfaces
	configured	The configured secure MAC
	dynamic	The dynamic secure MAC learnt by the interface
	sticky	The secure MAC of sticky
	mac-addr	The specified secure MAC address
	interface-id	The secure MAC entries of the specified interface
	vlan-id	The specified VLAN

default	-
Mode	Admin mode
Usage Guide	Clear secure MACs on the interface
Example	Clear all secure MACs on the interface Switch#clear port-security all

show port-security

Command	show port-security [interface <interface-id>] [address vlan]	
parameter	<i>interface-id</i>	Show port-security configuration of the interface
	address	Show the secure address of the interface
	vlan	Show the maximum number of each VLAN configured on trunk/hybrid interface.
default	-	
Mode	Any modes	
Usage Guide	Display port security configuration.	
Example	Show all secure MACs on the interfaces. Switch# show port-security address interface ethernet 1/0/1	

switchport port-security

Command	switchport port-security no switchport port-security	
parameter	-	
default	Disable	
Mode	Port mode	
Usage Guide	Configure port security for the interface no disable port security with commands	
Example	Enable port-security on the interface. Switch(config-if- ethernet1/0/1)#switchport port-security	

switchport port-security mac-address

Command	switchport port-security mac-address <mac-address> [vlan <vlan-id>] no switchport port-security mac-address <mac-address> [vlan <vlan-id>]	
parameter	<i>mac-address</i> Configure the specified MAC address as the static secure MAC. <i>vlan-id</i> The specified VLAN of the MAC address, it only takes effect on trunk and hybrid interfaces.	
default	No secure MAC is bound by the interface.	
Mode	Port mode	
Usage Guide	When configuring the static secure MAC, pay attention to the number of the current secure MAC whether exceed the maximum MAC limit allowed by the interface. If exceeding the maximum MAC limit, it will result in violation operation.	
Example	Configure the secure MAC address on the interface Switch (config-if- ethernet1/0/1)# switchport port-security mac-address 00-00-00-00-00-01	

switchport port-security maximum

Command	switchport port-security maximum <value> [vlan <vlan-list>] no switchport port-security maximum <value> [vlan <vlan-list>]	
parameter	<i>value</i> Configure the maximum number of the secure MAC allowed by the interface, its range between 1 and 128. It is determined by the maximum MAC number of the device <i>vlan-list</i> Configure the maximum value for the specified VLAN, it only takes effect on trunk and hybrid interfaces.	
default	After enabling port-security, if there is no other configuration, the maximum number of the secure MAC is 1 on the interface. The interface number in VLAN is no limit by default	
Mode	Port mode	
Usage Guide	Pay attention to the coupling relation about the number between the interface and VLAN, set the maximum number configured by the interface as the standard firstly.	
Example	Configure the maximum number of the secure MAC on the interface. Switch(config-if- ethernet1/0/1)# switchport port-security maximum 100	

switchport port-security violation

Command	switchport port-security violation {protect recovery restrict shutdown} no switchport port-security violation	
parameter	protect	Protect mode, it will trigger the action that do not learn the new MAC, drop the package and do not send the warning
	recovery	After triggering the violation action of the port, the mac learning function can be recovered
	restrict	Restrict mode, it will trigger the action that do not learn the new MAC, drop the package, send snmp trap and record the configuration in syslog.
	shutdown	Shutdown mode is the default mode. Under this condition, the interface is disabled directly, send snmp trap and record the configuration in syslog.
default	shutdown	
Mode	Port mode	
Usage Guide	When exceeding the maximum number of the configured MAC addresses, MAC address accessing the interface does not belongs to this interface in MAC address table or a MAC address is configured to several interfaces in same VLAN, both of them will violate the security of the MAC address.	
Example	Configure violation mode as protect for the interface. Switch(config-if-ethernet1/0/1)#switchport port-security violation protect	

10.Commands for DDM

clear transceiver threshold-violation

Command	clear transceiver threshold-violation [interface ethernet <interface-list>]	
parameter	interface-list	The interface list that the threshold violation of the transceiver monitoring needs to be cleared.
default	-	
Mode	Admin mode	
Usage Guide	Clear threshold violations monitored by transceivers	
Example	Clear the threshold violation of the transceiver monitoring on port 21, 25, 26, 28. Switch#clear transceiver threshold-violation interface ethernet 1/0/21;25-26;28	

show transceiver

Command	show transceiver [interface ethernet <interface-list>] [detail]					
parameter	interface-list	The interface list that the monitoring of the transceiver needs to be shown.				
	detail	Show the detailed monitoring of the transceiver.				
default	-					
Mode	User mode, admin mode and global mode					
Usage Guide	Displays the transceiver's detailed monitoring information.					
Example	Show the brief DDM information of all ports. Switch#show transceiver					
	Interface	Temp (°C)	Voltage (V)	Bias (mA)	RX Power (dBm)	TX Power (dBm)
	1/0/25	33	3.31	6.11	-30.54(A-)	-6.01
	1/0/26	33	5.00 (W+)	6.11	-20.54(W-)	-6.02

show transceiver threshold-violation

Command	show transceiver threshold-violation [interface ethernet <interface-list>]	
parameter	interface-list	The interface list that the transceiver monitoring needs to be shown.
default	-	
Mode	Admin mode and global mode	
Usage Guide	Show the transceiver monitoring	
Example	Show the transceiver monitoring Switch(config)#show transceiver threshold-violation interface ethernet 1/0/25-26 Ethernet 1/0/25 transceiver threshold-violation information: Transceiver monitor is enabled. Monitor interval is set to 30 minutes. The current time is Jan 02 12:30:50 2010. The last threshold-violation time is Jan 01 1:30:50 2010. Brief alarm information: RX loss of signal	

RX power low

Detail diagnostic and threshold information:

	Diagnostic Threshold				
	Realtime Value	High Alarm	Low Alarm	High Warn	Low Warn
	-----	-----	-----	-----	-----
Temperature (°C)	33	70	0	70	0
Voltage (V)	7.31	10.00	0.00	5.00	0.00
Bias current (mA)	3.11	10.30	0.00	5.00	0.00
RX Power (dBm)	-30.54(A-)	9.00	-25.00 (-34)	9.00	-25.00
TX Power (dBm)	-1.01	9.00	-12.05	9.00	-10.00

Ethernet 1/0/26 transceiver threshold-violation information:

Transceiver monitor is disabled. Monitor interval is set to 30 minutes.

The last threshold-violation doesn't exist.

transceiver-monitoring

Command	transceiver-monitoring {enable disable}
parameter	-
default	<i>Disable</i>
Mode	<i>Port mode</i>
Usage Guide	Enable/disable transceiver monitoring
Example	Enable the transceiver monitoring of ethernet1/0/1. Switch(config-if-ethernet1/0/1)#transceiver-monitoring enable

transceiver-monitoring interval

Command	transceiver-monitoring interval <minutes> no transceiver-monitoring interval
parameter	minutes The interval of the transceiver monitoring needs to be set.
default	15 minutes
Mode	Global mode

Usage Guide	sets the interval for transceiver monitoring. No command sets the interval to the default interval of 15 minutes.
Example	Set the interval of the transceiver monitoring as 1 minute. Switch(config)#transceiver-monitoring interval 1

transceiver threshold

Command	transceiver threshold {default {temperature voltage bias rx-power tx-power} {high-alarm low-alarm high-warn low-warn} {<value> default}}	
parameter	default	Restore the threshold as the default threshold set by the manufacturer. If the monitoring index is not specified, restore all thresholds, if the monitoring index is specified, restore the corresponding threshold only.
	temperature	The monitoring index—temperature
	voltage	The monitoring index—voltage
	bias	The monitoring index—bias current
	rx-power	The monitoring index—receiving power
	tx-power	The monitoring index—sending power
	high-alarm	High-alarm of the monitoring index, namely there is alarm with A+ if exceeding the threshold.
	low-alarm	Low-alarm of the monitoring index, namely there is alarm with Aif exceeding the threshold.
	high-warn	High-warn of the monitoring index, namely there is warning with W+ if exceeding the threshold.
	low-warn	Low-warn of the monitoring index, namely there is warning with W- if exceeding the threshold.
default	The threshold is set by the manufacturer	
Mode	Port mode	
Usage Guide	<p>The range of the threshold parameters is shown for each monitoring index in the following :</p> <p>Temperature: -128.00~128.00 °C</p> <p>Voltage: 0.00~7.00 V</p> <p>Bias current: 0.00~140.00 mA</p> <p>x-power: -50.00~9.00 dBm</p> <p>tx-power: -50.00~9.00 dBm</p> <p>The maximum length of the threshold parameter configured by the user is 20 bits.</p> <p>After the user configured a parameter threshold, the threshold set by the manufacturer will</p>	

be labeled with the bracket when showing the threshold, and decide whether give an alarm according to the user's configuration.

Example

Configure tx-power threshold of the fiber module, the low-warn threshold is configured as -12 on ethernet1/0/1.
Switch(config-if-ethernet1/0/1)#transceiver threshold tx-power low-warn -12

11.Commands for LLDP-MED

civic location

Command

civic location {dhcp server | switch | endpointDev} <country-code>
no civic location

parameter

dhcp server	Set device type to be DHCP server
switch	Set device type to be Switch
endpointDev	Set device type to be LLDP-MED Endpoint
<i>country-code</i>	Set country code which consist of 2 letters, such as DE or US, it should accord the country code of ISO 3166 standard.

default

No location with Civic Address LCI format is configured on the port.

Mode

Port mode

Usage Guide

Configure device type and country code of the location with Civic Address LCI format and enter Civic Address LCI address mode to configure the more detailed location.

Example

Configure device type as switch and country code as US for the location with Civic Address LCI format on Ethernet 19.
Switch(Config-If-Ethernet1/0/19)# civic location switch US
Switch(Med-Civic)#

{description-language | province-state | city | county | street | locationNum | location | floor | room | postal | otherInfo}

Command	{description-language province-state city county street locationNum location floor room postal otherInfo} <address>	
	no {description-language province-state city county street locationNum location floor room postal otherInfo}	
parameter	description-language	language for describing location, such as ‘English’
	province-state	state, canton, region, province prefecture, and so on, such as ‘clara’
	city	city, such as ‘New York’
	county	county, parish, such as ‘santa clara’
	street	street, such as ‘1301 Shoreway Road’
	locationNum	house number, such as ‘9’
	location	name and occupant of a location, such as ‘Carrillo's Holiday Market’
	floor	floor number, such as ‘13’
	room	room number, such as ‘1308’
	postal	postal/zip code, such as ‘10027-1234’
	otherInfo	Additional location information, such as ‘South Wing’
	address	detailed address information, it cannot exceed 250 characters
default	No detailed information of the location with Civic Address LCI is configured on the port.	
Mode	Civic Address LCI address mode	
Usage Guide	With this command, configure the detailed information of the location with Civic Address LCI on the port, it is able to configure 10 kinds of address types at most.	
Example	Configure the detailed location information in Civic Address LCI address mode. Switch(Med-Civic)# city Beijing Switch(Med-Civic)# street shangdi	

ecs location

Command	ecs location <tel-number> no ecs location	
parameter	<i>tel-number</i>	location characters with ECS ELIN format, such as emergent telephone number, it is character string with the length between 10 and 25.

default	No location with ECS ELIN format is configured.
Mode	Port mode
Usage Guide	Length range of the location character string between 10 and 25 with ECS ELIN format.
Example	Configure the location of ECS ELIN format on port 19. Switch(Config-If-Ethernet1/0/19)# ecs location 880-445-3381

lldp med fast count

Command	lldp med fast count <value> no lldp med fast count	
parameter	<i>value</i>	The number of sending the packets fast, its range from 1 to 10, unit is entries.
default	4	
Mode	Global mode	
Usage Guide	With this command, set the number for sending the packets fast.	
Example	Set the number of quick packages to 5 Switch(config)#lldp med fast count 5	

lldp med trap

Command	lldp med trap {enable disable}	
parameter	-	
default	Disable	
Mode	Port mode	
Usage Guide	Enable or disable LLDP-MED TRAP of the port.	
Example	Enable LLDP-MED TRAP of the port 19. Switch(Config-If-Ethernet1/0/19)# lldp med trap enable	

lldp transmit med tlv all

Command	lldp transmit med tlv all no lldp transmit med tlv all
parameter	-
default	Port does not enable the function for Sending LLDP-MED TLV.
Mode	Port mode
Usage Guide	After configuring this command, if the port is able to send LLDP-MED TLV, the sent LLDP packets with LLDP-MED TLV supported by all switches. However, LLDP packets sent by the port without any LLDP-MED TLV after the switch configured the corresponding no command.
Example	Port 19 enables the function for sending LLDP-MED TLV. Switch(Config-If-Ethernet1/0/19)# lldp transmit med tlv all

lldp transmit med tlv capability

Command	lldp transmit med tlv capability no lldp transmit med tlv capability
parameter	-
default	The function is disabled for sending LLDP-MED Capability TLV.
Mode	Port mode
Usage Guide	After configuring this command, if the port is able to send LLDP-MED TLV, the sent LLDP packets with LLDP-MED Capability TLV. However, LLDP packets sent by the port without LLDP-MED Capability TLV after the switch configured the corresponding no command. Note: LLDP-MED Capability TLV is the important LLDP-MED TLV, if do not configure the port to send LLDP-MED Capability TLV firstly, other LLDP-MED TLV will not be sent.
Example	Port 19 enables the function for sending LLDP-MED Capability TLV. Switch(Config-If-Ethernet1/0/19)# lldp transmit med tlv capability

lldp transmit med tlv extendPoe

Command	lldp transmit med tlv extendPoe no lldp transmit med tlv extendPoe
parameter	-
default	The function is disabled for sending LLDP-MED Extended Power-Via-MDI TLV.

Mode	Port mode
Usage Guide	Configure specified port to send LLDP-MED extended power supply - Via-MDITLV. No command disables the function.
Example	Port 19 enables the function for sending LLDP-MED Extended Power-Via-MDI TLV. Switch(Config-If-Ethernet1/0/19)# lldp transmit med tlv extendPoe

lldp transmit med tlv location

Command	lldp transmit med tlv location no lldp transmit med tlv location
parameter	-
default	Disable
Mode	Port Mode
Usage Guide	Configure the specified port to send LLDP-MED Location Identification TLV. After configured this command, if the port has the capability of sending LLDP-MED TLV, the LLDP packets sent from the port will include LLDP-MED Location Identification TLV. Otherwise, the LLDP packets sent from the port will not include LLDP-MED Location Identification TLV by the no command even if the port has the capability of sending LLDP-MED TLV. Notice: Before configuring this function, the capability of sending LLDP-MED Capability TLV must be configured. If the device does not support POE or the POE function of the port is disabled by the command, this TLV will not be sent.
Example	Enable the port 19 to send LLDP-MED Location Identification TLV. Switch(Config-If-Ethernet1/0/19)#lldp transmit med tlv location

lldp transmit med tlv inventory

Command	lldp transmit med tlv inventory no lldp transmit med tlv inventory
parameter	-
default	The function is disabled for sending LLDP-MED Inventory Management TLVs
Mode	Port mode
Usage Guide	After configuring this command, if the port is able to send LLDP-MED TLV, LLDP packets with LLDP-MED Inventory Management TLVs sent by the port. However, LLDP packets without LLDP-MED Inventory Management TLVs sent by the port after the switch configured the corresponding no command. Note: LLDP-MED Capability TLV sent

by the port must be configured before sending LLDP-MED Inventory Management TLVs, or else the configuration cannot be successful.

Example

Port 19 enables the function for sending LLDP-MED Inventory Management TLVs.
Switch(Config-If-Ethernet1/0/19)# lldp transmit med tlv inventory

lldp transmit med tlv networkPolicy

Command

lldp transmit med tlv networkPolicy
no lldp transmit med tlv networkPolicy

parameter

-

default

The function is disabled for sending LLDP-MED Network Policy TLV.

Mode

Port mode

Usage Guide

After configuring this command, if the port is able to send LLDP-MED TLV, LLDP packets with LLDP-MED Network Policy TLV sent by the port. However, LLDP packets without LLDP-MED Network Policy TLV sent by the port after the switch configured the corresponding no command. Note: LLDP-MED Capability TLV sent by the port must be configured before sending LLDP-MED Network Policy TLV, or else the configuration cannot be successful.

Example

Port 19 enables the function for sending LLDP-MED Network Policy TLV.
Switch(Config-If-Ethernet1/0/19)# lldp transmit med tlv networkPolicy

network policy

Command

network policy {voice | voice-signaling | guest-voice | guest-voice-signaling | softphone-voice | video-conferencing | streaming-video | video-signaling} [status {enable | disable}] [tag {tagged | untagged}] [vid {<vlan-id> | dot1p}] [cos <cos-value>] [dscp <dscp-value>]

no network policy {voice | voice-signaling | guest-voice | guest-voice-signaling | softphone-voice | video-conferencing | streaming-video | video-signaling}

parameter

status	Whether the network policy is usable.
enable	Network Policy of the specified application type has been defined, enable is the default value of the network policy.
disable	Network Policy of the specified application type has been defined, disable is the default value of the network policy.

tag	Configure the specified application to uses tagged or untagged VLAN method
tagged	Configure the flow of the specified application to use the tagged vlan method, here, the fields (such as VLAN ID, Layer2 priority and DSCP value) are take effect
untagged	Configure the flow without tag for the specified application, the fields (such as VLAN ID, Layer2 priority) are ignored, only DSCP value field takes effect. Untagged is the default value of VLAN method.
vid	Configure VLAN ID that the specified application belongs to
<i>vlan-id</i>	Configure the value of VLAN ID, its range from 1 to 4094
dot1p	Configure the specified application to tag the flow by using 802.1p priority, at the same time, use vlan 0 to load the flow.
cos	Configure the priority of Ethernet frame for VLAN
<i>cos-value</i>	Configure the value of Ethernet frame priority for VLAN, its range from 0 to 7, the default value is 5.
dscp	Configure DSCP of VLAN.
<i>dscp-value</i>	DSCP value input by the user, its range from 0 to 63, the default value is 46
default	No network policy is configured on the port.
Mode	Port mode
Usage Guide	User is able to configure the network policy of many kinds on a port, but their application types cannot repeat, and a kind of network policy corresponds to a LLDP-MED network policy TLV. If user configures multi-policy for a port, it will send multi-LLDP-MED network policy TLV to a LLDP packet. If user does not configure any network policy, no LLDP-MED network policy TLV is sent to LLDP packet.
Example	Configure the network policy with the application type of voice on port 19. Switch(Config-If-Ethernet1/0/19)# network policy voice tag tagged vid 2 cos 6 dscp 23

show lldp

Command	show lldp
parameter	-
default	-
Mode	Admin mode
Usage Guide	Show the global LLDP and LLDP-MED configuration
Example	Show the global LLDP and LLDP-MED configuration Switch#show lldp

```

-----LLDP GLOBAL INFORMATION-----
LLDP has been enabled globally.
LLDP enabled port : Ethernet1/0/19
LLDP interval :5
LLDP txTTL :20
LLDP NotificationInterval :5
LLDP txDelay :1
LLDP-MED FastStart Repeat Count :4
-----END-----

```

show lldp [interface ethernet <IFNAME>]

Command	show lldp [interface ethernet <IFNAME>]	
parameter	IFNAME	Port name
default	-	
Mode	Admin mode	
Usage Guide	Show LLDP and LLDP-MED configurations on the current port.	
Example	<p>Show LLDP and LLDP-MED configuration of the port 19.</p> <p>Switch#show lldp interface ethernet 1/0/19</p> <p>Port name :Ethernet1/0/19</p> <p>LLDP Agent Adminstatus : Both</p> <p>LLDP Operation TLV : default</p> <p>LLDP Trap Status : disable</p> <p>LLDP maxRemote :100</p> <p>LLDP Overflow handle : discard</p> <p>LLDP interface remote status : Free</p> <p>MED Optional TLV : capabilities networkPolicy location power inventory</p> <p>MED Trap Status:Enable</p> <p>MED TLV Transmit Status:Disable</p> <p>MED Fast Transmit Status:Disable</p>	

show lldp neighbors

Command	show lldp neighbors [interface ethernet <IFNAME>]	
parameter	IFNAME	Port number; for example :1/0/1

default	-
Mode	Admin mode
Usage Guide	With this command, checking LLDP and LLDP-MED information of the neighbors after the port received LLDP packets sent by the neighbors.

Example	Show the neighbor information on port 1. Switch #show lldp neighbors interface ethernet 1/0/1
----------------	--------------------------------------------------------------------------------------------------

```

Port name : Ethernet1/0/1
Port Remote Counter : 1
TimeMark :20
ChassisIdSubtype :4
ChassisId :00-03-0f-00-00-02
PortIdSubtype :Local
PortId :3
PortDesc :Ethernet1/0/1
SysName :switch
SysDesc :switch Device, Compiled Feb 12 17:39:53 2011
SoftWare Version 6.2.30.0
BootRom Version 4.0.1
HardWare Version
Device serial number
Copyright (C) 2001-2011 by Vendor.
All rights reserved

```

show lldp traffic

Command	show lldp traffic
parameter	-
default	-
Mode	Admin Mode.
Usage Guide	After the port received the LLDP packets from the neighbor, this command can be used to view the statistics of the sent and received packets of LLDP and LLDP-MED.
Example	View the statistics of the sent and received packets after the LLDP function is enabled. Switch(config)#show lldp traffic <pre> PortName Ageouts FramesDiscarded FramesInErrors FramesIn FramesOut TLVsDiscarded TLVsUnrecognized ----- Ethernet1/0/1 0 0 0 0 7 0 </pre>

12.Commands for bpdu-tunnel

bpdu-tunnel-protocol

Command	bpdu-tunnel-protocol{stp gvrp dot1x user-defined-protocol <name>} no bpdu-tunnel-protocol {stp gvrp dot1x user-defined-protocol <name>}	
parameter	stp	enable bpdu-tunnel-protocol of stp function in port.
	gvrp	enable bpdu-tunnel-protocol of avrp function in port.
	dot1x	enable bpdu-tunnel-protocol of dot1x function in port.
	name	enable bpdu-tunnel-protocol of neme function in port, the protocol name range from 1 to 32 bytes, and it made up with character, data, underline and the head and tail character can not be underline
default	-	
Mode	Port Mode.	
Usage Guide	When finished configure bpdu-tunnel-protocol destination MAC address of some protocol, users can enable bpdu-tunnel-protocol function of protocol in port. Stp, gvrp or dot1x function mutex with bpdu-tunnel-protocol function in port, namely, if configured stp, gvrp or dot1x function in port, the bpdu-tunnel-protocol function of the protocol configured failed; if configured bpdu-tunnel-protocol function of this protocol in port, stp, gvrp or dot1x function can not configured in port.	
Example	Configure bpdu-tunnel-protocol to enable stp protocol in port 1/0/1. Switch(Config-If-Ethernet1/0/1)# bpdu-tunnel-protocol stp	

bpdu-tunnel-protocol group-mac

Command	bpdu-tunnel-protocol {stp gvrp dot1x} {group-mac <mac> default-group-mac} no bpdu-tunnel-protocol {stp gvrp dot1x}	
parameter	stp	configure bpdu-tunnel-protocol mac of stp protocol;
	gvrp	configure bpdu-tunnel-protocol mac of gvrp protocol;
	dot1x	configure bpdu-tunnel-protocol mac of dot1x protocol;
	mac	bpdu-tunnel-protocol mac address must be multicast address and

	it can not be protocol saved address, namely address between 01-80-c2-00-00-00 and 01-80-c2-00-00-30;
default-group-mac	the default mac address is 01-00-0c-cd-00-02.
default	-
Mode	Global Mode.
Usage Guide	This command must be configured before configure bpdu-tunnel-protocol in port.
Example	Configure 01-01-00-0c -00-02 bpdu-tunnel-protocol of stp protocol. Switch(Config)# bpdu-tunnel-protocol stp group-mac 01-01-00-0c -00-02

bpdu-tunnel-protocol protocol-mac

Command	bpdu-tunnel-protocol user-defined-protocol <name> protocol-mac <mac> {group-mac <mac> default-group-mac} no bpdu-tunnel-protocol user-defined-protocol <name>	
parameter	name	it is the protocol name and the protocol name includes 1 to 32 characters, and it makes up with character, data and underline, the head and tail character can not be underline;
	group-mac <mac>	it is the address of bpdu-tunnel-protocol mac and it must be multicast address, and it is not protocol saved address, namely the address between 01-80-c2-00-00-00 and 01-80-c2-00-00-30
	protocol-mac <mac>	it is the mac address of protocol;
	default-group-mac	The default mac address is 01-00-0c-cd-00-02
default	-	
Mode	Global Mode	
Usage Guide	The command must be configured before bpdu-tunnel-protocol in port.	
Example	Configure 01-01-00-0c-00-03 to be the bpdu-tunnel-protocol of mrpp protocol. Switch(Config)# bpdu-tunnel-protocol user-defined-protocol mrpp protocol-mac 00-03-0f-00-00-02 group-mac 01-01-00-0c -00-03	

bpdu-tunnel-protocol ethernetii

Command	bpdu-tunnel-protocol user-defined-protocol <name> protocol-mac
----------------	-----------------------------------------------------------------------------

	<mac> encaps-type ethernetii protocol-type <type> {group-mac <mac> default-group-mac} no bpdu-tunnel-protocol user-defined-protocol <name>	
parameter	name	it is the protocol name and the protocol name includes 1 to 32 characters, and it makes up with character, data and underline, the head and tail character can not be underline;
	protocol-mac <mac>	it is the mac address of protocol;
	type	the value of protocol and the format is xx-xx
	group-mac <mac>	it is the address of bpdu-tunnel-protocol mac and it must be multicast address, and it is not protocol saved address, namely the address between 01-80-c2-00-00-00 and 01-80-c2-00-00-30;
	default-group-mac	The default mac address is 01-00-0c-cd-00-02.
default	-	
Mode	Global Mode	
Usage Guide	The command must be configured before bpdu-tunnel-protocol in port.	
Example	Configure 01-01-00-0c-00-04 to be the bpdu-tunnel-protocol of lldp protocol. Switch(Config)# bpdu-tunnel-protocol user-defined-protocol lldp protocol-mac 01-80-c2-00-00-0e encaps-type ethernetii protocol-type 88-cc group-mac 01-01-00-0c-00-04	

bpdu-tunnel-protocol snap

Command	bpdu-tunnel-protocol user-defined-protocol <name> protocol-mac <mac> encap-type snap {oui <oui> } protocol-type <type> {group-mac <mac> default-group-mac} no bpdu-tunnel-protocol user-defined-protocol <name>	
parameter	name	it is the protocol name and the protocol name includes 1 to 32characters, and it makes up with character, data and underline, the head and tail character can not be underline
	protocol-mac <mac>	it is the mac address of protocol
	oui	the value of oui and the format is xx-xx-xx
	type	the value of protocol and the format is xx-xx
	group-mac <mac>	it is the address of bpdu-tunnel-protocol mac and it must be multicast address, and it is not protocol saved address, namely the address between 01-80-c2-00-00-00 and 01-80-c2-00-00-30
	default-group-mac	The default mac address is

	01-00-0c-cd-00-02
default	-
Mode	Global Mode
Usage Guide	The command must be configured before bpd-tunnel-protocol in port.
Example	Configure 01-01-00-0c-00-05 to be the bpd-tunnel-protocol of Apple Talk protocol. Switch(Config)# bpd-tunnel-protocol user-defined-protocol lldp protocol-mac 00-03-c2-00-00-05 encap-type snap oui 08-00-07 protocol-type 80-9b group-mac 01-01-00-0c -00-05

bpdu-tunnel-protocol llc

Command	bpdu-tunnel-protocol user-defined-protocol <name> protocol-mac <mac> encap-type llc dsap <dsap> ssap <ssap> {group-mac <mac> default-group-mac} no bpdu-tunnel-protocol user-defined-protocol <name>	
parameter	name	it is the protocol name and the protocol name includes 1 to 32 characters, and it makes up with character, data and underline, the head and tail character can not be underline
	protocol-mac <mac>	it is the mac address of protocol
	dsap	The dsap value of protocol and it ranges from 0 to 255
	ssap	The ssap value of protocol and it ranges from 0 to 255;
	group-mac <mac>	it is the address of bpdu-tunnel-protocol mac and it must be multicast address, and it is not protocol saved address, namely the address between 01-80-c2-00-00-00 and 01-80-c2-00-00-30
	default-group-mac	The default mac address is 01-00-0c-cd-00-02
default	-	
Mode	Global Mode	
Usage Guide	The command must be configured before bpdu-tunnel-protocol in port.	
Example	Configure 01-01-00-0c-00-06 to be the bpdu-tunnel-protocol of NetBIOS protocol. Switch(Config)# bpdu-tunnel-protocol user-defined-protocol lldp protocol-mac 00-03-c2-00-00-06 encap-type llc dsap 240 ssap 224 group-mac 01-01-00-0c -00-06	

13.Commands for EEE Energy-saving

eee enable

Command	eee enable no eee enable
parameter	-
default	-
Mode	Port Mode
Usage Guide	It supports that configure EEE energy-saving function for the appointed port. There is not the EEE energy-saving function on port as default. After configuring the port to enable EEE energy-saving function, the port will enter the energy-saving state if stop to send packets to the port, the state of port is down. When sending packets to the port, the mode will changed from power saving mode to normal mode.
Example	Enable EEE energy-saving function: Switch(config-if-ethernet1/0/1)#eee enable

14.Commands for LED shut-off

port-led shutoff time-range

Command	port-led shutoff time-range <time-range-name> no port-led shutoff		
parameter	<table><tr><td><i>time-range-name</i></td><td>it is the name of the time-range defined by user, it is made up by 1 to 64 characters including letters, numbers, underlines. The first and last characters cannot be the underlines</td></tr></table>	<i>time-range-name</i>	it is the name of the time-range defined by user, it is made up by 1 to 64 characters including letters, numbers, underlines. The first and last characters cannot be the underlines
<i>time-range-name</i>	it is the name of the time-range defined by user, it is made up by 1 to 64 characters including letters, numbers, underlines. The first and last characters cannot be the underlines		
default	-		
Mode	Global Configuration Mode		
Usage Guide	The LED shut-off function of the port can make all the LEDs off according to the configured time-range by user no matter what the link-act status is. It can save power. When there is no configured time-range, the default is all the times; when the range is exceeded, the port LED can be on according to the link-act status		
Example	Configure all the LEDs to be off in t1. switch(config)#: port-led shutoff time-range t1		